

**RESPONSE TO PUBLIC COMMENTS ON THE  
DRAFT POLICY FOR  
MAINTAINING INSTREAM FLOWS  
IN NORTHERN CALIFORNIA COASTAL STREAMS**

**VOLUME 1**

**JANUARY 2010**

**DIVISION OF WATER RIGHTS  
STATE WATER RESOURCES CONTROL BOARD  
California Environmental Protection Agency**

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## **EXECUTIVE SUMMARY**

The Draft Policy for Maintaining Instream Flows in Northern California Coastal Streams was released in December 2007. Over 600 comment letters were received from the public during and after the public comment period that ended May 1, 2008. These two volumes provide responses to these comments, which were prepared by State Water Board staff, Stetson Engineers, and R2 Resource Consultants. A table of contents is provided identifying the topics covered in each volume.

Additional comments were received after the public comments were compiled. On April 30, 2009, Trout Unlimited, Wagner and Bonsignore Consulting Engineers, and Ellison, Schneider, and Harris, LLP submitted Joint Recommendations for the North Coast Instream Flow Policy (TU/WB/ESH proposal), which contains recommendations for water right procedures and recommended review standards for calculating bypass flows and rates of diversions. Brian Johnson of Trout Unlimited submitted additional comments on November 12, 2009 and December 11, 2009. Staff's responses to these comments are provided in the following documents:

- Responses to comments contained in the Joint Recommendations
- Review of the TU/WB/ESH proposal, prepared by Stetson Engineers and R2 Resource Consultants, which contains a technical evaluation of the scientific aspects of Section 5 and the Appendix of the Joint Recommendations.
- Responses to Comments Received from Brian Johnson on November 12, 2009 and December 11, 2009.

Please note that these responses were prepared prior to the final revisions to the Draft Policy. The responses, therefore, do not reflect all wording, terminology, and section numbering changes that were incorporated into the February 2010 revision of the Draft Policy.

## LIST OF AGENCIES AND INDIVIDUALS SUBMITTING COMMENTS

Commenter Name and Affiliation	Acronym if any	Date(s) Received
Sam Aanestad, Senator 4th District and Bob Dutton, Senator 31st District		4/15/2008
Charles Acker		5/1/2008
Eric Adema		4/25/2008
Al Aflague		4/25/2008
Mike Airoidi		4/25/2008
Catherine Albers		4/25/2008
John Alcorn		4/25/2008
Pat Geib Alexander, Geib Ranch Vineyards		4/16/2008
Naomi Alvarez		4/25/2008
Steve and Rachael Alvarez-Jett		4/25/2008
Corrin Amaral		4/23/2008
Willis Andersen Jr.		5/1/2008
Chris Anderson		4/25/2008
John H. Anderson		4/25/2008
Myles Anderson		4/16/2008
Raul Anorve		4/25/2008
Anne Arns		4/17/2008
Bruce Ashley		4/25/2008
Drew Aspegren, Napa Valley Vineyard Engineering, Inc.		5/1/2008
Ilene Atkins		4/30/2008
Frank Atter		4/25/2008
Rebecca August		5/1/2008
Ron Avila		4/25/2008
Gary Bard		4/25/2008
Donald Barkemeyer		4/25/2008
Hugh Barron		4/25/2008
Vincent Bartolomei, Bartolomei Brothers Vineyard		4/29/2008
Joshua Basofin, Defenders of Wildlife; Don McEnhill, Russian Riverkeeper; and Linda Sheehan, California Coastkeeper Alliance		5/1/2008
Robert Battinich and Tom Spinardi, Aladdin Depot		5/1/2008
Paul Baumbach		5/2/2008
Hannah Beadman		4/25/2008
Kate Beck		4/30/2008
Charles Bell		4/25/2008
Sharon Bell		4/25/2008
Kevin Bendian		4/25/2008
Mercedes Benet		4/25/2008
Bruce Bennett		4/25/2008
Edward T. Bennett		4/25/2008
Gordon Bennett, Sierra Club Marin Group		5/8/2008
Brent Berge		4/25/2008
Tom Bertetta		5/1/2008

R. Stuart Bewley, Bewley/Motluk Family Limited Partnership	5/2/2008
Ray Binner	4/25/2008
Geoff Blachman	4/25/2008
Stephen Black	4/25/2008
John Blair	4/25/2008
Michael Bland	4/25/2008
Steve Bleasdel	4/25/2008
Diane Bolman	4/25/2008
Paul Bonaso	4/25/2008
Chris S. Bond	4/25/2008
Ashley Boren, Sustainable Conservation	4/29/2008
Gary Borgnino	4/25/2008
Walter A. Boring IV	4/25/2008
Carolyne Borst	4/25/2008
Barbara Bowne	3/18/2008
Peter Bradford, Bradford Ranch	4/17/2008
Craig Bradshaw	4/25/2008
Sherry Brainerd	4/25/2008
Diana Brand	4/25/2008
David Brandos	4/25/2008
Barbara Brenner	5/1/2008
William C. Briggs Jr.	4/25/2008
John Brinkley	4/25/2008
Matthew Brocchini	4/25/2008
Neil Brody	4/25/2008
Gary Brooks	4/25/2008
Carrie Brown	4/30/2008
Charlie Brown	4/25/2008
Joseph Buchbinder	4/25/2008
Tim Buckner	2/6/2008, 3/13/2008, 5/1/2008
Ross Bullard	4/25/2008
Jeb Burns	4/25/2008
Mary Burns, Sonoma County Regional Parks	5/1/2008
Kimberly Burr	5/1/2008
Dick Butler, US National Marine Fisheries Service	5/1/2008
Otto Cache	4/25/2008
Larry Cadd	5/1/2008
Michael Calkins	4/25/2008
Mike Callan	4/25/2008
Jack Campbell	4/25/2008
Wayne Campbell	4/25/2008
Demetra Canning	4/25/2008
Meghan Cannon	5/1/2008
Richard Cardella	4/25/2008
Sylvia Cardella	4/25/2008
Elizabeth Carey	5/1/2008
Aleesa Carlino	4/25/2008



Jeffery Carlton, Dutton Ranch Corporation	4/18/2008
Thomas Carpenter	4/16/2008
Joseph Celeste	5/6/2008
Robert Cerello	4/25/2008
Daryl Chan	4/30/2008
Tom Chandler, The Trout Underground	4/25/2008
Jeff Chaplin	4/25/2008
Jon-Mark Chappellet	5/1/2008
Cindy Charles	4/25/2008
Brian Churm, Potter Valley Growers, Inc.	4/16/2008
Vincent A. Ciolino, Montemaggiore	4/23/2008
Kirk Clague	4/25/2008
Dean Cobb	5/1/2008
Ned Coe, Bill Coe & Sons	4/16/2008
Howard Cohen	4/25/2008
Robert Cohen	5/2/2008
Bryan Coles	4/25/2008
Vira Confectioner	4/25/2008
Margaret Connell	4/25/2008
Kristin Conrad-Antoville	4/25/2008
Robert Cook	4/25/2008
Annette Cooley, Cooley Logging	1/0/1900
Casey Cooley	4/17/2008
Julie Cope	4/25/2008
Darren Cordova, MBK Engineers	5/1/2008
Sherri Corker	4/25/2008
Caitlin Cornwall	4/25/2008
Brian Cottingham	4/25/2008
Sandi Covell	4/25/2008
Jack L. Cox, Cox Vineyards	4/30/2008
Paul Crafts	4/25/2008
Eileen G. Crane, Champcal Estates	2/20/2008
Eileen G. Crane, Domaine Carneros	2/20/2008
Christopher Croson	4/25/2008
Greg and Karen Crouse	4/18/2008, 4/23/2008
Julius Cuanang	4/25/2008
John Curry and Janice Crow	5/2/2008
Kyle Daniels	5/1/2008
Elizabeth Darovic	4/25/2008
Bruce Dau	4/30/2008
John Davey	4/30/2008
Ryan Davidson	4/30/2008
Steve Davidson	4/30/2008
Jill Davine	4/30/2008
Richard Dawson	4/30/2008
David De Almeida	4/30/2008
N. de Wolfe	4/25/2008
B. Deckard	5/1/2008
Chris DeGabriele, North Marin Water District NMWD	5/1/2008
Matthew Deitch and Adina Merenlender, University of California, Berkeley	5/1/2008

John DeMartino	4/25/2008
Robert Dench	4/25/2008
Joyce and Ray Denne	4/25/2008
Edward J. Denson	4/25/2008
Richard Desrosiers	4/25/2008
Timothy Devine	5/1/2008
Larry Dickens	4/25/2008
Dino Dina, Ciamrossa Vineyards	4/28/2008
Jim Doerksen	5/28/2008
Christopher Dohring	4/16/2008
Kevin Douglass	4/25/2008
Michael Doyle	4/25/2008
Ellen Drell, The Willits Environmental Center	4/30/2008
Julie du Bois	4/24/2008
Charles Dunn	4/25/2008
Michael Dunn	3/3/2008
Sherry Katherine Dunn	5/1/2008
Tom Eakin, Peter Michael Winery	5/1/2008
Leilani Echols	4/25/2008
Alfred Edelbacher	4/21/2008
Burke Edwards	4/25/2008
Mark D. Edwards, North Coast Resource Management	5/1/2008
Gordon Ehrman	5/1/2008
Sandy Elles, Napa County Farm Bureau	4/16/2008
William Elliott	4/25/2008
Don R. Engler	4/25/2008
Steven Esgate	4/25/2008
Dinda Evans	4/25/2008
Lucinda Evans	4/25/2008
Michael Evans	4/25/2008
Mary Eaton Fairfield	4/25/2008
John Faivre	4/25/2008
Vicki Faivre	4/25/2008
Deborah Fallender	4/25/2008
Joseph Farfone	4/25/2008
Fred Farnsworth	4/25/2008
Douglas Farr	4/25/2008
Michael Farrar	4/25/2008
Ellen Faulkner, Acorn Growers Association	4/29/2008
Jeffrey R. Fecteau	4/25/2008
Brian Fedora	4/18/2008
Gary W. Feemster	4/25/2008
Terry Fernandez	4/30/2008
Adrienne Ferrari	4/30/2008
Nicholas Ferrari	5/1/2008
JB Ferrarone	4/30/2008
Melinda Fink	4/25/2008
Melvin W. Finke	4/30/2008
Paul Finkle	4/30/2008
Mark Fiore	4/25/2008

Kenneth Firl	4/25/2008
Thomas Firth	4/25/2008
Jonathan Fisch	4/25/2008
Ted Fishman	4/25/2008
Mitch Fleitz	4/25/2008
Kevin Floyd	4/25/2008
Paul Fluno Jr	4/25/2008
Jeanne Fobes	4/25/2008
Karen Fontanella, Fontanella Family Winery	5/1/2008
Frederick H. Forschler	4/25/2008
Roger E. Fox	4/25/2008
Lee Frank	4/25/2008
Margaret Frazier	4/25/2008
Jonah Freedman	4/25/2008
Jonathan Frey, Frey Vineyards	4/28/2008
Nick Frey, Sonoma County Winegrape Commission	2/14/2008, 4/30/2008, 8/6/2008
Louis Fry	4/25/2008
Joshua Fuller	5/1/2008
Debbie Gaadbois	4/25/2008
Malgaff Gaffney	4/25/2008
James Galsterer	4/25/2008
Tom Gamble, Gamble Ranch	4/17/2008
Gene Gantt	4/25/2008
David Garfin	4/25/2008
Courtney Gartin	4/25/2008
Patrick Garvey, Flora Springs Wine Company	3/14/2008
Richard Gates	4/25/2008
Gemma Geluz	4/25/2008
Jim Genes	4/25/2008
Leona Gerichter	4/25/2008
Yvonne Gesinger	4/25/2008
Sara and Gary Giannandrea, Three G's Hay and Grain	4/18/2008
Brian Gillespie	4/25/2008
Robert Giusti	4/25/2008
Janice and Jeanne Gloe	4/25/2008
Harry Goertz	4/25/2008
Don Goldman	4/25/2008
Eric Goldsmith, Sanctuary Forest	5/1/2008
Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers	KMTGE/WB 5/1/2008
Roz Goldstein	4/25/2008
Reg Gooden	5/1/2008
Donald Gordon, Gordon Family Ranch	4/21/2008
Susan Gorin, City of Santa Rosa	8/6/2008
Keith Gorzell	5/1/2008

Judith Graham	4/25/2008
David Graves, Saintsbury	5/1/2008
Wayne D. Gray	5/1/2008
George Graziadei-Marin	4/25/2008
Dennis Gregg	4/25/2008
Branwen Gregory	4/25/2008
Probyn Gregory	4/25/2008
James Grizzell	5/1/2008
Dominic Grossi, Marin County Farm Bureau	4/18/2008
Sandra Guldman, Friends of Corte Madera Creek Watershed	5/1/2008
Anthon Hahne	4/25/2008
Jay Halcomb et al, Sierra Club Redwood Chapter	5/1/2008
Jay Halcomb, Diane Beck, and Daniel Myers, Sierra Club Redwood Chapter	4/30/2008, 5/1/2008
David Hall	4/25/2008
Stephen Hall, Friends of the Navarro Watershed	4/24/2008
Ted Hall, Long Meadow Ranch	4/16/2008
Emily Hamilton	4/25/2008
Marcella Hammond	4/25/2008
Phillip Hansen	4/25/2008
Katherine Harnden, Harnden Ranches	4/17/2008
Barbara Jane Harpe	4/25/2008
Shirley Harris	4/25/2008
Allen Harthorn	4/25/2008
Richard Harvey	4/25/2008
Craig Harzmann	4/25/2008
David Haskell	4/25/2008
Duncan Hatch	4/25/2008
Bobbie Hawkins	4/25/2008
Richard Heilman	4/25/2008
Paul Helliker, Marin Municipal Water District    MMWD	5/1/2008
Stuart Helmintoller	4/25/2008
Mitch Hendrickson	4/25/2008
Michael Henstra	4/25/2008
John Hicks	4/25/2008
Thomas Hicks	4/25/2008
David Hickson	4/25/2008
Patrick Higgins, Consulting Fisheries Biologist/Sierra Club Redwood Chapter	4/15/2008
Douglas Higgs	4/25/2008
Mark Hilovsky and Rod Silva	5/1/2008
Megan Hockwalt	4/25/2008
Barry Hoffner	1/9/2008, 1/30/2008
Ryan Hogan	4/25/2008
Sylvia Holtz	5/1/2008
Alison Holzer	4/25/2008
Frank and Phyllis Hooper	5/1/2008
Lee Hudson, Hudson Vineyards	4/28/2008

Timothy Hunt		4/25/2008
Robert Hunter Jr.		5/1/2008
Joseph Hurlbut		4/16/2008
Leo Hurley, Wrath Cellars and Vineyard		4/16/2008
Gary Hurst		4/25/2008
Darrin Hutchins		4/25/2008
Nicole Hutchinson		4/25/2008
Gary Incaudo		4/25/2008
Drew Irby		4/25/2008
Alicia Jackson		4/25/2008
Linda Jameson		5/1/2008
Monroe Jeffrey		4/25/2008
Carey Jellison		5/1/2008
Karen Jine		4/25/2008
Chris Johnson		4/25/2008
Jesse Johnson		4/25/2008
Richard A. Johnson		4/25/2008
Sara Johnson		4/25/2008
Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society	TU/PAS	5/1/2008
Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers	TU/PAS/WB/ESH	5/1/2008, 11/13/2008, 11/24/2008, 12/2/2008, 1/15/2009, 1/27/2009, 3/9/2009
Penelope Johnstone		4/25/2008
Tina Jones		5/1/2008
Eric Jorgensen		4/25/2008
Kenneth L. Kahn, Blue Rock		4/28/2008
Howard Kastan		4/25/2008
David Katz and Huey Johnson, Resource Renewal Institute		5/1/2008
George B. Kauffman		4/25/2008
Russell Keegan		4/25/2008
Sam Keen		5/2/2008
Colleen Keith		4/25/2008
Lawrence M. Kenney		4/25/2008
Douglas O. Keowen		4/25/2008
Dave King		4/25/2008
Mary Ann King		4/25/2008
Laurie Kirk		4/25/2008
Walter W. Kitagawa		4/25/2008
Steven Klei		4/25/2008
Tom Klein, Rodney Strong Vineyards		4/23/2008
Basey Klopp		4/25/2008
Kendra Knight		4/25/2008
Raymond Knittle		4/25/2008
Donald Koch, State of California Department of Fish and Game	DFG	5/1/2008

Bill Kocher, City of Santa Cruz Water Department		5/1/2008
Mike Kohle		4/25/2008
Keith Korporaal		4/25/2008
Julie Kramer		4/25/2008
Dan Kratville		4/25/2008
K Krupinski		4/25/2008
Catherine Kuhlman, State of California Regional Water Quality Control Board, North Coast Region	NCRWQCB	5/1/2008
Charles Kuhn		4/25/2008
Dean Kuvelis		4/25/2008
Wayne Lamb		4/16/2008
Juliet Lamont		4/25/2008
Linda Lansky		4/25/2008
David Lass		4/25/2008
Robert Le Duc		5/1/2008
Lynn Leary		4/25/2008
Peter Lee		4/25/2008
Skip Leonard		4/25/2008
Martin Leugers		4/25/2008
Michelle Leung		4/30/2008
Harvey Levin		5/1/2008
Alan Levine, Coastal Action Group	CAG	4/14/2008, 12/2/2008
Donna Lewis		4/30/2008
Jerry Lewis		5/1/2008
Rudolph Light		4/25/2008, 8/7/2008, 2/9/2009
Alan Lilly, Bartkiewicz, Kronick & Shanahan/North Gualala Water Company		5/1/2008
KJ Linarez		4/25/2008
Eric C. Lindberg		4/25/2008
Barbara Lindsey		4/25/2008
William Lindstrom		4/25/2008
Don Lintz		5/1/2008
Chris London		5/1/2008
Donna Longacre		4/25/2008
John Lucas		4/25/2008
Douglas Lumgair, Windsor Oaks Vineyards & Winery		4/17/2008
Cindy Lyle		4/25/2008
Greg Maars		5/1/2008
Kent MacIntosh, MacIntosh Guide Service		4/25/2008
Jake Mackenzie, Russian River Watershed Association	RRWA	5/1/2008
Jake Mackenzie, Water Advisory Committee		8/6/2008
Steven MacRostie, MacRostie Winery and Vineyards		5/1/2008
Daniel P. Maher		4/25/2008
Chris Malan, Earth Defense for the Environment Now, Living Rivers Council		5/1/2008

Terry Mar	4/25/2008
Kathleen Marble	4/25/2008
John Marion	4/30/2008
Michael Marsden	4/25/2008
Anne Smith Martin	4/25/2008
Brad Martin	4/30/2008
Tim Martin	4/25/2008
Adrian and Mary Martinez	5/5/2008
Eileen Massey	4/25/2008
Elliott Matchett	4/30/2008
Kevin Mather	5/1/2008
KL Matlock	4/25/2008
Richard Matlock	8/8/2008
Ann Maurice, Ad Hoc Committee for Clean Water	4/29/2008, 4/30/2008
Russell McBurney	4/25/2008
JJ McCarthy, Cain Vineyard & Winery	4/29/2008
Gregory J. McCollum	5/1/2008
Sudi McCollum	4/25/2008
Anthony McDonnell	4/25/2008
Peggy McGuire	4/25/2008
Timo McIntosh	4/25/2008
Neil McLellan	4/25/2008
Dennis Meisner	4/21/2008
Jim Melet	4/25/2008
EJ Melzer	4/25/2008
Harry Merlo, Lago di Merlo Vineyards and Winery	4/21/2008
Krista Merrimac	4/25/2008
Scott Milener	4/25/2008
Harriet Miller	4/25/2008
Nathaniel Miller	4/25/2008
Robert Minuzzo	4/25/2008
Thomas Mitchell	4/25/2008
Raja Mitry	4/25/2008
Mark Momberg	4/25/2008
Dean Monroe	4/25/2008
Dwight Monson	4/30/2008
Anthony Montapert	4/25/2008
James Mooney	4/16/2008
Eric Moore	4/25/2008
Linda Morgan	4/25/2008
David Morris	4/25/2008
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## LIST OF ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
ACL	Administrative Civil Liability
AF/year	acre-feet/year
APA	Administrative Procedure Act
BLM	Bureau of Land Management
BMI	Benthic Macroinvertebrate
BMP	Best Management Practices
BORPELS	Board of Registration for Professional Engineers and Land Surveyors
CAG	Coastal Action Group
CAO	NCRCD gage location, Carneros at Old Sonoma Road
CAS	NCRCD gage location, Carneros Creek at Sattui
CCR	California Code of Regulation
CDF	California Department of Forestry
CDF&G	California Department of Fish and Game
CDFG	California Department of Fish and Game
CDO	Cease-and-Desist Order
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFII	Cumulative Flow Impairment Index
CPI	Consumer Price Index
CRLF	California Red-Legged Frog
CSPA	California Sportfishing Protection Alliance
CWA	Clean Water Act
DA	Drainage Area
DFG	California Department of Fish and Game
DG FMF	Draft Guidelines February Median Flow
DMV	Department of Motor Vehicles
DS	Diversion Season
DSOD	Division of Safety of Dams
DWR	California Department of Water Resources
EF Russian River	East Fork Russian River Tributary
EIR	Environmental Impact Report
EQIP	Environmental Quality Incentives Program
ESA	Endangered Species Act
ESH	Ellison, Schneider & Harris LLP
EWRIMS	Electronic Water Rights Information Management System
FAS	Fully Appropriated Stream
FERC	Federal Energy Regulatory Commission
FHF	Fundamental Habitat Factors
FMF	February Median Flow
FPRs	Forest Practice Rules
GIS	Geographic Information System
IFIM	Instream Flow Incremental Methodology
IRS	Internal Revenue Service
IS	Initial Study
ITP	Incidental Take Permits
KMTGE	Kronick, Moskovitz, Tiedeman & Girard, P.C. and Ellison, Schneider & Harris LLP

KRIS	Klamath Resource Information System
LWD	Large Woody Debris
MBF	Minimum Bypass Flow
MCD	Maximum Cumulative Diversion
MMWD	Marin Municipal Water District
MOU	Memorandum of Understanding
MTTU	McBain and Trush and Trout Unlimited
NA	No Author Name Available
NCRCD	Napa County Resource Conservation District
NCRWQCB	North Coast Regional Water Quality Control Board
NFMA	National Forest Management Act
NGO	Non-Governmental Organizations
NHI	Natural Heritage Institute
NMFS	National Marine Fisheries Service
NMWD	North Marin Water District
NOAA	National Oceanic and Atmospheric Administration
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NRC	National Research Council
NRCS	Natural Resources Conservation Service
NTMP	Nonindustrial Timber Management Plan
PAS	Peregrine Chapter of the National Audubon Society
PDO	Pacific Decadal Oscillation
PHABSIM	Physical Habitat Simulation
POD	Point of Diversion
PoE	Point of Evaluation
POI	Point of Interest
PSDA	Potential Streamflow Depletion Areas
QFP	Minimum Fish Passage Flow
Qm	Mean Annual Flow
QMBF	Minimum Bypass Flow
Qmean	Mean Annual Flow
QS	Spawning Flow
QWB	Winter Base Flow
RCD	Resource Conservation & Development Program
RCT	Riffle Crest Thalweg
RRWA	Russian River Watershed Association
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCS	Soil Conservation Service
SCWA	Sonoma County Water Agency
SCWC	Sonoma County Water Coalition
SDU	Small Domestic Use
SED	Substitute Environmental Document
SEP	Supplemental Environmental Project
SFBWQCB	San Francisco Bay Regional Water Quality Control Board
SRCD	Sotoyome Resource Conservation District
SWPPP	Stormwater Pollution and Prevention Plan
SWRCB	State Water Resources Control Board
TMDL	Total Maximum Daily Load

TU	Trout Unlimited
TU Form Letter	Group of commenters that submitted the Trout Unlimited form letter
ULS	Upper Limit of Anadromy
UPA	Upper Point of Anadromy
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UWMP	Urban Water Management Plan
WAA	Water Availability Analysis
WB	Wagner & Bonsignore
WDR	Waste Discharge Requirement
WRD	Water Rights Division
WRIMS	Water Rights Information Management System



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Neil McLellan	4/25/2008
Jim Melet	4/25/2008
EJ Melzer	4/25/2008
Krista Merrimac	4/25/2008
Scott Milener	4/25/2008
Harriet Miller	4/25/2008
Nathaniel Miller	4/25/2008

<b>Commenter Name and Affiliation</b>	<b>Date Received</b>
Robert Minuzzo	4/25/2008
Thomas Mitchell	4/25/2008
Raja Mitry	4/25/2008
Mark Momberg	4/25/2008
Dean Monroe	4/25/2008
Anthony Montapert	4/25/2008
Eric Moore	4/25/2008
Linda Morgan	4/25/2008
David Morris	4/25/2008
Lindsay Mugglestone	4/25/2008
Jeff Muscatine	4/25/2008
Guido Muzzarelli	4/25/2008
Scott Myers	4/25/2008
Gary Myerson	4/25/2008
Tomas Nakada	4/25/2008
Marc Nathanson	4/25/2008
NA, Ecology Center of Southern California	5/1/2008
NA, Trout Unlimited	1/0/1900
Charles Nelson	4/25/2008
Richard Nelson	4/30/2008
Alice Neuhauser	4/25/2008
Fiona Nolan	4/25/2008
J. Richard Noss	4/25/2008
Sarah Nossaman	5/1/2008
Mike O'Brien	4/25/2008
Theodore O'Hirok	4/25/2008
William O'Kelly	4/25/2008
Matthew Olrich	4/25/2008
James Organ	4/25/2008
Mark Ostrom	4/25/2008
Duke Otoshi	4/25/2008
Cheri Pan	4/25/2008
Rosiris Paniagua	4/25/2008
Marguerite Panzica	4/25/2008
Erika Parker	5/6/2008
Ian Parrott	4/25/2008
Christine Pasmore	4/25/2008
Steve Paulson	4/25/2008
Tamara Pearn	4/25/2008
Dean Peppard	4/25/2008
Ronald Peters	4/25/2008
Kimberly Peterson	4/25/2008
Daniel Phelps	4/25/2008
Mark Philips	4/25/2008
Rob Phillips	4/25/2008
Alan Plante	5/1/2008
Joan Poss	4/25/2008
Nate Powell	4/25/2008

<b>Commenter Name and Affiliation</b>	<b>Date Received</b>
Charlene Price	5/1/2008
Parker Pringle	4/25/2008
Parker Proffitt	4/25/2008
James Provenzano	4/25/2008
Daniel Prows	4/25/2008
John F. Przonek	4/25/2008
Peter Przybylinski	4/30/2008
Jim Queen	4/25/2008
Michael Quinn	5/1/2008
Patricia Quinn	4/25/2008
Anne Rabago	4/25/2008
Billy Rainbow	4/25/2008
Ron Ramsey	4/25/2008
Dwain Raney	4/25/2008
Bruce Raskin	4/25/2008
Maryellen Redish	4/25/2008
Miriam Redstone	4/25/2008
John Reilly	4/25/2008
Thomas Reynolds	4/25/2008
Ann Rice	4/25/2008
Chris Rich	4/25/2008
Pamela Richard	4/25/2008
Matt Richardson	5/6/2008
Heather Rider	4/25/2008
Dale Riehart	4/25/2008
Kieran Ringgenberg	4/25/2008
Mike Rogers	4/25/2008
Rick Rosner	4/25/2008
Marie Ross	4/25/2008
Mary Rossi	4/25/2008
Henry Roux	4/25/2008
Paul J. "Chris" Rozmajzl	4/25/2008
Michael Rubin	4/25/2008
Ana Rudolph	4/25/2008
Alexander Rufus-Isaacs	5/6/2008
Kim Ryals	5/1/2008
Therese Ryan	4/25/2008
Cynthia Sabatini	5/1/2008
Thomas Sabol	5/1/2008
Joe Salazar	4/25/2008
Lisa Salazar	5/1/2008
Elsa Saldana	4/25/2008
Tim Samuel	4/25/2008
Gustavo Sandoval	4/25/2008
Ameer Sanghvi	4/25/2008
Norman A. Sauer, Yuba River Preservation Foundation	4/25/2008
Elizabeth Saveri	4/25/2008



<b>Commenter Name and Affiliation</b>	<b>Date Received</b>
Dan Saylor	5/1/2008
Matt Schaefer	4/25/2008
William Schneiderman	4/25/2008
Steve Schramm	4/25/2008
Charles Schultz	4/25/2008
Don Schwartz	4/25/2008
Frank Scott	4/25/2008
William Scrimpsheer	4/25/2008
Julie Sebenoler	4/25/2008
Robert Seltzer	4/25/2008
Gary Seput	4/25/2008
Ward Shandoff	4/25/2008
Sid Shapiro	4/25/2008
Mark Shelton	4/25/2008
Marcia Sherman	4/25/2008
Harold Shively	4/25/2008
Arthur Siegel	4/25/2008
Maja Silberberg	4/25/2008
Marc Silverman	4/25/2008
Philip Simon	4/25/2008
Robert Slocum	4/25/2008
Edwina Smith	4/25/2008
Jack Sohl	4/25/2008
Connor Soraghan	4/25/2008
Scott Stange	4/30/2008
George Starn	4/25/2008
David Steinberg	4/25/2008
Jack Stevens	4/25/2008
Matt Stoecker	4/25/2008
Amy Stone	4/25/2008
Stella Strand	4/25/2008
Arthur Strauss	4/25/2008
Gary Strawn, San Diego Stream Team	4/25/2008
William Stumpf	4/25/2008
Joseph Sturla	4/25/2008
Amber Sumrall	4/25/2008
Harry Surtees	4/25/2008
Richard Surwillo	4/25/2008
George and Nancy Sutherland	4/25/2008
JoAnne Sutton	5/6/2008
Larry Svelund	4/25/2008
John D. Swain	4/25/2008
Ernie Swanson	4/25/2008
Joseph Szabo	4/25/2008
Linda Tabor-Beck	4/25/2008
Ron Tatsui	4/25/2008
Tom Taylor	4/25/2008
Mary Tealdi	5/1/2008

<b>Commenter Name and Affiliation</b>	<b>Date Received</b>
James Tejani	4/25/2008
Lauren Temkin	5/1/2008
William J. Thoma	4/25/2008
Mo Tidemanis	4/25/2008
Bryan Todd	4/25/2008
Mark Tompkins	4/25/2008
Andy Tomsy	4/25/2008
Scott Trulik	4/25/2008
Eben Twombly	4/25/2008
Richard Unger	4/25/2008
Barbara Ungersma	4/25/2008
Mark Van Hoomissen	4/30/2008
Roy Vanderleelie	4/25/2008
Barb Varellas	5/1/2008
Anne Vitale	4/25/2008
Alan Voigt	5/2/2008
Barbara Voss	5/6/2008
Matthias Wagener	5/1/2008
Dan Waligora	4/25/2008
Roger Watson	4/25/2008
Susan Watts-Rosenfeld	4/25/2008
James Webb	4/25/2008
D. Eugene Wedge	4/25/2008
Gerald Weisbach	4/25/2008
Henry Wen	4/25/2008
Lori Wessely	4/25/2008
Jack West	4/25/2008
Rick Wheaton	5/1/2008
Jan Whitacre	4/25/2008
James White	5/1/2008
Michael White	4/25/2008
Jennifer Wilde	4/25/2008
Audrey Williams	4/25/2008
Roger A. Williams	4/25/2008
Leland Wilson	4/25/2008
Justin Wiltz	4/25/2008
Brent Wingett	5/1/2008
Joseph Wofford	4/25/2008
Tim Wood	4/25/2008
Lee Woods	4/25/2008
Nina Wouk	4/30/2008
James Wright	4/25/2008
Steviann Yanowitz	4/25/2008
Loretta Young	4/25/2008
Matt Young	4/25/2008
Guy Zahlier	4/25/2008
Robert Zeches	4/25/2008

## 1.0 Policy Approach

### Topic 1.1 Policy Approach - General

**Comment 1.1.1:** There are positive environmental benefits of small municipal diversions that are perhaps overlooked. For example, our local districts have, over the years, commented on timber harvest plans. Those comments have resulted in greater stream protection zones, better silvicultural methods, better erosion management plans and less chemical usage. This "canary in the coal mine" effect of small municipal diverters may have a better overall habitat influence than the restrictions imposed by a poorly implemented instream flow policy. *(Charles Acker)*

**Response:** Comment noted.

**Comment 1.1.2:** The Draft Policy impairs the ability of many farmers to make improvements to fish habitat. *(Pat Geib Alexander, Geib Ranch Vineyards; Corrin Amaral; Anne Arns; Carrie Brown; Jeffery Carlton, Dutton Ranch Corporation; Thomas Carpenter; Brian Churm, Potter Valley Growers, Inc.; Ned Coe, Bill Coe & Sons; Annette Cooley, Cooley Logging; Casey Cooley; Christopher Dohring; Alfred Edelbacher; Sandy Elles, Napa County Farm Bureau; Brian Fedora; Nicholas Ferrari; Tom Gamble, Gamble Ranch; Sara and Gary Giannandrea, Three G's Hay and Grain; Donald Gordon, Gordon Family Ranch; Dominic Grossi, Marin County Farm Bureau; Ted Hall, Long Meadow Ranch; Katherine Harnden, Harnden Ranches; Joseph Hurlbut; Leo Hurley, Wrath Cellars and Vineyard; Wayne Lamb; Dennis Meisner; James Mooney; Robert Mueller, McKenzie-Mueller Vineyards and Winery; Peter Nissen, Napa County Farm Bureau; Jack Olsen, San Mateo County Farm Bureau; Butch Parton; Frost Pauli; Loren Poncia; George Rau; Barbara Reed; Steve Reese, Denner Ranches Inc.; Annette Rhodes, Rhodes Vineyards; Richard Rhodes, Rhodes Vineyards; Jay Russ, J. Russ Company; Erin Russell; Gary Sack, California Farm Bureau; Tito Sasaki, Sasaki Vineyards; Janet Sclar, Amity Heritage Roses; R. Simcoe, Mast Ranch Vineyard, FLP; William Smith; Al Wagner, Clos Du Val Wine Company; Gary Wilsey, Wilsey Vineyard, LLC; Silvie Wilson; Terrence Wilson, Rancho Chimiles; Windy Wilson; Kristi Wrigley)*

**Response:** The Draft Policy is intended to protect fish habitat and does not prevent farmers from implementing habitat improvements. DFG is the agency responsible for permitting habitat improvement projects.

**Comment 1.1.3:** We need a common sense peer reviewed approach to regulation in California to have a chance at sustainability of anything. The people and businesses that must comply with poorly written legislation cannot simply raise taxes or play with numbers to stay afloat. Wake up California, business cannot continue to pay for this kind of government. *(Myles Anderson)*

**Response:** Comment noted. The Draft Policy has undergone an external peer review pursuant to the requirements of Health and Safety Code section 57004.

**Comment 1.1.4:** During the workshop in Santa Rosa, we were made aware that no scientific data compiled by any of the applicants Engineers or Environmental Consultants was used to form the new proposed policy. This seems to raise a very big legal question in our mind. We are wondering, if possibly, if there is another agenda in the formation of this new policy. *(Robert Battinich and Tom Spinardi, Aladdin Depot)*

**Response:** All approaches and alternatives proposed during the Scoping Process were considered in the development of the Policy. It was not practicable to consider information

provided in individual water right applications for the entire Policy area. The Scientific Basis (R2, 2007) relied upon a substantial amount of information, reports, and peer reviewed journal articles that demonstrate the importance of certain flow related characteristics on salmonid ecology listed in Section 11.

**Comment 1.1.5:** Rather than suggesting an expensive solution to a non-problem, each watershed should be looked at on an individual basis in order to determine the unique problems they face. Each watershed is different and each will have its own solutions. For one watershed, it may require planting trees to shade the stream during the summer months, on another fence on both sides of the stream to exclude cattle, on a third, digging wells rather than pumping from the creek in the late summer and early fall. (*R. Stuart Bewley, Bewley/Motluk Family Limited Partnership*)

**Response:** Section 12 of the Draft Policy provides a watershed approach alternative that allows water right applicants within a watershed to pool resources to prepare technical analysis and documents in support of water right applications.

**Comment 1.1.6:** The mandate from the state legislature is clear - the board shall adopt principles and guidelines for maintaining instream flows in coastal streams (Water Code 1259.4). In an effort to support agency action the legislature went so far as to declare that (2) The board may adopt principles and guidelines for maintaining instream flows not described in paragraph (1), agencies must exercise their authority to fulfill mandated duties. (Water Code 1259.4). The policy must make clear that the emphasis is on reversing the effects of over-appropriated streams on the aquatic species. Such a remedy would place compliance, enforcement, and restoration well ahead of processing of new permit applications. (*Kimberly Burr*)

**Response:** The Draft Policy responds to the legislative mandate to adopt principles and guidelines for maintaining instream flows. Many of the Draft Policy's provisions affect pending and new water right applications. Existing water rights may be affected by the Draft Policy if changes to projects cause reduction in stream flows. The Draft Policy has a section on enforcement (Section 11), which includes compliance provisions. Existing water rights have always been subject to the continuing authority of the State Water Board to protect public trust uses and to prevent the waste or unreasonable use of water. Staff is considering revisions to the Draft Policy that would provide incentives for authorized diverters to modify diversions to enhance conditions for fish and wildlife.

**Comment 1.1.7:** Take this opportunity, as is your duty, to exercise your authority. Make it clear in the proposed policy that it is not the mission of resource agencies to oversee the demise and disappearance of the fishery. Expressly state and emphasize that it is the intent of the agencies to recover the fishery and that the agencies intend to immediately begin to reverse the tragic trend of fishery collapse. This must be the stated policy from which all methods and processes emanate and upon which all decisions and questions fall back. Let the public be put on Notice and seek its cooperation. (*Kimberly Burr*)

**Response:** Comment noted. The Policy focuses on measures to protect native fish populations, with a particular focus on anadromous salmonids and their habitat.

**Comment 1.1.8:** And finally, the principles of statutory construction creates in the state the prerogative to adopt legislation and regulations that are more protective of the resources with which it has been entrusted, but the state cannot make laws that are less protective. To the extent that the policy is consistent with existing law and or strengthens protections and

authorities of agency staff, the policy will be proper. *(Kimberly Burr)*

**Response:** Comment noted.

**Comment 1.1.9:** The stated proposed policy methodology for making determinations (watershed analysis - linked to permits and analysis related to exceptions) need to be linked to the necessary environmental review standards mandated under CEQA. To put it simply, unpermitted/unauthorized diversions and water impoundments, must comply not only the permitting process (both Water Code and DFG Code), they also fall under project analysis details of CEQA. This holds true for any permitting that would occur under the "watershed" approach or basis, where watershed analysis and resulting conditions applied to a group action to meet minimum flow, or bypass flow, standards would necessarily fall under the required CEQA noticing and responsible agency and public review and comment process. *(Alan Levine, Coastal Action Group)*

**Response:** Comment noted. The State Water Board considers approving the issuance of a water right permit after a water diversion project undergoes environmental review at a project-level basis.

**Comment 1.1.10:** It is important to note that impaired flows affect other aquatic species (as beneficial uses). The Policy should explore the nexus of maintaining sufficient instream flows to mitigate pollutant inputs should be explored - as these factors are linked with salmonid survival. Much of the related and supporting science can be found in the factors discussion in the State's list of Water Quality Limited Segments 303(d) list. *(Alan Levine, Coastal Action Group)*

**Response:** The State Water Board's 303(d) list for the North Coast Regional Water Quality Control Board lists several watersheds along the north coast impaired for temperature. The 303(d) list states that water diversion is one of the contributable causes for elevated stream temperatures. Sections 2.1, 2.2, 2.3, 2.4, 2.5, 5.1, and 5.2 in the Scientific Basis Report discuss the importance of stream temperature for salmonid life cycles. The proposed diversion season of October 1 through March 31 would place a cap on the amount of diversion occurring during other parts of the year. The Draft Policy thus would ensure that summer habitat conditions will not deteriorate beyond conditions already imposed by existing permitted diversions. New water diversions would not be allowed outside of the October 1 through March 31 window unless a site-specific study shows that the diversion would have no impact on the fishery resource. As indicated elsewhere in this response document, staff is reevaluating the diversion season and considering using a shorter period of December 15 through March 31.

**Comment 1.1.11:** The policy seeks to establish "principles and guidelines" for maintaining instream flows for the protection of fishery resources. Why fragment the policy, and its potential, by not considering other beneficial uses connected to flows (as these issues do relate to salmonid survival)? *(Alan Levine, Coastal Action Group)*

**Response:** In developing the Draft Policy, the State Water Board responded to the legislative counsel's digest which expressed the need for a policy consisting of measures to protect native fish populations, with a particular focus on anadromous salmonids and their habitat.

**Comment 1.1.12:** It is unclear how the currently proposed policy differs from the DFG-NMFS 2002 Draft Guidelines, and how the proposed policy will protect anadromous fish and aquatic life from the deleterious effects of diversion. *(Alan Levine, Coastal Action Group)*

**Response:** The differences between the Draft Policy and DFG-NMFS 2002 Draft Guidelines are described throughout the Scientific Basis Report (R2, 2009). The protective basis for the Draft Policy is discussed in detail in Appendix D of the Scientific Basis report (R2, 2007).

**Comment 1.1.13:** The policy focuses solely on fish spawning and includes no consideration of water availability throughout the season. (*Nick Frey, Sonoma County Winegrape Commission*)

**Response:** The Policy focuses on measures to protect native fish populations, with a particular focus on anadromous salmonids and their habitat. The regional criteria of the Draft Policy for diversion season is 10/1 - 3/31 however applicants for projects with sufficient water supply outside of the diversions season may choose perform a site-specific study to establish a diversion season appropriate for the hydrology and fish resource requirements at their particular location. Applications are required to perform a water availability analysis as part of the water right application process required by the Policy.

**Comment 1.1.14:** The draft Policy is a major step towards protecting and conserving stream flows vital to the survival of California's anadromous salmonids. (*Joshua Fuller*)

**Response:** Comment noted.

**Comment 1.1.15:** The exporting of water for agricultural interests in the Central Valley must stop. (*Richard Gates*)

**Response:** The State Water Board is not aware of any authorized diversion of water from the policy area to the Central Valley.

**Comment 1.1.16:** The Policy should be scrapped in favor of a more holistic one that has a much higher likelihood of achieving the goals of restoration. (*David Graves, Saintsbury*)

**Response:** Comment noted. The Policy provides a watershed approach alternative that allows a more holistic approach by a watershed group (Policy Section 12).

**Comment 1.1.17:** By looking solely at peak flows, the State Water Board has missed many opportunities to address the entire habitat and life cycle of the fish. (*David Graves, Saintsbury*)

**Response:** The Draft Policy does not look solely at peak flows. Its provisions for diversion season, minimum bypass flow and permitting requirements for onstream dam protect other elements of fish habitat, as well. The Draft Policy was not designed to provide a comprehensive evaluation of other limiting factors that may impact fish habitat and the life cycle of the fish. The State Water Board is developing this policy in response to Water Code section 1259.4, which requires the State Water Board adopt a policy for maintaining instream flows for the purposes of water right administration.

**Comment 1.1.18:** The Policy does not reflect intent of the Legislature and does not protect public trust values. (*Jay Halcomb et al, Sierra Club Redwood Chapter*)

**Response:** The legislative digest for AB 2121 directed the State Water Board to develop principles and guidelines to ensure that new water right permits include appropriate fish measures that are protective of anadromous salmonid and related aquatic resources. The Draft Policy accomplishes this goal.

**Comment 1.1.19:** Do not issue additional permits for streams that formerly supported juvenile salmonid rearing but now are dry for any period of the year and were not historically intermittent. *(Patrick Higgins, Consulting Fisheries Biologist/Sierra Club Redwood Chapter)*

**Response:** Chapter 1 of the Scientific Basis report explains the need for protecting flows in streams formerly supporting juvenile steelhead, including upstream of artificial barriers, and in ephemeral streams.

**Comment 1.1.20:** As the primary outside sponsor of A.B. 2121 we applaud the State Water Board for its progress on the Policy and look forward to working with you to make it final. Although there are a number of improvements that we strongly recommend as crucial to a successful final Policy, the draft represents a significant step forward for water management. In general, it reflects a credible, responsible, and scientifically-based approach. *(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society)*

**Response:** Comment noted.

**Comment 1.1.21:** The Draft Policy proposes three strategies for processing a water right application: standard Regionally Protective Criteria; site-specific studies; and the "watershed approach." These strategies are sound. It is also appropriate to include guidelines for fish passage and fish screens, standards for restricting onstream dams, measures for gravel and large woody debris augmentation, and a description of the procedural mechanics for obtaining a permit. The draft Policy's approach to these topics is generally appropriate; we suggest a number of recommendations designed to improve it further. *(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society)*

**Response:** Comment noted.

**Comment 1.1.22:** The Policy should take a broader and longer view of its mandate. As drafted, it is a credible attempt to establish principles and guidelines for processing new water right applications. But this is a narrower topic than that prescribed by A.B. 2121, which requires "principles and guidelines for maintaining instream flows" for "water right administration." (Water Code section 1259.5.) *(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society)*

**Response:** Comment noted. The commenter is referring to detailed comments regarding water right administration. Staff's responses to these detailed comments are found elsewhere in the document, and in the responses to the April 30, 2009 Draft Joint Recommendations for the North Coast Instream Flow Policy.

**Comment 1.1.23:** While Trout Unlimited and Peregrine Audubon generally support the framework set forth in the Draft Policy, as far as it goes, we are concerned that it takes an unduly constricted view of the task at hand - "water rights administration" "for the maintenance of instream flows." As we stated in our Joint Principles with the water consultants, we believe the Policy should take broader view of its charter. *(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society)*

**Response:** See response to 1.1.22.

**Comment 1.1.24:** The Draft Policy states that it "establishes principles and guidelines for maintaining instream flow for the protection of fishery resources." (Policy, p. 2.) That is the

correct purpose, but the probable effect of the policy will not achieve that purpose. The policy will not adequately address the cumulative effects of diversions under existing licenses, permits, or other claims of right; and it will not motivate non-filers to come into the water right system. *(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society)*

**Response:** The Draft Policy contains provisions for a water availability analysis that requires water right applicants to account for senior diverters, including unpermitted water right applications with higher priority, and any claims of pre-1914 or riparian water right. Water Code section 5101 requires unpermitted water diverters to file a Statement of Water Diversion and Use unless certain exceptions apply. The Division intends to contact the owners of unpermitted impoundments and inform them that they must file a Statement of Water Diversion and Use or explain why the provisions of Water Code section 5100 et seq. do not apply to the impoundment. Those who fail to file within the time allowed will be assessed a monetary penalty consistent with amendments to Water Code section 5107 which become effective in February 2010. The State Water Board will review the information contained in submitted Statements of Water Diversion and Use to identify which of the impoundments and diversions are likely to be illegal and to identify the potential impacts of the impoundment. This information will be used to determine enforcement priorities within the policy area.

**Comment 1.1.25:** The Draft Policy states that the State Water Board considered the 2002 NMFS/DFG Joint Guidelines. (Policy, p. 2.) The Draft Policy proposes three basic non-exclusive strategies for processing water right applications and petitions: (1) incorporating "Regionally Protective Instream Flow Criteria;" (2) completing site-specific studies to support a variance from the Regional Criteria; and (3) as a group with watershed-based site-specific studies and a coordinated water diversion and stream flow plan. (Id.) We support this framework. (See Joint Principles, p. 3.) *(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society)*

**Response:** Comment noted.

**Comment 1.1.26:** We strongly support the implementation of a new policy that conforms to the directives of AB2121 and that includes the adoption of the Joint Guidelines. However, we find that the draft policy presented by the Water Board to be inadequate in addressing AB2121 and that it also completely fails to present a workable solution to bringing the current situation of illegal diversions under control. To be perfectly clear, we feel that the proposed draft policy neither present solutions that will properly implement state laws in regard to water rights nor suitably protects the public trust inherent in such rights. Water rights and their enforcement are a complex administrative and management problem. The Draft Policy, as presented, offers an inadequate response that seems to be mostly political in nature. We ask the Board to reject the existing Draft Policy until the primary concerns we raise below are addressed. Our concerns are not just minor revisions or line corrections of various elements; we believe the Draft Policy is deeply flawed and unacceptable. Until these major issues are addressed it does not make sense for us to supply feedback on minor items found in the document. *(David Katz and Huey Johnson, Resource Renewal Institute)*

**Response:** Comment noted. The commenter is referring to detailed comments regarding enforcement, funding, and the watershed approach that were included in his comment letter. Responses can be found in the corresponding sections of this document.

**Comment 1.1.27:** The Policy currently uses diversion limitations on flow (MBF3, MCD2) in an



attempt to equate these flow metrics to biologic response. Uncertainties remain regarding equating flow metrics to actual biologic response. A more straight-forward approach would be to establish biologic criteria in the Policy for watershed specific evaluation as to whether appropriate levels of protectiveness were being provided. Biologic criteria could directly incorporate elements such as number of days of passage, number of days of spawning, etc. Biologically-based criteria could be established that consider a suite of various lifestage considerations. For example, it is not necessarily germane that a site- or watershed-specific location provides passage, if it does not provide adequate habitat conditions for subsequent lifestages (e.g., spawning, incubation, rearing, outmigration), particularly under unimpaired conditions. Such situations may be appropriately considered to be exempt from Policy requirements. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** It is because of such site-specific uncertainties that the Draft Policy regional criteria should be conservative. Accordingly, site specific studies are the best way to determine if a longer diversion season, lower MBF, and/or higher MCD rate compared with the draft Policy regional criteria would be protective. It is not possible to develop corresponding regional criteria because biologically based criteria of the type described may vary in the way they control populations from site to site and it is difficult to link production changes quantitatively to environmental covariates. For example, there are no clearly defined regional criteria in terms of number of days that are protective vs. not. Site specific study is therefore a necessary condition for identifying more accurately the fishery resource instream flow needs of a particular location. The Draft Policy contains provisions for site specific studies.

**Comment 1.1.28:** Among the acknowledged stressors causing fishery decline in North Coast streams are high temperatures and low streamflows during summer months. The Draft Policy would address these issues only in part, by prohibiting new diversions from April 1 through September 30, which is the dry, warm, irrigation season. However, at the same time, the Draft Policy makes any shift by riparians from summertime direct diversions to wintertime reservoir storage more difficult, if not impossible; despite the fact that winter diversion and storage is a practice widely acknowledged as being more beneficial to fish than summer diversions. The water availability analysis, bypass flow requirement and passive bypass flow facilities, peak flow diversion prohibition, shortened diversion season, and mandated highly technical habitat management plans all work together to render winter water storage projects uneconomic and virtually infeasible.

The Draft Policy proposes no incentives for landowners with existing summer diversion rights to convert their projects to winter storage operations; in fact, the Draft Policy makes such a shift exceedingly difficult, if not impossible. Due to their inability to achieve a more environmentally friendly water supply, landowners can be expected to continue their reliance on summertime diversions under their riparian or pre-1914 water rights.

By adopting a policy that makes obtaining a permit for winter stream diversion economically and physically infeasible, the Water Board will assure that unregulated practices continue and probably increase. This is an unintended consequence of the Draft Policy, which represents a missed opportunity by the Water Board to proactively support real water management change for the benefit of instream resources.

This unintended consequence was identified by several parties during the scoping process and made known to the Water Board in several comment letters, including those from Sanctuary

Forest, Regional Water Quality Control Board, San Francisco Bay Region, and North Marin Water District. Despite notice of the possibility of these unintended effects, the Water Board failed to address the issue of accommodating programs such as the Mattole Flow Program or other environmentally helpful water programs which will be deterred by the blanket application of the Draft Policy. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Staff is considering revisions to the Draft Policy that would provide incentives for authorized diverters to modify summer diversions to enhance conditions for fish and wildlife.

**Comment 1.1.29:** The Draft Policy also requires costly preparation by pre-approved paid professionals, of mitigation plans for non-native species eradication, gravel and woody debris enhancement, even where a proposed water project will have no impact on these attributes of fish habitat. (SED, p. 22.) Due process and common fairness require that permit conditions relate to impacts that are likely to be caused by diversions and water use under the requested permit; they are not an opportunity for remediation of pre-existing conditions in the general area. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** The Draft Policy's provisions on mitigation plans pertain to the project that is the subject of the water right application.

**Comment 1.1.30:** The policy applies not to those causing the most harm but to those who happen to need a regulatory approval, such as an extension of time, or a change to their water right. This does not seem like a fair or effective approach. It means that needing a regulatory approval is to be avoided at all cost. It will discourage changes that would otherwise bring the water right holder into compliance or increase water use efficiency, the very type of actions the State should encourage. *(Bill Kocher, City of Santa Cruz Water Department)*

**Response:** Comment noted. Staff is considering revisions to the Draft Policy that would provide incentives for authorized diverters to modify their diversions to enhance conditions for fish and wildlife.

**Comment 1.1.31:** RWQCB1 supports the concept of an instream flow policy, and supports the idea of establishing instream flow thresholds, individual water availability analyses, and instream flow analyses to determine whether a specific project will contribute to a cumulative reduction in instream flow that will be unsupportive of water quality or salmonid health. *(Catherine Kuhlman, State of California Regional Water Quality Control Board, North Coast Region)*

**Response:** Comment noted.

**Comment 1.1.32:** The Policy does not distinguish between streams listed as 303(d) impaired and those without impairments. It does not acknowledge the unique considerations that water bodies listed for sediment, temperature, and/or hydromodification require for the re-attainment of water quality standards. *(Catherine Kuhlman, State of California Regional Water Quality Control Board, North Coast Region)*

**Response:** The Instream Flow Policy was not designed to differentiate between streams that are impaired for water quality and those that are not. This policy affects water diversions which

take water from the stream rather than discharges of pollutants to streams. The policy was designed to provide water diverters guidelines regarding the method by which water may be diverted and still maintain minimum stream flows and flow variability to ensure maintenance of habitat for salmonids. Any water right application considered by the State Water Board shall consider water quality control plans, and the application may be subject to terms the State Water Board may consider appropriate to carry out such plans. Regional Boards are notified of the proposed projects and are provided the opportunity to submit a protest. Terms and conditions for resolution of their protest may include that the applicant is required to receive a waste discharge permit or waiver from the Regional Board.

**Comment 1.1.33:** The Policy should include a mechanism for coordination with the Regional Board on TMDL implementation. *(Catherine Kuhlman, State of California Regional Water Quality Control Board, North Coast Region)*

**Response:** Any water right application considered by the State Board shall consider water quality control plans and may subject such applications to such terms the State Water Board may consider appropriate to carry out such plans. Regional Boards are notified of the proposed projects and are provided the opportunity to submit a protest. Terms and conditions for resolution of their protest may include that the applicant is required to receive a waste discharge permit or waiver from the Regional Board. The Division of Water Rights is responsible for 401 certifications for water development projects and where applicable will require the applicant to apply for and receive a 401 certification as a condition of approval and prior to any diversion and use of water. The Board includes a standard permit term in all water right permits that reserves the right of the State Water Board to reopen the permits or licenses to add or change the terms and conditions of approval to protect public trust uses and to prevent waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of water. This standard term would authorize the Board to reopen permits to consider whether to impose provisions developed through TMDLs to the extent that the provisions may be necessary to protect public trust uses or prevent the unreasonable use or unreasonable method of diversion of water. No action will be taken to modify or change any permit terms unless the State Water Board determines after notice to the affected parties and opportunity for hearing that the changes are warranted.

**Comment 1.1.34:** The Policy does not consider the need to provide special protection of refugial streams. This is critical not only to the protection of salmonids in the policy area, but in many cases to the protection of other water quality parameters as well. *(Catherine Kuhlman, State of California Regional Water Quality Control Board, North Coast Region)*

**Response:** The Draft Policy reflects the need to protect instream flow needs in all streams, including refugia streams. The Policy cannot address all factors adversely affecting refugia streams. The Draft Policy was not designed to provide a comprehensive evaluation of other limiting factors that may impact fish habitat and the life cycle of the fish. The State Water Board is developing this policy in response to Water Code section 1259.4, which requires the State Water Board adopt a policy for maintaining instream flows for the purposes of water right administration.

**Comment 1.1.35:** The State Water Board should reassess the basis for the Policy, and make revisions as necessary to incorporate water quality protection, because the analysis did not substantively consider the effect of the Policy on water quality objectives in the Basin Plan, the thresholds of concern developed in TMDLs, or the listings of streams in the policy area on the 303(d) list as water quality impaired. *(Catherine Kuhlman, State of California Regional Water*

*Quality Control Board, North Coast Region)*

**Response:** Pursuant to Water Code section 1259.4, the State Water Board is required to adopt principles and guidelines for maintaining instream flows in northern California coastal streams as part of state policy for water quality control (commencing with Water Code section 13140) for the purposes of water right administration. The Draft Instream Flow Policy affects water diversions which take water from the stream rather than discharges of pollutants to streams, and was not designed to differentiate between streams that are impaired for water quality and those that are not. The policy was designed to provide water diverters guidelines regarding the method by which water may be diverted and still maintain minimum stream flows and flow variability to ensure maintenance of habitat for salmonids. Any water right application considered by the State Water Board is subject to other terms and conditions outside of the Instream Flow Policy that are site-specific. Water right applicants shall consider water quality control plans, and the application may be subject to terms the State Water Board may consider appropriate to carry out such plans. Regional Boards are notified of the proposed projects and are provided the opportunity to submit a protest. Terms and conditions for resolution of their protest may include that the applicant is required to receive a waste discharge permit or waiver from the Regional Board.

**Comment 1.1.36:** The proposed Policy shows a preference for allowing as much diversion as possible, while minimally supporting the habitat requirements of salmonids. The Policy should be recrafted to fully support salmonids, with provisions that allow for relaxation of the protection measures if appropriate, based on site specific monitoring and/or additional analysis. *(Catherine Kuhlman, State of California Regional Water Quality Control Board, North Coast Region)*

**Response:** The Draft Policy was developed to minimally support optimal habitat conditions in all streams including those most sensitive to diversion effects, which is not the same as minimally supporting habitat requirements. The Draft Policy regional criteria are intended to be conservative regionally, and thus may be overly protective relative to instream flows in many streams where site specific data are not available. At the same time, the Draft Policy attempts to balance instream flow needs with diversion needs and allow as much diversion as possible without adversely affecting the instream flow needs of salmonids and other aquatic life.

**Comment 1.1.37:** This Policy complicates the application procedure beyond all recognition and is contrary to AB2121 and to the intent of the Trout Unlimited Peregrine Audubon Petition of October 27, 2004 to improve the application procedure. One of the purposes often stated by the Water Board and others is to reduce the backlog of applications and to make decisions in a timely manner. The new Policy does nothing of the sort. It requires entirely new classes of regulations and restrictions, e.g., completely new engineering methods to calculate water availability and instream flows, new requirement standards for bypass flow structures, environmental remediation and mitigation plans, and others. It adds new regulations to the class of small domestic use and livestock ponds by including registration for these minor water uses in the Policy. The Policy substitutes unknown procedures that are untested in Northern California for determination of water availability and instream flow criteria such as minimum bypass flow rate and maximum cumulative diversion rate. Each of these provisions makes the whole process more complicated. Each will result in years of delay and great expense for each applicant. There is no time line for the numerous submissions and reviews and no time line for response by any agency. It is especially unfair to those with pending applications who have either complied or done their best to comply with every new requirement and rule for the last decade which have seen with no progress in the application process. *(Rudolph Light)*

**Response:** Water right applicants are required by law to show that there is water available for diversion. This includes accounting for senior water diversions and water that is needed for recreation and preservation and enhancement of fish and wildlife resources. Even without an adopted policy, water right applicants would need to demonstrate water availability. Currently, they have the option of demonstrating this by showing the project complies with the NMFS-DFG Draft Guidelines. Most, if not all, of the hydrologic analysis recommended by the NMFS-DFG Draft Guidelines would be utilized as part of the analysis requirements for the proposed policy. As proposed, the Draft Policy would allow the State Water Board to consider processing water right applications submitted prior to January 1, 2008 using the DFG-NMFS guidelines.

Registration of small domestic and livestock stockpond uses is already required by Article 2.7 of the Water Code. The Draft Policy proposes general conditions on these uses, pursuant to Water Code section 1226.

Staff notes the concern regarding timelines for submission of reports and agencies responses to water right applications, and will consider these concerns when making revisions to the Draft Policy.

**Comment 1.1.38:** An alternative approach is needed that will provide on-the-ground scientific and technical evaluations of actual streams rather than blanket application of generic one-size-fits-all screening criteria. A watershed approach can encourage a broad set of action such as fish passage improvements, stream shading, and shifting of existing spring, summer, and fall diversions to the winter rainy season. Working together in a watershed, property owners, public agencies, and conservation groups can contribute to local efforts actually beneficial to fish while also providing for regional economic viability and regulatory certainty. (*Steven MacRostie, MacRostie Winery and Vineyards*)

**Response:** See section D.5 in Appendix D of the Task 3 report for a discussion of how the Draft Policy does not and cannot constitute a one-size-fits all approach. The Draft Policy does not attempt to predict instream flow needs for each stream, and instead relies on a protective regional criterion to establish a suitable threshold flow below which uncertainty on site-specific instream flow needs can be addressed by site specific study. The option for conducting site specific studies was included in the Policy as a means to allow the collection and evaluation of more information specific to a given stream, with the recognition that one-size does not fit all and that stream conditions can be highly variable between and even within a given watershed. However, the option to conduct such studies is up to the individual applicant. Absent such, the Draft Policy allows applicants to use a set of criteria that are conservatively protective throughout the policy area that Staff believes will maintain instream flow conditions for anadromous fish.

The Draft Policy provides provisions for a watershed approach to permitting water right applications in Section 12. In addition, staff is considering revisions to the Draft Policy that would provide incentives for authorized diverters to modify diversions to enhance conditions for fish and wildlife.

**Comment 1.1.39:** The Policy should thoroughly consider drought conditions and construct drought policies. (*Chris Malan, Earth Defense for the Environment Now, Living Rivers Council*)

**Response:** Section A.1.1 of the Draft Policy states that 10 complete years of stream flow records be used to assess water availability. This should provide adequate data for assessing water availability with various water year types. In addition, the State Water Board has adopted a Water Recycling Policy which was developed to increase the use of recycled water. The State

Water Board plans to develop additional policies to encourage the use of stormwater, encourage water conservation, encourage the conjunctive use of surface and groundwater, and improve the use of local water supplies.

**Comment 1.1.40:** The substantial effort put into drafting this document is obvious and should be commended. I strongly believe that this document is an important step in a multi-agency collaboration to conserve economically and ecologically valuable fisheries and other aquatic natural resources. *(Elliott Matchett)*

**Response:** Comment noted.

**Comment 1.1.41:** The policy tries to avert possible problems with the Endangered Species Act (ESA) by incorporating high bars against water diversion into the Water Code. Our duty is to maintain the Water Code's internal consistency and integrity. The ESA is an external factor that has to be dealt with as such. Imagine one day, for example, a Homeland Security law demands some water right decisions to be changed to an opposite direction. Do we want the Water Code revisions to flip-flop every time when overriding restrictions come about from other bodies of law? *(Mike Morris, North Bay Agriculture Alliance)*

**Response:** The State Water Board is developing this policy pursuant to California legislation. Water Code section 1259.4 requires the State Water Board adopt a policy for maintaining instream flows for the purposes of water right administration.

**Comment 1.1.42:** Work with the present and prospective water right applicants to devise a generalized policy statement that sets forth a basic mechanism for addressing the external legal (ESA) restrictions on water diversion. *(Mike Morris, North Bay Agriculture Alliance)*

**Response:** Section 2.2 of the Draft Policy provides general policy statements that addressing ESA concerns through the implementation of five policy principle statements.

**Comment 1.1.43:** Establish a "minor application" category (e.g., those involving diversions of up to 3 cfs or storage up to 200 ac-ft/yr) that will require no environmental impact study unless it is in a critical habitat area. *(Mike Morris, North Bay Agriculture Alliance)*

**Response:** Comment noted. Staff is reevaluating the flow related criteria in the Draft Policy based on consideration of the comments and suggestions that have been received.

**Comment 1.1.44:** California Water Code section 1707 would be one of the avenues the National Park Service may pursue to improve stream flows. They suggested the draft policy make mention of this code section. *(Don Neubacher, US National Park Service, Point Reyes National Seashore)*

**Response:** Comment noted. Staff is considering revisions to the Draft Policy that would provide incentives for authorized diverters to modify diversions to enhance conditions for fish and wildlife.

**Comment 1.1.45:** The Draft Policy seems to be reverse engineered allowing almost no water to remain in Mendocino County whereas the larger watersheds and the valley floors within Sonoma County are not so affected. Whether this was intentional or not, it is the outcome for Mendocino County. *(Richard and Annette Rhodes, Rhodes Vineyards)*

**Response:** Comment noted. The Draft Policy was designed to be protective of instream flows for fish, and was not reverse engineered. The commenter did not provide sufficient information to provide a more detailed response.

**Comment 1.1.46:** It would be in the best interests of the State Water Board to undertake a collaborative process involving all the major stakeholders (farmers, land/watershed stewards, domestic and industrial water users, State Water Board, DFG, water consultants, scientists) to come up with a Policy that includes geographically relevant analysis and scientific data. *(Alex Ryan, Duckhorn Wine Company)*

**Response:** Comment noted.

**Comment 1.1.47:** CSPA commends the Board and its consultants for the thoroughness and diligence they exercised in the effort to make the Draft Policy scientifically based. Each of the key elements of the Draft Policy, Minimum Bypass Flow, Maximum Cumulative Diversion, and Season of Diversion, is essential for the protection of instream resources. We believe that the formulas arrived at in the Draft Policy are a good starting place. Provided that the same degree of scientific rigor and standards for protectiveness are maintained, we might be able to support some changes in the formulas, if good cases were made by affected stakeholders. *(Chris Shutes, California Sportfishing Protection Alliance)*

**Response:** Comment noted.

**Comment 1.1.48:** Urge the State Water Board to take decisive actions to conserve stream flows and to help put salmon and steelhead back on the road to recovery. *(TU Form Letter)*

**Response:** Comment noted.

**Comment 1.1.49:** The Water Board should strive to understand and manage surface water resources within the broader context of a watershed, by examining the relationships between people, land and water. Similar to the "watershed approach" suggested in the policy, the Water Board should consider a companion alternative means of increasing and managing stream flow within a watershed, such as the development of alternative water sources by municipalities, agriculture and private land owners, alternatives in forest and upland land management practices, potential decommissioning or modification of existing water resources infrastructure and direct support for community-based initiatives that reduce water demand and improve water use efficiencies *(Brad Wagenknecht, Napa County Board of Supervisors)*

**Response:** Although these appear to be good suggestions, they are outside the jurisdiction of the Division of Water Rights.

**Comment 1.1.50:** It is not clear if the policy's regulatory actions and rules are aligned with other policies/regulations that are currently approved or under development by the State and Regional Water Quality Control Boards in our area (i.e., Region 1, 2, and 5). Inconsistency among compliance, permitting, monitoring and reporting requirements of these interrelated regulatory programs will result in confusion, failure to attain policy goals and public/community discontent for the Water Board and Regional basin planning processes. As with any policy, enforcement and oversight is imperative. The Water Board must be willing to provide the necessary oversight and enforcement for this and the many other State policies under development. *(Brad Wagenknecht, Napa County Board of Supervisors)*

**Response:** Comment noted. Division staff recognize the importance of providing adequate oversight and enforcement of the adopted policy. However, the State Water Board's funding is limited. The State Water Board will balance non-enforcement tasks with the need to address violations. It will also balance the importance or impact of each potential enforcement action with the cost of that action.

**Comment 1.1.51:** The Policy should be consistent with the all goals in the Recovery Strategy for California Coho Salmon (2004) which was developed by stakeholders (including SWRCB, CalTrout, California Cattleman's Association and California Farm Bureau representatives), finalized by the Department of Fish and Game (DFG) and formally adopted by the Fish and Game Commission. The following specific Range Wide actions must be addressed in the Policy:  
7.1 Streamflow: RW-I-B-01, RW-I-D-01, RW-I-D-02, RW-I-D-06, RW-I-D-08.  
7.2 Water Rights: RW-II-A-01, RW-II-A-02, RW-II-A-04, RW-II-A-05, RW-II-B-01, RW-II-B-02, RW-II-B-03.  
7.3 Fish Passage: RW-III-A-02, RW-III-C-01.  
7.6 Water Temperature: RW-X-B-01.  
7.10 Habitat Fragmentation: RW-XVI-B-01, RW-XVI-B-02.  
7.11: Competition: RW-XVIII-A-03.  
7.16 Public Outreach: RW-XXVIII-B-01.  
7.17 Integration with Other Plans and Programs: RW-XXX-B-06, RW-XXXI-A-02.  
7.18 Permitting: RW-XXXI-B-07.  
7.19 Watershed Planning: RW-XXXII-B-02.  
7.20 Enforcement of Existing Laws: RW-XXXIII-A-01, RW-XXXIII-A-02, RW-XXXIII-A-03, RW-XXXIII-A-04, RW-XXXIII-A-05, RW-XXXIII-A-08.

*(Alan Levine, Coastal Action Group; Thomas Weseloh, California Trout Keeper of the Streams)*

**Response:** Comment noted. Staff notes that many, but not necessarily all, of the Range Wide actions are addressed in the Policy, including in particular, those pertaining to Streamflow, Water Rights, Fish Passage, Water Temperature and Habitat Fragmentation (related to fish passage and connectivity). The Policy also explicitly addresses Enforcement and as well includes several Monitoring components.

**Comment 1.1.52:** The Policy needs to establish whether existing levels of instream flow, especially in the southern portion of the Policy area, are protective of anadromous salmonids, and if not, the actions that should be taken to achieve protective instream flows. *(Bruce Wolfe, State of California Regional Water Quality Control Board, San Francisco Bay Region)*

**Response:** Water Code section 1259.4 requires the State Water Board to develop principles and guidelines for maintaining instream flows for the purposes of water right administration. It also allows the State Water Board to consider the DFG-NMFS 2002 Draft Guidelines in the interim. The Draft Policy provides methodology for water right applicants to assess the impact of their proposed projects on existing stream flows. Proposed water right projects undergo CEQA review. It is anticipated that implementation of the policy will be part of the evaluation of whether proposed projects impact biological resources.

## **Topic 1.2 Policy Approach - 2002 DFG-NMFS Draft Guidelines**

**Comment 1.2.1:** The sad truth is that we do need a policy for Instream Flows, but we need one that works. This Policy needs to be scratched. Let Applicants return to the standards of the Draft Guidelines, which were already "conservative" in the words of Steve Herrera. This Draft Policy simply doesn't accomplish the real goals of AB 2121, to streamline the application



process and improve conditions for the fish. Rather, it snarls the application process while inflicting unjustifiable grief on property owners and salmonids alike. As a lifelong conservationist, I am sorry to see this turn of events. It is very, very sad. *(Tim Buckner)*

**Response:** The regional criteria used in the Draft Policy and those in the DFG-NMFS 2002 Draft Guidelines were explicitly compared in the Scientific Basis. The analysis in the Scientific Basis showed the regional criteria proposed in the Draft Policy are protective throughout the policy area, while the DFG-NMFS 2002 Draft Guidelines were only partially protective. Although the Legislative Counsel's Digest on AB 2121 and Water Code 1259.4 indicate that the Instream Flow Policy should be designed to improve conditions for fish, neither document states that the State Water Board's policy should be designed to streamline the application process.

**Comment 1.2.2:** Does the State have the funds to implement such policy? Would not less complex policy, as per the 2002 DFG/NMFS Guidelines be easier, less costly, and more effective to implement? Should not unpermitted impoundments and dams blocking migration and fish access to habitat be immediately removed? *(Alan Levine, Coastal Action Group)*

**Response:** Water right applicants are required by law to show that there is water available for diversion. This includes accounting for senior water diversions and water that is needed for recreation and preservation and enhancement of fish and wildlife resources. Even without an adopted policy, water right applicants would need to demonstrate water availability. Currently, they have the option of demonstrating this by showing the project complies with the NMFS-DFG Draft Guidelines. Most, if not all, of the hydrologic analysis recommended by the NMFS-DFG Draft Guidelines would be utilized as part of the analysis requirements for the proposed policy. The NMFS-DFG Draft Guidelines allow for site specific study, so does the proposed Policy.

The regional criteria used in the Draft Policy and those in the DFG-NMFS 2002 Draft Guidelines were explicitly compared in the Scientific Basis. The analysis in the Scientific Basis showed the regional criteria proposed in the Draft Policy are protective throughout the policy area, while the DFG-NMFS 2002 Draft Guidelines were only partially protective.

The Division of Water Rights does not have the authority to require removal of onstream dams; but it does have the authority to require the dam owner to render the dam incapable of storing water.

**Comment 1.2.3:** In 2002, both the National Marine Fisheries service and the California Department of Fish & Game adopted a joint "Instream Flow Policy" which your Board could have used as a model to adopt. *(Patrick Porgans, Patrick Porgans and Associates, Inc./Pacific Coast Federation of Fishermen's Association)*

**Response:** The criteria and principles noted in the DFG-NMFS 2002 Draft Guidelines were carefully reviewed and considered during the development of the Draft Policy. Four of the main elements in the Draft Policy (minimum bypass flow, maximum cumulative diversion, diversion, and permitting requirements for onstream dam) were patterned after those provided in the DFG-NMFS 2002 Draft Guidelines. The Draft Policy is also consistent with the DFG-NMFS 2002 Draft Guidelines in that it contains provisions for site specific studies. The regional criteria used in the Draft Policy and those in the DFG-NMFS 2002 Draft Guidelines were explicitly compared in the Scientific Basis. The analysis in the Scientific Basis showed the regional criteria proposed in the Draft Policy are protective throughout the policy area, while the DFG-NMFS 2002 Draft Guidelines were only partially protective.

**Comment 1.2.4:** The State Board appears to have ignored the Legislature's suggestion that the 2002 DFG-NMFS Draft Guidelines be adopted as instream flow guidelines, even if they later need to be amended. Although AB 2121 does not explicitly require the adoption of these standards, it states that the State Board's "adoption of these guidelines is necessary for the protection of fishery resources even if these guidelines are required to be amended from time to time." Instead, rather than deferring to the federal and state agencies with the expertise to make these types of decisions (the California Department of Fish and Game and the National Marine Fisheries Service), the State Board attempts to formulate a new approach without having the necessary scientific expertise and without receiving sufficient technical support. (*Paul "Skip" Spaulding, Farella Braun + Martel LLP/Golden Vineyards*)

**Response:** The criteria and principles noted in the DFG-NMFS 2002 Draft Guidelines were carefully reviewed and considered during the development of the Draft Policy. This analysis can be found in the Scientific Basis Report (R2, 2007). Four of the main elements in the Draft Policy (minimum bypass flow, maximum cumulative diversion, diversion, and permitting requirements for onstream dam) were patterned after those provided in the DFG-NMFS 2002 Draft Guidelines. The Draft Policy is also consistent with the DFG-NMFS 2002 Draft Guidelines in that it contains provisions for site specific studies. The regional criteria used in the Draft Policy and those in the DFG-NMFS 2002 Draft Guidelines were explicitly compared. The analysis in the Scientific Basis showed the regional criteria proposed in the Draft Policy are protective throughout the policy area, while the DFG-NMFS 2002 Draft Guidelines were only partially protective. The Draft Policy is a refinement of the recommendations of the DFG-NMFS 2002 Draft Guidelines using additional and more detailed analysis by practiced experts in the field of instream flow needs for salmonids, including anadromous species. The comments received from the DFG and NMFS during the public comment period have not questioned the scientific basis behind the recommendations of the Draft Policy. In addition, external technical peer reviewers have indicated the scientific basis is sound.

### **Topic 1.3 Policy Approach - Forest Management**

**Comment 1.3.1:** I can fully appreciate the need to protect the habitat of the remaining anadromous fish populations. I question, however, the effectiveness of a policy that only restricts water diversions while apparently ignoring the main cause of the deteriorated fish habitat. To implement an instream flow policy without consideration of the wider causes of habitat degradation seems short-sited. There are local, regional and global impacts of our forestry policies that remain essentially unaddressed. Healthy forests mean healthy watersheds. Addressing the issue at the root cause (poor forest management) will benefit the fish and the people while doing much to benefit the global warming problem as well. (*Charles Acker*)

**Response:** Staff acknowledges that factors other than the flow elements addressed in the Draft Policy can influence anadromous salmonid populations. The AB2121 legislation did not provide a mechanism for addressing the other factors impacting fish populations besides flow, as it enacted for the purposes of water right administration. The scope of the Draft Policy was to develop a process for permitting new water right applications. The Draft Policy was not designed to provide a comprehensive evaluation of all factors impacting fish populations.

**Comment 1.3.2:** Mark West Creek and its tributaries have been great spawning grounds for steelhead, silver and king salmon. About 5 to 6 years ago, water levels became totally erratic with every year being worse than the previous year. Small storms now are providing an almost instantaneous runoff followed by an immediate low flow in the creek. The summertime flows appear to be down by about 70 to 80% from 10 years ago. At a neighborhood meeting I heard

that large tracts of forest above my property had been turned into vineyards and wineries built. Experts point out that the lowering of the water table in the upper reaches of the watershed by these activities will in short order eliminate the remaining fish. I don't see this issue being addressed in your documentation. If it is not, then large numbers of fish will disappear in areas where intense agriculture takes place in the upper watershed, and much monies will be wasted on policies that will have little effect on helping fish. I understand that some counties are aware of the problem and are taking remedial actions, but Sonoma County most certainly is not one of them. I have gathered thousands of pages of backup material, numerous photos, stream and rainfall records of Mark West Creek to prove the results of this upper watershed denuding of forests for intensive agricultural development. *(Jim Doerksen)*

**Response:** The Policy applies to water diversions from all streams and tributaries in the Policy area that are subject to the State Water Board's water right permitting authority, including extractions from subterranean streams. The Policy does not directly apply to land use activities, but to the extent that land use activities, such as conversion of forested land to vineyard, involve water diversion that requires a new water right permit from the State Water Board, then the Policy would apply.

The Policy does not apply to extractions from percolating groundwater because such extractions are not subject to the State Water Board's water right permitting authority. Accordingly, the SED recognizes that the Policy could give rise to increases in groundwater extraction as affected parties take actions in response to the Policy requirements. Section 6.2 of SED, in particular Table 6-3, describes the possible environmental impacts resulting from increased groundwater extraction, including reduction in stream flow. Certain actions that affected parties take to increase groundwater extraction would be subject to CEQA review at the "project-level" and the lead agency would be required to adopt mitigation measures to reduce significant project impacts, including cumulative impacts such as reduction in streamflow, to a level of less than significant.

**Comment 1.3.3:** I encourage the protection of the forest as a watershed. *(Harris Nussbaum)*

**Response:** Comment noted.

**Comment 1.3.4:** The sedimentation experienced in north coast rivers has had a massive impact on maintaining instream flows. As sediments accumulate in our rivers, water increasingly flows beneath or within those gravels and becomes unavailable as instream flow for fish or humans. To date Forest Practice Rules and the lack of a grading ordinance has allowed watershed erosion to increase massively over background levels. Are those industries responsible for such sedimentation being held accountable, or just those trying to use the increasingly scarce surface water resources? *(Edward Wallo, Yorkville Vineyards; Stephen Whitaker, Irish Beach Water District)*

**Response:** The Policy does not directly apply to land use activities such as forestry or grading, but these activities would be analyzed on a project level basis for water diversion projects needing a water right permit, because such projects are subject to CEQA review. After CEQA review, the lead agency would be required to adopt mitigation measures to reduce significant project impacts, including sedimentation of streams, to a level of less than significant. Staff further points out that forestry and grading are regulated by other state and local agencies.

## Topic 1.4 Policy Approach - Anadromous Fish Population Decline

**Comment 1.4.1:** The State Board has been unable to determine the extent in which instream flows are necessary to maintain the fishery nor have they accounted for the many other factors impacting fish populations besides flow. *(Pat Geib Alexander, Geib Ranch Vineyards; Corrin Amaral; Myles Anderson; Vincent Bartolomei, Bartolomei Brothers Vineyard; Peter Bradford, Bradford Ranch; Carrie Brown; Jeffery Carlton, Dutton Ranch Corporation; Thomas Carpenter; Brian Churm, Potter Valley Growers, Inc.; Ned Coe, Bill Coe & Sons; Annette Cooley, Cooley Logging; Casey Cooley; Christopher Dohring; Sandy Elles, Napa County Farm Bureau; Brian Fedora; Nicholas Ferrari; Tom Gamble, Gamble Ranch; Dominic Grossi, Marin County Farm Bureau; Katherine Harnden, Harnden Ranches; Joseph Hurlbut; Leo Hurley, Wrath Cellars and Vineyard; Dennis Meisner; James Mooney; Peter Nissen, Napa County Farm Bureau; Jack Olsen, San Mateo County Farm Bureau; Butch Parton; Frost Pauli; Loren Poncia; George Rau; Barbara Reed; Steve Reese, Denner Ranches Inc.; Annette Rhodes, Rhodes Vineyards; Richard Rhodes, Rhodes Vineyards; Jay Russ, J. Russ Company; Erin Russell; Gary Sack, California Farm Bureau; Tito Sasaki, Sasaki Vineyards; Janet Sclar, Amity Heritage Roses; Al Wagner, Clos Du Val Wine Company; Gary Wilsey, Wilsey Vineyard, LLC; Silvie Wilson; Terrence Wilson, Rancho Chimiles; Windy Wilson)*

**Response:** Appendix D to the Task 3 report (Introduction and Section D.1) discusses the difficulty of quantifying the effects of instream flows on fish population size. It is because of such uncertainties in the site-specific instream flow needs that the draft Policy regional criteria should be conservative in the absence of site specific data. Staff acknowledge that factors other than flow elements addressed in the Draft Policy can influence anadromous salmonid populations. However, the scope of the Draft Policy was to develop a process for permitting new water right applications. AB2121 does not provide a mechanism for addressing the other factors impacting fish populations besides flow. The Draft Policy was not designed to provide a comprehensive evaluation of all such factors.

**Comment 1.4.2:** Stream dewatering and loss of habitat due to water diversions is a contributing factor in the decline of several populations of steelhead and coho salmon in central and southern California coastal streams (Busby et al. 1996; Titus et al. 1999; DFG 2002) *(Dick Butler, US National Marine Fisheries Service)*

**Response:** Staff concurs with this comment.

**Comment 1.4.3:** There are many other critical factors in sustaining a steelhead population that are completely ignored by the proposed Policy. *(David Graves, Saintsbury)*

**Response:** Staff acknowledges that factors other than the flow elements addressed in the Draft Policy can influence anadromous salmonid populations. NMFS stated in its public comments on the Draft Policy that “stream dewatering and loss of habitat due to water diversion is a contributing factor in the decline of several populations of steelhead and coho salmon in central and southern California coastal streams”. The agency further stated that “the manner in which a state approves appropriative water rights has the potential to promote the ‘take’ of listed species; however it also has the potential to reduce and greatly limit the take of those species.” The AB2121 legislation did not provide a mechanism for addressing the other factors impacting fish populations besides flow, as it enacted for the purposes of water right administration. The scope of the Draft Policy was to develop a process for permitting new water right applications. The Draft Policy was not designed to provide a comprehensive evaluation of all factors impacting fish

populations.

**Comment 1.4.4:** The Introduction of the Draft Policy does not explicitly mention the rapid expansion of vineyards nor identifies the associated 1771 unpermitted dams as significant factors in causing salmonid population declines. *(Jay Halcomb, Diane Beck, and Daniel Myers, Sierra Club Redwood Chapter)*

**Response:** The Introduction of the Draft Policy already adequately states that water diversion, in general, has resulted in a significant loss of fish habitat.

**Comment 1.4.5:** Even as a single-purpose salmonid-protection policy, the Draft Policy fails to justify its stringent measures as providing measurable benefits to the region's fish resources. It assumes, without supporting analysis, that preventing diversion of streamflow will improve and protect the North Coast fisheries. While the Draft Policy discusses the physical attributes of fishery habitat related to streamflow, it undertakes no quantified analysis of the extent or manner in which these attributes are currently limiting fish populations in the North Coast streams, nor of the impact of existing diversions and pending applications on these factors. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Staff acknowledge that the Draft Policy is focused primarily on streamflow related elements that are deemed protective of anadromous salmonid populations. The technical basis behind the elements rests upon the substantial amount of information, reports, and peer reviewed journal articles that demonstrate the importance of certain flow related characteristics on salmonid ecology. Section 11 of the Scientific Basis (R2, 2007) provides references relied upon during the development of the Policy. In addition, NMFS stated in its public comments on the Draft Policy that “stream dewatering and loss of habitat due to water diversion is a contributing factor in the decline of several populations of steelhead and coho salmon in central and southern California coastal streams”. The agency further stated that “the manner in which a state approves appropriative water rights has the potential to promote the ‘take’ of listed species; however it also has the potential to reduce and greatly limit the take of those species.” Assessing the extent to which such factors are influencing specific North Coast streams was beyond the scope of the work needed to develop the Draft Policy.

**Comment 1.4.6:** Commenter provides literature citations on Pacific Salmonids and the Russian River, and states that these sources show that the decline of salmonids has many causes, and is complex and confusing. *(Rudolph Light)*

**Response:** Comment noted

**Comment 1.4.7:** Anecdotes indicate that fish were plentiful in many watersheds up and down the Russian River, but have become scarce to rare or even endangered. The influence of Lake Mendocino on their decline cannot be overestimated. This dam destroyed more than 100 miles of spawning habitat but the subsequent water release schedule from the lake over the last 50 years has also been detrimental to populations. The same scenario played out with Dry Creek and Lake Sonoma in 1983 after Warm Springs Dam was completed. Official stream surveys were infrequent but all professionals agree that historical numbers of all salmonids were much higher in the past than they are now. Hatcheries near Warm Springs Dam and Coyote Dam have raised millions of fish but this has not stopped the decline of the salmonid population. Prevention of new agricultural ponds could not be much help to the recovery of fish populations when there are so many other factors, especially the presence of large dams and the severely

compromised mainstem of the Russian River. (*Rudolph Light*)

**Response:** Comment noted. However, the existence of factors such as dams and diversions that have had and may continue to have a profound influence on salmonid populations within any given watershed, does not negate the importance of developing and adopting policy that serves to protect certain flow characteristics of streams known to be important to salmonids.

**Comment 1.4.8:** In spite of Policy sections that would allow the SWRCB to evaluate and change conditions for existing water rights permits, the draft Policy focuses solely on new water right applications and new petitions to allow fish-impacting structures and activities. This ignores the fact that the native fish have been threatened and endangered by the accumulated past abuses. The past problems must be addressed if the species are to survive and recover. (*Jane Nielson, Sonoma County Water Coalition*)

**Response:** Staff acknowledges that factors other than the flow elements addressed in the Draft Policy can influence anadromous salmonid populations. NMFS stated in its public comments on the Draft Policy that “stream dewatering and loss of habitat due to water diversion is a contributing factor in the decline of several populations of steelhead and coho salmon in central and southern California coastal streams”. The agency further stated that “the manner in which a state approves appropriative water rights has the potential to promote the ‘take’ of listed species; however it also has the potential to reduce and greatly limit the take of those species.” The AB2121 legislation did not provide a mechanism for addressing the other factors impacting fish populations besides flow, as it enacted for the purposes of water right administration. The scope of the Draft Policy was to develop a process for permitting new water right applications. The Draft Policy was not designed to provide a comprehensive evaluation of all factors impacting fish populations.

**Comment 1.4.9:** The State of California highway system has removed spawning territory as have County and City road departments. (*Richard and Annette Rhodes, Rhodes Vineyards*)

**Response:** Comment noted. Section 1.2.1 of the Task 3 report discusses watershed scale efforts to restore upstream passage above artificial barriers. The net trend has been towards increasing habitat accessibility region wide.

**Comment 1.4.10:** Commenter lists threats to fisheries caused by environmental degradation of the ocean and the fisheries industries. (*Richard and Annette Rhodes, Rhodes Vineyards*)

**Response:** Comment noted. Staff acknowledges that factors other than flow elements addressed in the Draft Policy such as environmental degradation and commercial harvest can influence anadromous salmonid populations. However, as explained in responses above, the policy was not designed to provide a comprehensive evaluation of all such factors.

**Comment 1.4.11:** We support the policy and intent as stated in Policy for Maintaining Instream Flows in Northern Calif. Coastal Streams. Residential and agricultural withdrawal of water resulting in lessening of stream flow have exacerbated the functioning of the streams including the needs of fish, some of which are listed as endangered or threatened. Members of Marin Conservation League's Creeks, Wetlands and Watersheds Committee, commend you for the level of scientific discussion for the decisions about the policy. We have had some experience with some of the issues. We do observe encroachment of the built environment into streamside areas, pumping from the streams, wells in the floodplain that lower the groundwater table, citizen groups removing all woody debris on "clean up" days, and the negative environmental effects

from lack of attention to cumulative actions. *(Roger Roberts, Marin Conservation League)*

**Response:** Comment noted.

**Comment 1.4.12:** Several recent scientific reports maintain that the decrease in salmon is due to a decrease in their food supply, due, probably, to global warming. *(Barry and Phyllis Rogers)*

**Response:** Comment noted. Staff acknowledges that factors other than flow elements addressed in the Draft Policy such as global warming can influence anadromous salmonid populations. However, as explained in responses above, the policy was not designed to provide a comprehensive evaluation of all such factors.

**Comment 1.4.13:** What is the role of hatchery fish in the scheme of trying to restore runs? Hatcheries have been operating in the Russian River system for 100 years. Even with hatcheries producing tens of millions of fish over the years, salmonids have not flourished. *(Roland Sanford, Mendocino County Water Agency; Jim Wattenburger, Mendocino County Board of Supervisors)*

**Response:** The Draft Policy was not developed to address issues related to the role of hatchery fish in restoring anadromous fish runs in the Russian River. It focuses on protecting the flows within the basin necessary to provide access to and maintenance of important anadromous salmonid habitat.

**Comment 1.4.14:** The Policy focuses exclusively on small stream diversions as a cause of salmonid decline. Have you explored other factors such as: the effects of Lake Mendocino and Lake Sonoma; overfishing in the ocean; changed ocean conditions due to changes in food supply or predators; the effects of urban pollution? How does the State Water Board justify writing such a narrow focus and restrictive Policy when it will likely produce very limited or no results for the Policy's stated goal of protecting fisheries? *(Roland Sanford, Mendocino County Water Agency; Jim Wattenburger, Mendocino County Board of Supervisors)*

**Response:** AB2121 does not provide a mechanism for addressing the other factors impacting fish populations besides flow. The Draft Policy is directed at processing new applications for water rights, and has no control over other actions. The Draft Policy can only protect those aspects of salmonid habitat directly and indirectly influenced by new water diversion permits. Staff acknowledges that factors other than flow elements addressed in the Draft Policy can influence anadromous salmonid populations. However, as explained in responses above, the policy was not designed to provide a comprehensive evaluation of all such factors.

**Comment 1.4.15:** I work for an Indian tribe in their environmental department. While I don't represent them, I do talk with them about environmental problems. It's pretty clear from their long term perspective, that the loss of large salmon runs is because of the White Mans presence. Opinions on specific causes and solutions are as varied as among our own population, including some that would be counterproductive. One impression I keep getting is that it took us 200-500 years to screw up the environment so it will probably take that long to restore it. That belief assumes now is when things stop getting worse, though considering increasing overpopulation, that seems unlikely. *(Chuck Williams)*

**Response:** Comment noted.

## Topic 1.5 Policy Approach - Instream Flows in Upstream Reaches

**Comment 1.5.1:** TU/PAS and WB/ESH believe that many projects located in small watersheds above the limit of anadromy can be permitted without causing a significant effect on the environment and fisheries. We believe that many pending projects could be exempt from minimum bypass and rate of diversion limitations, or from other terms. We will continue to work on a specific proposal and we request that the SWRCB direct staff to meet with us and other stakeholders to discuss exceptions. (*Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Comment and request noted. It is because of such site-specific uncertainties that the Draft Policy regional criteria should be conservative. Site specific studies are the best way to determine whether a project located in a small watershed would not adversely affect instream flows and anadromous salmonids in a particular stream. The Draft Policy allows for site specific studies. However, staff is reevaluating the flow related criteria in the Draft Policy based on consideration of the comments and suggestions that have been received.

**Comment 1.5.2:** Consideration should be given to exempting upstream reaches from Policy requirements, particularly headwaters or low order ephemeral and intermittent streams. The overall contribution and quality of aquatic habitat associated with headwater or low order (1st and 2nd) ephemeral and intermittent streams in the upstream reaches of the Policy area is uncertain, compared to the total amount of suitable habitat used by anadromous salmonids in the Policy area. Additionally, many of these ephemeral and intermittent upper watershed streams are unregulated (i.e., not diverted). Thus, due to the flashy and unpredictable nature of the hydrologic regimes in these upper reaches, it is likely that fish utilizing these reaches today would be subject to a similar degree of risk of exposure to unstable and potentially stressful habitat conditions, relative to what has occurred historically. The Policy's attempt to apply a maximum level of protection to headwater or 1st and 2nd order ephemeral and intermittent streams may not be appropriate for these streams which may not have historically supported anadromous salmonids. If natural disturbance and site-specific conditions occurring under unimpaired flows preclude achievement of the desired level of habitat benefit to be provided by the Policy, an overly rigorous level of protection would be unwarranted. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** It is because of such site-specific uncertainties that the Draft Policy regional criteria should be conservative. Site specific studies are the best way to determine whether a project located in a small watershed would not adversely affect instream flows and anadromous salmonids in a particular stream. The Draft Policy allows for site specific studies.

Chapter 1 of the Scientific Basis (R2, 2009) explains the need for protecting flows in streams formerly supporting juvenile steelhead, including upstream of artificial barriers, and in ephemeral streams. Section D.4 in Appendix D of the Scientific Basis (R2, 2009) discusses the importance of protecting headwater streams because of cumulative effects downstream, Section D.3 discusses the need to maintain flow variability, section D.1 discussed the principles of adaptive management, and Section D.5 discusses the need to apply conservative principles when site specific data are not available. Studies have shown the importance of headwater streams, even those that are fishless, to the ecology and productivity of downstream areas (See Naiman, R.J. and J.J. Latterell. 2005, Principles for linking fish habitat to fisheries management and



conservation. *Journal of Fish Biology*, 67 (Supplement B), 166-186.) and the Policy has accordingly included elements for their protection.

Staff is reevaluating the flow related criteria in the Draft Policy based on consideration of the comments and suggestions that have been received.

**Comment 1.5.3:** The Policy indicates that if a project is above the point of anadromy, then recruitment of upstream resources (e.g., food, gravel, instream woody material, energy) is important. Insufficient supporting information has been provided to either discuss the current status of upstream resources, to assess the extent to which upstream resources contribute to downstream effects in the Policy area, or to support the SWRCB determination that the Policy should apply above the limit of anadromy. In addition, the determination that all streams above the limit of anadromy need to be protected to the maximum extent possible is not supported, because the Policy and its supporting documentation provide insufficient supporting evidence to indicate that productivity, nutrient availability and other aquatic parameters are limiting, either in key watersheds within the Policy area, or in upstream or downstream reaches of specific streams. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** In the absence of site specific data, it cannot be assumed there will be no effect or a stream is not important for recovery. Site specific data and assessment of downstream cumulative effects are needed to determine whether a specific stream above the limit to anadromy does not need to be protected. The Draft Policy allows for site specific studies.

See Section D.4 in Appendix D of the of the Scientific Basis (R2, 2009) regarding the importance of protecting headwater streams because of cumulative effects downstream, section, Section D.1 regarding the principles of adaptive management, and Section D.5 regarding the need to apply conservative principles when site specific data are not available. Staff note that studies have shown the importance of headwater streams, even those that are fishless, to the ecology and productivity of downstream areas (See Naiman, R.J. and J.J. Latterell. 2005, Principles for linking fish habitat to fisheries management and conservation. *Journal of Fish Biology*, 67 (Supplement B), 166-186.).

Staff is reevaluating the flow related criteria in the Draft Policy based on consideration of the comments and suggestions that have been received.

**Comment 1.5.4:** Page D-35 of Appendix D of the Scientific Basis recognizes that multiple factors contribute to, and influence instream nutrient availability and energy transport as part of the river continuum. These considerations are addressed in a limited, conceptual manner in the Scientific Basis, and are addressed to an even lesser extent with respect to the application of available data. Because of the large proportion of headwater and low order ephemeral and intermittent streams that would be subject to Policy compliance, extending the Policy into areas above the upper limit of anadromy should be more fully evaluated. Additional investigation and rationale is warranted to better support the need for such an all-encompassing level of protection that would extend past the limit of anadromy. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** As discussed in section E.3.2.1 in Appendix E of the Scientific Basis (R2, 2009), at a minimum, the amount of flow arriving at the point of anadromy must be sufficient to protect flow

within the range of anadromy. To ensure that this flow is not threatened by new water right applications, the Draft Policy uses a basic hydrologic mass balance concept in establishing instream flow needs in upstream basins at a regional scale as represented by equation E.9 and its subsequent algebraic manipulation. Staff notes that studies have shown the importance of headwater streams, even those that are fishless, to the ecology and productivity of downstream areas that are occupied by fish (See Naiman, R.J. and J.J. Latterell. 2005, Principles for linking fish habitat to fisheries management and conservation. Journal of Fish Biology, 67 (Supplement B), 166-186.). Absent using the proposed regional criteria, watershed conditions for a specific diversion would need to be evaluated individually in a site specific study to determine the amount of water that can be diverted upstream of the limit of anadromy without adversely affecting instream flow needs downstream. The Draft Policy allows for site specific studies.

Staff is reevaluating the flow related criteria in the Draft Policy based on consideration of the comments and suggestions that have been received.

**Comment 1.5.5:** Instream productivity is influenced by a multitude of factors, many of which are poorly understood or highly variable depending on stream-specific conditions. In addition, stream inputs (e.g., woody material, organic matter) can be heavily influenced by upland and riparian vegetation as well as surrounding land uses. Because of the complexity of such ecological interactions, it is uncertain whether assigning a protectiveness level by limiting one habitat parameter (i.e., flow) during a time of the year when natural productivity is relatively low will make a substantial contribution to overall instream productivity and habitat availability on a long-term basis. To substantiate the need for the Policy to extend above the upper limit of anadromy, the following topics should be evaluated: (1) Seasonal considerations and mobilization of nutrients and food sources through flood pulses; (2) Influence of "drift on the river continuum: Contribution of macroinvertebrate communities as food resources for fishery resources; (3) Fish feeding patterns and potential criteria for determining instream food production. The details regarding these concerns are provided in separate comments. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Comment noted. Staff appreciates the suggested topics the commenter believes should be considered relative to evaluating whether areas above anadromy should be included within the Policy. Staff notes that these types of factors would fit within the framework of the site specific studies, which an applicant can choose to perform to more accurately determine the site-specific fishery resource instream flow rather than using the regional criteria. The Draft Policy allows for site specific studies.

**Comment 1.5.6:** The evaluation of the need for the Policy to extend above the upper limit of anadromy should include seasonal considerations and mobilization of nutrients and food sources through flood pulses. Seasonal flood pulses are natural processes that are a characteristic of stream function. Flood disturbance in small streams can control the distribution of primary producers. Flooding appears to allow juvenile salmonids access to a wider range of food resources, and winter floods may be important for food supply and sustaining growth and condition (Pert 1987). Streams undergo succession on seasonal timescales. Invertebrates in temperate streams can have slow-seasonal, fast-seasonal and nonseasonal life cycles (depends on light regime, leaf litter/nutrient inputs - often specific to individual stream conditions). Drifting is somewhat controlled by water temperature - different species react differently by season. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Comment noted. These are potential topics for site specific study, although it should be noted that irrespective of the local ecological functions in a headwater stream, downstream flow requirements will likely protect these functions in upstream reaches above the limit to anadromy, assuming adequate contributory flows are provided by upstream watersheds.

**Comment 1.5.7:** The evaluation of the need for the Policy to extend above the upper limit of anadromy should consider the influence of "drift" on the river continuum, i.e., the contribution of macroinvertebrate communities as a food resource for fisheries resources. The influence/extent of "drift" and downstream movement of dissolved and particulate organic matter (leaf litter) and macroinvertebrates can be variable and/or limiting in systems with either natural or man-made barriers. Examples of the types of effects that should be evaluated in the Scientific Basis include: (1) Potential disruption of the spatial and temporal downstream spiraling of nutrients (particularly important in small streams); (2) Formation of pools by barriers (e.g., small dams) and the potential that they can create nutrient "sinks" (e.g., removal of silica from the water and uptake by diatoms that then settle to the bottom of pools); (3) The potential that low-head dams act as heat traps and shift community composition, particularly during the diversion season; (4) Whether retention of nutrients behind dams occurs, and whether the availability of nutrients and composition of plant and microbial communities is expected to change; (5) Whether the potential exists, or the extent of the concern regarding sediment trapping by dams and the accumulation of toxic materials that are adsorbed physically on sediment particles, or absorbed actively by the biota attached to the sediment. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** These issues are identified and discussed in a general, regional sense throughout Appendix D of the Scientific Basis (R2, 2009). Note that these effects cannot be evaluated regionally at the site specific level implied in the comment, however, they are suitable topics for site specific studies.

**Comment 1.5.8:** The evaluation of the need for the Policy to extend above the upper limit of anadromy should consider fish feeding patterns and potential criteria for determining instream food production. Pert (1987) suggests that substrate composition probably affects salmonid production during the juvenile rearing lifestage by primarily regulating the production of invertebrates, a valuable food source. Reiser and Bjornn (1979) developed criteria for optimum food production in streams: water velocity: 0.5 to 1.1 m/s; depth: 0.5 to 0.9 m; substrate composition: largely coarse gravel from 3.2 to 7.6 cm in diameter; and rubble from 7.7 to 30.4 cm in diameter. Reiser and Bjornn (1979) also stated that most recommended stream flows for salmonid rearing habitat have been based on food production, cover, and microhabitat needs of the fish, rather than the direct relationships between fish production and stream flow. Thus, based on the Reiser and Bjornn (1979) criteria above, it is uncertain whether many of the headwater and low order ephemeral and intermittent streams in the upstream reaches of the Policy area would meet the physical habitat specifications identified above. Because site-specific macroinvertebrate data may not be available for some of the validation site streams, the hydrologic data from the validation site streams could be compared to the productivity criteria (water velocity, depth, substrate composition) suggested above to better determine the potential productivity of Policy area streams, particularly within the smaller watersheds. Application in this manner may provide a better indication of the productivity capabilities and potential downstream contributions of headwater and low order ephemeral and intermittent streams under unimpaired conditions. For example, the Scientific Basis should include an evaluation or, at a minimum, a thorough discussion of the potential for diversions during the October 1 through March 31

diversion season to affect anadromous salmonid food availability and feeding patterns. Such an evaluation or discussion could include the following considerations: (1) Food availability and fish food needs in warmer-climate California coastal streams as compared with northwest streams; (2) How food resources are partitioned between juvenile steelhead and coho during winter conditions; (3) The variability of winter food sources; (4) The influence of habitat complexity on fish abundance and survival, and food availability on fish condition and growth. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** See response to 1.5.7 and response to 1.5.9.

**Comment 1.5.9:** The Scientific Basis provides insufficient data to support a determination that productivity in Policy area streams is limiting to such an extent that "enough of the upstream reaches" are affected. At a minimum, a literature review should be conducted as part of the Policy refinement process to obtain a better understanding of how, and the extent to which small low-head dams (or similar in-channel structures or impoundments) may affect productivity, community structure and aquatic habitat conditions in the types of stream classes included in the Policy area. Literature information is currently available that could be used to provide a better general indication of aquatic habitat conditions and regional stream productivity within the Policy area. Macroinvertebrate bioassessments conducted by the California Department of Fish and Game in the lower Russian River Basin was published in a March 2008 report, "A Fresh Perspective for Managing Water in California: Insights from Applying the European Water Framework Directive to the Russian River" (Grantham et al. 2008). In addition, the North Coast Regional Water Quality Control Board, in cooperation with the California Department of Forestry, funded an instream habitat assessment in 1993, which was documented in a report titled Testing Indices of Cold Water Fish Habitat: Final Report for Development of Techniques for Measuring Beneficial Use Protection and Inclusion into the North Coast Region's Basin Plan by Amendment of the Guidelines for Implementing and Enforcement of Discharge Prohibitions Relating to Logging, Construction and Associated Activities. This information, if it were applied to future Policy refinement and implementation processes, could be important for determining not only which stream reaches above the point of anadromy are, or are not limited in productivity as a result of existing diversions and other influencing factors, but also which watersheds and stream reaches are most in need of protection in general. Such an approach also could be used to help focus Policy application, and prioritize the use of already limited resources towards providing greater levels of protection to areas that are most limited in productivity. This exercise would help to determine whether or not it is both appropriate and necessary for the maximum level of protection to be universally applied to all streams within the Policy area, particularly those located upstream of the point of anadromy. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Comment noted. Site specific data and assessment of downstream cumulative effects are needed to determine whether a specific small low-head dam above the limit to anadromy does not need to be protected. The Draft Policy allows for site specific studies. See Section D.4 in Appendix D of the of the Scientific Basis (R2, 2009) regarding the importance of protecting headwater streams because of cumulative effects downstream, section, Section D.1 regarding the principles of adaptive management, and Section D.5 regarding the need to apply conservative principles when site specific data are not available. Staff note that studies have shown the importance of headwater streams, even those that are fishless, to the ecology and productivity of downstream areas (See Naiman, R.J. and J.J. Latterell. 2005, Principles for linking fish habitat to fisheries management and conservation. Journal of Fish Biology, 67

(Supplement B), 166-186.).

The Knopp (1993) citation identifies variables that may be useful to detect differences between logged and unlogged watersheds. The data presented in Knopp (1993) could be used by applicants if they choose to conduct a site specific or watershed approach based study. The same applies to the data discussed by Grantham et al. (2008), including the macroinvertebrate data which were used to infer water quality impairment. If such data are used, they should be linked clearly to flow magnitude needed to protect the respective aquatic resources. It should be noted that any parameter measured as part of monitoring should have the clearest linkage possible to evaluating effects of the draft Policy. If a linkage cannot be articulated in clear, concrete terms, then it is unlikely that a decision can be made upon which to change policy criteria. It is one thing to measure something, it is another to make a decision based on the measurement, and this principle should guide development of any monitoring plan.

Staff is reevaluating the flow related criteria in the Draft Policy based on consideration of the comments and suggestions that have been received.

**Comment 1.5.10:** The Draft Policy requires water users to refrain from diverting flows purportedly needed for anadromous fish passage, even in streams from which these fish are physically restricted. There is no reason to prematurely place limits on beneficial use of water when the Water Board has jurisdiction under its public trust authority and through reservations of jurisdiction commonly placed in water right permits, to impose passage flow requirements when and if such flows become potentially beneficial. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Section 1.2 of the Scientific Basis (R2, 2008) describes the importance of applying diversion restrictions upstream of passage barriers. See Section D.4 in Appendix D of the of the Scientific Basis regarding the importance of protecting headwater streams because of cumulative effects downstream, section, Section D.1 regarding the principles of adaptive management, and Section D.5 regarding the need to apply conservative principles when site specific data are not available. Staff note that studies have shown the importance of headwater streams, even those that are fishless, to the ecology and productivity of downstream areas (See Naiman, R.J. and J.J. Latterell. 2005, Principles for linking fish habitat to fisheries management and conservation. Journal of Fish Biology, 67 (Supplement B), 166-186.).

Although the State Water Board has public trust authority, it is more time intensive and costly to retroactively construct passage after a dam is built.

**Comment 1.5.11:** Streams above impassable barriers should be treated the same way as streams within the range of anadromy to protect native species, including landlocked fish that could be integral in the recovery of the natural origin stocks for these watersheds. (*Donald Koch, State of California Department of Fish and Game*)

**Response:** Comment noted. This comment is in agreement with current Draft Policy provisions.

## **Topic 1.6 Policy Approach - One Size Fits All**

**Comment 1.6.1:** The policy tries to develop a one-size-fits-all approach to defining instream flow requirements that, in California, really needs to be evaluated on a case by case basis. (*Paul*

*Helliker, Marin Municipal Water District)*

**Response:** See section D.5 in Appendix D of the Task 3 report for a discussion of how the Draft Policy does not and cannot constitute a one-size-fits all approach. The Draft Policy does not attempt to predict instream flow needs for each stream, and instead relies on a protective regional criterion to establish a suitable threshold flow below which uncertainty on site-specific instream flow needs can be addressed by site specific study. The site specific study element of the draft Policy is provided as a means to determine instream flow needs on a site specific basis.

**Comment 1.6.2:** The annual rainfall in the Mattole River watershed can be as high as 160 inches whereas the annual rainfall in Marin County can be in the teens. With this much rainfall our stream flows are so much greater during the rainy season in this area than in areas of lower rainfall. An individual formula for water diversion in each watershed would be more practical taking into account the differences in rainfall, flows, and diversions from summer to winter. The one size fits all approach is not fair for this area. *(Mark Hilovsky and Rod Silva)*

**Response:** Staff agrees that hydrologic characteristics of streams in the Policy area vary from stream-to-stream. The Draft Policy regional criterion establish a suitable threshold flow below which uncertainty on site-specific instream flow needs can be addressed by site specific study. The site specific study element of the draft Policy is provided as a means to determine instream flow needs on a site specific basis.

**Comment 1.6.3:** The Draft Policy will not improve instream flow conditions needed by coho salmon and steelhead fisheries, nor will it improve the administration of water rights because it attempts to develop a flow-habitat model that will prescribe the biologically appropriate bypass flow for every diversion in a five-county region without consideration of the challenges facing the region's fisheries or the disparate conditions prevailing at individual diversion sites. The Draft Policy's one-size-fits-all approach does not work in the real world because the biological resources and water demands differ in every watershed, and no amount of modification of the Draft Policy will yield conditions that are fair and accurate in most circumstances. We present new principles and guidelines for a "watershed approach" that will produce a transparent, fair and timely water right process that supports scientifically sound decision-making and actually improves instream flows. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** See section D.5 in Appendix D of the Task 3 report for a discussion of how the Draft Policy does not and cannot constitute a one-size-fits all approach. The Draft Policy does not attempt to predict instream flow needs for each stream, and instead relies on a protective regional criterion to establish a suitable threshold flow below which uncertainty on site-specific instream flow needs can be addressed by site specific study. The option for conducting site specific studies was included in the Policy as a means to allow the collection and evaluation of more information specific to a given stream, with the recognition that one-size does not fit all and that stream conditions can be highly variable between and even within a given watershed. However, the option to conduct such studies is up to the individual applicant. Absent such, the Draft Policy allows applicants to use a set of criteria that are conservatively protective throughout the policy area that Staff believes will maintain instream flow conditions for anadromous fish.

**Comment 1.6.4:** The Draft Policy, as proposed, should be rejected. The Draft Policy is not feasible because it attempts to develop a flow-habitat model that will prescribe the biologically appropriate bypass flow for every diversion without conducting site-specific studies. This one-

size-fits-all approach fails because the hydrology, biological resources and water demands are different in every watershed, and no amount of tweaking the Draft Policy will yield conditions that are fair and accurate in most circumstances. The Draft Policy also fails because it makes no effort to improve the water right process, which is a primary reason AB 2121 was enacted. Furthermore, the Draft Policy fails to take advantage of opportunities to provide positive incentives for resource stewardship, such as encouraging winter offstream storage projects to reduce water diversions during the dry season. The Water Board should instead adopt as the foundation of its policy a watershed management-based approach for investigating impacts, processing water right applications, and managing water diversions. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** See section D.5 in Appendix D of the Task 3 report for a discussion of how the Draft Policy does not and cannot constitute a one-size-fits all approach. The Draft Policy does not attempt to predict instream flow needs for each stream, and instead relies on a protective regional criterion to establish a suitable threshold flow below which uncertainty on site-specific instream flow needs can be addressed by site specific study. The option for conducting site specific studies was included in the Policy as a means to allow the collection and evaluation of more information specific to a given stream, with the recognition that one-size does not fit all and that stream conditions can be highly variable between and even within a given watershed. However, the option to conduct such studies is up to the individual applicant. Absent such, the Draft Policy allows applicants to use a set of criteria that are conservatively protective throughout the policy area that Staff believes will maintain instream flow conditions for anadromous fish. Staff also notes that watershed-based approaches are subject to the exact same sources of uncertainty as a larger regional approach, where a stream's instream flow needs remain unknown until site specific data are collected.

**Comment 1.6.5:** The one-size-fits-all application and petition criteria of the Draft Policy will fail for three principal reasons: (1) because there is imperfect scientific understanding of actual fisheries and instream flow requirements, the proposed criteria have been made to be overly conservative in order to be protective everywhere in the system; (2) these overly conservative criteria will result in overwhelming resort to the individual variance process because projects cannot be approved under the Draft Policy's Regional Criteria in the vast majority of circumstances; and (3) water users and protestants will not support evaluation criteria and mitigation requirements that do not address the actual resources issues affected by the projects. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** See section D.5 in Appendix D of the Task 3 report for a discussion of how the Draft Policy does not and cannot constitute a one-size-fits all approach. The Draft Policy does not attempt to predict instream flow needs for each stream, and instead relies on a protective regional criterion to establish a suitable threshold flow below which uncertainty on site-specific instream flow needs can be addressed by site specific study. The option for conducting site specific studies was included in the Policy as a means to allow the collection and evaluation of more information specific to a given stream, with the recognition that one-size does not fit all and that stream conditions can be highly variable between and even within a given watershed. However, the option to conduct such studies is up to the individual applicant. Absent such, the Draft Policy allows applicants to use a set of criteria that are conservatively protective throughout the policy area that Staff believes will maintain instream flow conditions for anadromous fish. Staff also notes that watershed-based approaches are subject to the exact same sources of

uncertainty as a larger regional approach, where a stream's instream flow needs remain unknown until site specific data are collected.

**Comment 1.6.6:** A one-size-fits-all approach to water rights is inappropriate for the climate and area of the North Coast, and should not be applied. *(Ron Rolleri, Sotoyome Resource Conservation District)*

**Response:** See section D.5 in Appendix D of the Task 3 report for a discussion of how the Draft Policy does not and cannot constitute a one-size-fits all approach. The Draft Policy does not attempt to predict instream flow needs for each stream, and instead relies on a protective regional criterion to establish a suitable threshold flow below which uncertainty on site-specific instream flow needs can be addressed by site specific study. The option for conducting site specific studies was purposely included in the Policy as a means to allow the collection and evaluation of more information specific to a given stream, with the recognition that one-size does not fit all and that stream conditions can be highly variable between and even within a given watershed. However, the option to conduct such studies is up to the individual applicant. Absent such, the Draft Policy allows applicants to use a set of criteria that are conservatively protective throughout the policy area that Staff believes will maintain instream flow conditions for anadromous fish.

### **Topic 1.7 Policy Approach - Effectiveness of Approach**

**Comment 1.7.1:** We support efforts to protect endangered species and their habitat, but there is no indication in the Policy that the fishery resources would be significantly benefited by imposing these drastic and costly compliance measures on my project. *(Pat Geib Alexander, Geib Ranch Vineyards; Corrin Amaral; Myles Anderson; Anne Arns; Vincent Bartolomei, Bartolomei Brothers Vineyard; Edward T. Bennett; Peter Bradford, Bradford Ranch; Carrie Brown; Jeffery Carlton, Dutton Ranch Corporation; Thomas Carpenter; Jon-Mark Chappellet; Brian Churm, Potter Valley Growers, Inc.; Vincent A. Ciolino, Montemaggiore; Ned Coe, Bill Coe & Sons; Annette Cooley, Cooley Logging; Casey Cooley; Jack L. Cox, Cox Vineyards; Greg and Karen Crouse; Christopher Dohring; Tom Eakin, Peter Michael Winery; Alfred Edelbacher; Mark D. Edwards, North Coast Resource Management; Sandy Elles, Napa County Farm Bureau; Brian Fedora; Nicholas Ferrari; Karen Fontanella, Fontanella Family Winery; Jonathan Frey, Frey Vineyards; Tom Gamble, Gamble Ranch; Patrick Garvey, Flora Springs Wine Company; Sara and Gary Giannandrea, Three G's Hay and Grain; Donald Gordon, Gordon Family Ranch; David Graves, Saintsbury; Dominic Grossi, Marin County Farm Bureau; Ted Hall, Long Meadow Ranch; Katherine Harnden, Harnden Ranches; Frank and Phyllis Hooper; Lee Hudson, Hudson Vineyards; Joseph Hurlbut; Leo Hurley, Wrath Cellars and Vineyard; Kenneth L. Kahn, Blue Rock; Tom Klein, Rodney Strong Vineyards; Wayne Lamb; Douglas Lumgair, Windsor Oaks Vineyards & Winery; JJ McCarthy, Cain Vineyard & Winery; Dennis Meisner; Harry Merlo, Lago di Merlo Vineyards and Winery; Dwight Monson; James Mooney; Robert Mueller, McKenzie-Mueller Vineyards and Winery; Wendel Nicolaus, Middleridge Vineyard; Peter Nissen, Napa County Farm Bureau; Jack Olsen, San Mateo County Farm Bureau; Butch Parton; Frost Pauli; Peggy Phelan; Loren Poncia; Steve Pride, Pride Mountain Vineyards; George Rau; Barbara Reed; Steve Reese, Denner Ranches Inc.; Annette Rhodes, Rhodes Vineyards; Richard Rhodes, Rhodes Vineyards; Jay Russ, J. Russ Company; Erin Russell; Gary Sack, California Farm Bureau; Tito Sasaki, Sasaki Vineyards; Janet Sclar, Amity Heritage Roses; R. Simcoe, Mast Ranch Vineyard, FLP; William Smith; Michael Vellutini, TriValley Vineyard Management; Al Wagner, Clos Du Val Wine Company; Edward Wallo, Yorkville Vineyards; Brian and Helen White; Gary Wilsey, Wilsey Vineyard, LLC; Silvie Wilson; Terrence Wilson, Rancho Chimiles; Windy Wilson; Kristi Wrigley; James Young, Robert Young Family Limited Partnership)*



**Response:** The Policy focuses on measures to protect native fish populations, with a particular focus on anadromous salmonids and their habitat. The intent of the Policy is to protect anadromous salmonid habitat from further degradation. This therefore represents a benefit. The Draft Policy is based on the scientific work documented in the Scientific Basis Report (R2, 2008). Appendix D of the Scientific Basis Report provides a description of the general biological benefits of protecting instream flows for fish.

**Comment 1.7.2:** If this policy were adopted, what are the biological benefits anticipated, and are they based on sound science? (*Nick Frey, Sonoma County Winegrape Commission*)

**Response:** See Appendix D of the Scientific Basis Report (R2, 2008) for a description of the general biological benefits of protecting instream flows. Also see general comments by peer reviewer Dr. Thomas McMahon and Trout Unlimited comments (page 13 of 39) regarding the use of sound science in the context of defining instream flow needs at a regional scale.

**Comment 1.7.3:** As written, the Policy will not result in flows or barrier removal efforts sufficient to maintain and restore the beneficial uses of North Coast rivers and streams, including threatened, endangered and at risk species of Pacific salmon. (*Jay Halcomb et al, Sierra Club Redwood Chapter*)

**Response:** See section 1.2.1 of the Scientific Basis Report (R2, 2008) regarding watershed scale efforts to restore upstream passage above artificial barriers. The net trend has been towards increasing habitat accessibility region-wide.

**Comment 1.7.4:** The Draft Policy has substantial technical merit but much more action is needed on regulation of water use to prevent the further decline of salmon stocks and likelihood of stock extinctions. (*Patrick Higgins, Consulting Fisheries Biologist/Sierra Club Redwood Chapter*)

**Response:** Comment noted.

**Comment 1.7.5:** Even after spending this amount of money, there will be little benefit to the fish you seek to protect. Many of us farmers with reservoirs live in areas (we are above 2,000 ft in the hills) where there are simply no fish or non-fish vertebrates to protect. (*Barry Hoffner*)

**Response:** Chapter 1 of the Scientific Basis Report (R2, 2008) explains the need for protecting flows in streams formerly supporting juvenile steelhead, including upstream of artificial barriers, and in ephemeral streams. Section D.4 in Appendix D of the Scientific Basis Report (R2, 2008) discusses the importance of protecting headwater streams because of cumulative effects downstream, Section D.3 discusses the need to maintain flow variability, section D.1 discussed the principles of adaptive management, and Section D.5 discusses the need to apply conservative principles when site specific data are not available. Studies have shown the importance of headwater streams, even those that are fishless, to the ecology and productivity of downstream areas (See Naiman, R.J. and J.J. Latterell. 2005, Principles for linking fish habitat to fisheries management and conservation. *Journal of Fish Biology*, 67 (Supplement B), 166-186.) and the Policy has accordingly included elements for their protection.

**Comment 1.7.6:** The Scientific Basis did not confirm that the changes in hydrology resulting from the restrictions imposed on specific projects would provide benefits to the anadromous salmonids in the affected streams. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz,*

*Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** The Scientific Basis Report (R2, 2008) evaluated effects of changed hydrology on passage and spawning habitat availability using data collected in validation sites, in addition to more general considerations of the benefits of protecting instream flows. The Draft Policy ensures that habitat conditions will not deteriorate beyond conditions already imposed by existing permitted diversions. Effectiveness of the Policy would ultimately need to be determined through monitoring.

**Comment 1.7.7:** Are you certain that implementation of the Draft Policy will significantly improve anadromous fish habitat and fish passage in streams, and are you certain it will increase population numbers of coho, chinook and steelhead? (*Rudolph Light*)

**Response:** The Scientific Basis Report (R2, 2008) evaluated effects of changed hydrology on passage and spawning habitat availability using data collected in validation sites, in addition to more general considerations of the benefits of protecting instream flows. The Draft Policy ensures that habitat conditions will not deteriorate beyond conditions already imposed by existing permitted diversions. Effectiveness of the Policy would ultimately need to be determined through monitoring.

Staff note that anadromous fish populations are influenced by many other factors besides flow. Thus, there is no certainty that numbers of salmon and steelhead will increase upon implementation of the Draft Policy. However, the opportunity for populations to increase will most certainly be less without the Draft Policy.

**Comment 1.7.8:** Not only will the Policy dramatically reduce water supply in normal and below-normal water years, but it will drastically reduce the ability to divert water at times when flows are the greatest. It is not clear that the fishery resource will benefit significantly from the severe measures imposed by the Policy. (*Jan Shrem, Clos Pegase*)

**Response:** Comment noted. The Draft SED Appendix D discusses the potential indirect impacts of the policy on water use.

The Scientific Basis Report (R2, 2008) evaluated effects of changed hydrology on passage and spawning habitat availability using data collected in validation sites, in addition to more general considerations of the benefits of protecting instream flows. The Draft Policy ensures that habitat conditions will not deteriorate beyond conditions already imposed by existing permitted diversions. Effectiveness of the Policy would ultimately need to be determined through monitoring.

Staff note that anadromous fish populations are influenced by many other factors besides flow. Thus, there is no certainty that numbers of salmon and steelhead will increase upon implementation of the Draft Policy. However, the opportunity for populations to increase will most certainly be less without the Draft Policy.

### **Topic 1.8 Policy Approach - Previous Test Cases**

**Comment 1.8.1:** The desired result should be the end goal, no one can attest that this plan will actually work, where is the test case, demonstrating a recovered fishery by the change in water flow patterns? (*Larry Cadd*)

**Response:** There are numerous case studies that demonstrate the benefits of restoring and managing instream flows. Studies on Putah Creek have shown this (e.g., Marchetti and Moyle 2001. Effects of flow regime on fish assemblages in a regulated California stream, *Ecological Applications* 11(2): 530-539). For a much greater range of case studies, see: Locke, A., and nine others. 2008. Integrated approaches to riverine resource stewardship: Case studies, science, law, people, and policy. Instream flow Council, Cheyenne WY. Also see response to 1.7.7.

**Comment 1.8.2:** Has what you are proposing in the Draft Policy ever been done before in any watershed of any size? And, has such a policy been operable before on a multibasin level of 4,900 square miles, the size of the Policy area? (*Rudolph Light*)

**Response:** Regional approaches have been and are being implemented elsewhere, for example in the Snake River Basin Adjudication in Idaho, the Klamath River Basin Adjudication in Oregon, and in the Canadian Province of Alberta through the Alberta Water Act.

### **Topic 1.9 Policy Approach - Test Policy First**

**Comment 1.9.1:** Institute the Policy on a trial basis and make Policy adjustments thereafter. The Policy is detailed and voluminous. It is not known if there are sufficient State Board resources to implement the Policy and work off the backlog of water right applications now pending. And, while comprehensive, there may be unintended consequences from its implementation (as suggested by Academic Peer reviewers). It is recommended that the Policy be implemented on a trial basis either for a time certain or a specific number of applications to gauge effectiveness and make adjustments as necessary to streamline the process and avoid unknown and unintended consequences. (*Chris DeGabriele, North Marin Water District*)

**Response:** Comment noted.

**Comment 1.9.2:** Test evaluations could be conducted to: (1) ensure that the Policy would be applied on a consistent basis throughout the regional area; and (2) identify those portions of the Policy area that likely could be excluded from Policy compliance requirements based on stream channel gradient or other known natural barriers limiting the point of anadromy. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Staff's response to the itemized list is as follows: (1) The State Water Board anticipates continuing to use the Memorandum of Understanding (MOU) approach towards water right permitting that has been in place for the past several years. With the MOU approach, water availability analysis and CEQA documents are prepared by outside consultants and reviewed for consistency by Division staff. It is not anticipated that this process will change after the State Water Board adopts a policy. Once a water right applicant receives a water right permit, they would need to submit regular monitoring data to show they are meeting the terms of the permit. (2) It is assumed the commenter is referring to the flow-related criteria rather than the non-flow related criteria of the Draft Policy. In the absence of site specific data, it cannot be assumed there will be no effect or a stream is not important for recovery. Site specific data and assessment of downstream cumulative effects are needed to determine whether a specific stream above the limit to anadromy does not need to be protected. The Draft Policy allows for

site specific studies.

**Comment 1.9.3:** Would you be willing to experiment and try out the provisions of the Policy for a few years on a medium-sized watershed, say 100 square miles, to see if you obtain the desired outcome, and then if the experiment proves successful, apply the Policy to a larger area at a later time? (*Tim Buckner; Rudolph Light*)

**Response:** Water Code section 13143 requires periodic review of adopted policies. During the periodic review, monitoring data may be reviewed to assess whether the policy would need revising.

**Comment 1.9.4:** We have a pending application for two existing reservoirs designed by USDA SCS and built by Corps over 50 years ago for flood and erosion control that also provide significant environmental benefits. The Draft Policy states that stringent bypass and diversion limitation criteria are to benefit fishery resources. We believe it is questionable whether those resources would be benefited as the Draft Policy model has not been tested. (*Barry and Phyllis Rogers*)

**Response:** The Scientific Basis Report (R2, 2008) evaluated effects of changed hydrology on passage and spawning habitat availability using data collected in validation sites, in addition to more general considerations of the benefits of protecting instream flows. The issue is not that the Draft Policy will improve habitat conditions, but simply that habitat conditions will not deteriorate beyond conditions already imposed by existing permitted diversions. Effectiveness of the Policy would ultimately need to be determined through monitoring. Staff note that anadromous fish populations are influenced by many other factors besides flow. Thus, there is no certainty that numbers of salmon and steelhead will increase upon implementation of the Draft Policy. However, the opportunity for populations to increase will most certainly be less without the Draft Policy.

There are numerous case studies that demonstrate the benefits of restoring and managing instream flows. Studies on Putah Creek have shown this (e.g., Marchetti and Moyle 2001. Effects of flow regime on fish assemblages in a regulated California stream, *Ecological Applications* 11(2): 530-539). For a much greater range of case studies, see: Locke, A., and nine others. 2008. Integrated approaches to riverine resource stewardship: Case studies, science, law, people, and policy. Instream flow Council, Cheyenne WY.

**Comment 1.9.5:** [Implementation of the Policy] will clearly have significant land use, economic and social impacts to Mendocino County. Given the uncertainty of success, vis-A-vis protection of salmonid fisheries, we urge the State Water Resources Control Board to proceed cautiously and adopt an adaptive management strategy with respect to policy implementation. More specifically, we recommend that the AB 2121 Policy, if adopted, be implemented on a trial basis on a much smaller geographic scale than currently envisioned. (*Roland Sanford, Mendocino County Water Agency*)

**Response:** Because of the uncertainty indicated, the Draft Policy proposes regional criteria that are of necessity conservative following adaptive management principles and the precautionary principle which requires the protection against potential harm to the environment, in the absence of a scientific consensus that harm would not ensue. The regional criteria are designed to limit water diversions so that adequate flows are available for spawning and passage at sites with the most restrictive instream flow needs. If the regional criteria are in error and are too high, then the steelhead, Chinook and coho fisheries will be protected and have a chance to recover. If the

regional criteria are in error and too low, then the fish populations may go extinct and never have the chance to recover. See discussion on the burden of proof and consequences in section D.1 of Appendix D of the Task 3 report.

It is because of such site-specific uncertainties that the Draft Policy regional criteria should be conservative. Accordingly, site specific studies are the best way to determine if a longer diversion season, lower MBF, and/or higher MCD rate compared with the draft Policy regional criteria would be protective. It is not possible to develop corresponding regional criteria because biologically based criteria of the type described may vary in the way they control populations from site to site and it is difficult to link production changes quantitatively to environmental covariates. For example, there are no clearly defined regional criteria in terms of number of days that are protective vs. not. Site specific study is therefore a necessary condition for identifying more accurately the fishery resource instream flow needs of a particular location. The Draft Policy contains provisions for site specific studies.

Water Code section 13143 states the State Water Board is required to conduct periodic review of adopted policies. During the periodic review, monitoring data may be reviewed to assess whether the policy would need revising.

### **Topic 1.10 Policy Approach - Spring and Summer Flows**

**Comment 1.10.53:** One of our principal concerns is related to disconnect between the general objectives and reach of the new policies. California Water Code section 1259.4 states that these policies will serve as "principles and guidelines for maintaining instream flows in coastal streams from the Mattole River to San Francisco and in coastal streams entering northern San Pablo Bay." The terms and conditions described in the 2007 Draft Policy focus on preserving winter flows and proscribe additional spring, summer, and fall diversions. These are all important steps for maintaining instream flows to support anadromous salmonids, but they address only a portion of the constraints that water management practices have on instream flows. Most significantly, they do not address existing water use in spring and summer: we have documented examples of instream and near-stream diversions causing flow to fall to near zero in many small streams, months earlier than would occur naturally (Figure 1; from Deitch 2006, and upcoming in Deitch et al., *River Research and Applications*). Zero streamflow in March or April, where flow would otherwise persist into July, August, or September, may both reduce the viability of redds in those reaches and reduce food supply for juvenile salmonids in summer months. Maintaining winter flows and prohibiting additional "out-of-season" diversions are important, but neglecting the existing pressures already on streamflow prevents the proposed policies from maintaining all ecologically relevant instream flows in coastal streams. The cumulative magnitude of diversion exceeds expected discharge in spring and summer in almost all of the major tributaries to the Russian River (Figure 2; from Deitch 2006, and upcoming in Deitch et al., *Aquatic Conservation: Marine and Freshwater Ecosystems*), suggesting this is a regionwide problem. Because surface water diversions during spring and summer are widespread through the AB2121 region, it is possible (and we believe, likely) that the management guidelines described in the 2007 Draft Policy are insufficient to create flow conditions necessary for salmonid recovery in the region. Therefore, it must be understood that a biological criterion such as higher abundance of salmonids (e.g., as described in Section 10 of the R2/Stetson August 2007 report) cannot be used as an indicator of the success of these new guidelines. The 2007 Draft Policy outlines the practices necessary to maintain suitable flow conditions during winter, but our data (including those described above) suggests that the primary hydrological impediment to salmonid persistence stems from loss of spring and summer streamflow. (*Matthew Deitch and Adina Merenlender, University of California, Berkeley; Ellen Drell, The Willits Environmental Center;*

*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers; Jay Halcomb et al, Sierra Club Redwood Chapter)*

**Response:** The legislative digest for AB 2121 directed the State Water Board to develop principles and guidelines to ensure that new water right permits include appropriate fish measures that are protective of anadromous salmonid and related aquatic resources. The Draft Policy proposes that new water right applications could divert water during an October 1 through March 31 diversion season. New water diversions would not be allowed at other times of the year unless a site-specific study shows through collection and analysis of site specific data that the diversion would have no impact on the fishery resource. As indicated elsewhere in this response document, staff is reevaluating the diversion season and considering using a period of December 15 through March 31. Staff is considering revisions to the Draft Policy that would provide incentives for authorized diverters to modify summer diversions to enhance conditions for fish and wildlife.

The Draft Policy ensures that habitat conditions will not deteriorate beyond conditions already imposed by existing permitted diversions. Effectiveness of the Policy would ultimately need to be determined through monitoring. Staff note that anadromous fish populations are influenced by many other factors besides flow. Thus, there is no certainty that numbers of salmon and steelhead will increase upon implementation of the Draft Policy. However, the opportunity for populations to increase will most certainly be less without the Draft Policy.

**Comment 1.10.54:** The draft Policy does not specifically address existing summertime diversions which have the greatest potential to affect fish habitat in the Mattole River while at the same time, creates significant obstacles to permitting safe implementation of winter and spring-time diversions which will have very little impact on fish habitat in the Mattole River and are needed to allow for adequate water storage. *(Eric Goldsmith, Sanctuary Forest)*

**Response:** The Draft Policy precludes new diversions during the summer thereby protecting summer rearing habitat. The Draft Policy proposes that new water right applications could divert water during an October 1 through March 31 diversion season. New water diversions would not be allowed at other times of the year unless a site-specific study shows through collection and analysis of site specific data that the diversion would have no impact on the fishery resource. The Draft Policy thus ensures that summer habitat conditions will not deteriorate beyond conditions already imposed by existing permitted diversions. The Draft Policy allows for site specific studies. As indicated elsewhere in this response document, staff is reevaluating the diversion season and considering using a period of December 15 through March 31. In addition, staff is considering revisions to the Draft Policy that would provide incentives for authorized diverters to modify existing summertime diversions.

**Comment 1.10.55:** One of the major problems is the lack of water during the summer, which contributes to high water temperatures and degraded water quality. *(Sandra Guldman, Friends of Corte Madera Creek Watershed)*

**Response:** See response to 1.10.54.

**Comment 1.10.56:** A shortcoming of the Draft Policy is that it does not propose action to assess summer and fall flows, when the most critical flow shortages for juvenile salmonid rearing are known to occur. *(Patrick Higgins, Consulting Fisheries Biologist/Sierra Club Redwood Chapter)*

**Response:** See response to 1.10.54.

**Comment 1.10.57:** The first policy principle in Section 2.2 of the Draft Policy states that "Water diversions shall be seasonally limited to periods in which instream flows are naturally high to prevent adverse effects to fish and fish habitat." In fact, the draft policy's limitations on water diversions would only be on new appropriative water right applicants and no study or action is envisioned for extraction from April through October, when flows are severely limiting for juvenile salmonid rearing. Peer reviewer Dr. Thomas McMahon (2008) cautions that the entire exercise will be confounded due to this deficiency. (*Patrick Higgins, Consulting Fisheries Biologist/Sierra Club Redwood Chapter*)

**Response:** See response to 1.10.54.

**Comment 1.10.58:** There are thousands of diversions within the policy area that currently operate without safeguards to protect fish and will not be affected by the policy, either because they have a permit or license, because they operate unlawfully with no real incentive to do otherwise, or because they are operated under basis of a riparian or groundwater right. Without factoring these diversions in to its calculations, the State Water Board will be unable to accurately estimate the cumulative effects of a pending application for an appropriative right. More fundamentally, without actions to encourage those diverters to improve their practices, the State Water Board is unlikely to accomplish its statutory mandate of "maintaining instream flows." This is particularly true because existing summertime diversions may account for the greatest threat to the recovery of the species. (*Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society*)

**Response:** The Draft Policy contains provisions for a water availability analysis that requires water right applicants to account for senior diverters, including unpermitted water right applications with higher priority, and any claims of pre-1914 or riparian water right. Staff is considering revisions to the Draft Policy that would provide incentives for authorized diverters to modify summer diversions to enhance conditions for fish and wildlife.

The Draft Policy includes an Enforcement (Section 11) that contains provisions for compliance inspections, complaint investigations, prioritization of enforcement, and timely and appropriate enforcement actions.

The Draft Policy ensures that habitat conditions will not deteriorate beyond conditions already imposed by existing permitted diversions. Effectiveness of the Policy would ultimately need to be determined through monitoring. Staff note that anadromous fish populations are influenced by many other factors besides flow. Thus, there is no certainty that numbers of salmon and steelhead will increase upon implementation of the Draft Policy. However, the opportunity for populations to increase will most certainly be less without the Draft Policy.

**Comment 1.10.59:** Add Section 2.4.1, titled Priority Processing for Summer Flow Enhancement Projects, that contains the following two provisions: (A) the State Water Board will grant priority processing for Summer Flow Enhancement Projects, which are defined as projects that enhance stream flows (1) by reducing existing diversions during the dry season, (2) where there is rearing habitat that would benefit from the foregone water diversion, and (3) applicant can ensure that the foregone water remains instream through a petition for change under Water Code section 1707 or a functional equivalent. (B) The State Water Board will grant priority processing to Summer Flow Enhancement Projects that are pursued in combination with requests for new

water rights where new water rights are needed to change the timing or magnitude of existing diversions and the Chief of the Division of Water Rights finds that the project as a whole is likely to provide a net benefit to instream flows and serve the public interest. In making this preliminary finding of likely benefit, the Chief of the Division of Water Rights may rely on written statements of support for the project by DFG, NMFS, or other state or federal agencies that have participated in or funded the project. *(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society)*

**Response:** Comment noted. This comment has been superceded by more detailed comments found in "Draft Joint Recommendations for the North Coast Instream Flow Policy", dated April 30, 2009. Please see staff responses bound separately.

**Comment 1.10.60:** Add Section 2.4.2 titled, Approval of Summer Flow Enhancement Projects, that contains the following four elements: (A) Applicants shall propose terms and conditions consistent with the general principles stated in Section 2.2 of the Policy. (B) The State Water Board will approve a Summer Flow Enhancement Project even if the project requires deviation from the regionally protective instream flow criteria, provided the Chief of the Division of Water Rights finds that project as a whole provides a net benefit to instream flows and serves the public interest, after consultation with and concurrence by the Executive Officer of the Regional Board and Chief of the Water Branch, Department of Fish and Game. (C) Where the Summer Flow Enhancement Project would not increase the total volume of water to be used annually beyond the Applicant's existing rights, but requires a water right permit for new or expanded offstream storage, then (1) there is a presumption that project provides a net benefit to instream flows and serves the public interest; and (2) the fisheries review by the Division of Water Rights, Regional Board, and DFG shall be intended to confirm that unusual circumstances do not exist to overcome the presumption of net benefit (e.g., the proposed diversion is not blocking fish habitat). (D) State that in making the net benefit and public interest finding the Chief of the Division of Water Rights is also encouraged to consult with the National Marine Fisheries Service and other resource agencies that may have participated in the development of the project. In making the finding, the Chief may rely on written statements of support of or opposition to the project by those agencies and on other evidence in the record. *(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society)*

**Response:** Comment noted. This comment has been superceded by more detailed comments found in "Draft Joint Recommendations for the North Coast Instream Flow Policy", dated April 30, 2009. Please see staff responses bound separately.

**Comment 1.10.61:** McBain and Trush and Trout Unlimited support the draft policy's general objective to focus diversions away from dry months and toward rainy season months, and to manage diversions in a way that protects spawning and winter rearing habitat and retains the variability of the hydrograph. *(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society)*

**Response:** Comment noted.

**Comment 1.10.62:** A limiting factor analysis was not conducted to establish that wintertime flows are a factor limiting anadromous salmonid viability in the North Coast region. In fact, on page 2-1 of the Scientific Basis, it states "... instream flows during [the late spring, summer, and early fall] are generally limiting anadromous salmonid rearing habitat and quality in the Policy area (e.g., SEC et al. 2004)." Accordingly, the Draft Policy acknowledges that winter time flows affecting spawning, passage and incubation are generally not the limiting factors affecting



anadromous salmonid viability, and yet the Draft Policy does not address the factors affecting summer rearing habitat including insufficient summertime flows (or excessive summertime flows on Dry Creek below Lake Sonoma) or assess when a change in wintertime passage or spawning opportunity would not impact overall viability. The Napa River Basin Limiting Factors Analysis, by Stillwater Sciences and Dietrich (2002), states "Empirical and theoretical evidence suggests that spawning gravel quality and quantity are rarely the primary factors limiting population levels of species such as steelhead and resident trout because a relatively limited amount of successful spawning is capable of seeding large amounts of rearing habitat (Elliot 1984)" [page ES-16]. The Navarro Watershed Restoration Plan (1998) states "the distribution of coho salmon does not appear to be limited strictly by habitat conditions, but is also related to the limited dispersion of adults into the watershed which may be more of a function of the small numbers of the returning adult population" [page 4-29]. In addition to summertime flows and temperatures, other factors such as ocean temperatures, harvesting, logging practices, and construction of major dams all impact salmonid survival and the Scientific Basis does not establish that wintertime passage, spawning or incubation are limiting factors. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** The legislative digest for AB 2121 directed the State Water Board to develop principles and guidelines to ensure that new water right permits include appropriate fish measures that are protective of anadromous salmonid and related aquatic resources. The Draft Policy precludes new diversions during the summer thereby protecting summer rearing habitat. The Draft Policy proposes that new water right applications could divert water during an October 1 through March 31 diversion season. New water diversions would not be allowed at other times of the year unless a site-specific study shows through collection and analysis of site specific data that the diversion would have no impact on the fishery resource. The Draft Policy thus ensures that summer habitat conditions will not deteriorate beyond conditions already imposed by existing permitted diversions. The Draft Policy allows for site specific studies. As indicated elsewhere in this response document, staff is reevaluating the diversion season and considering using a period of December 15 through March 31. In addition, staff is considering revisions to the Draft Policy that would provide incentives for authorized diverters to modify existing summertime diversions.

It is not possible to develop a flow related limiting factor-based criterion at a regional scale that can be used to identify site-specific instream flow needs. That is only possible using site specific data and population modeling analysis, the latter which is associated with uncertainty even at the site scale and can be prohibitively expensive for most smaller water right applicants. The regional criteria are intended to be used when site specific information on instream flow needs is absent. Staff note however, that information on site specific flow-related limiting factors may be used to refine water right applications.

**Comment 1.10.63:** The Draft Policy does not address summer flows, a critical limiting factor for salmonid survival, and could actually reduce the flexibility necessary to protect summer flows from riparian summer withdrawals. A project in Pine Gulch Creek is being developed for offstream irrigation storage for riparian water users, and is intended to establish winter appropriated water capture in order to reduce summer riparian water demand. The proposed policy would more than double the minimum bypass flow requirements (as compared to the DFG/NMFS minimum bypass flow) for the applicable water rights in winter, a time that is not limiting for these watersheds. This could limit the ability of riparian users to off-set impacts to summer flow through alternative storage solutions. (*Don Neubacher, US National Park Service, Point Reyes National Seashore*)

**Response:** The legislative digest for AB 2121 directed the State Water Board to develop principles and guidelines to ensure that new water right permits include appropriate fish measures that are protective of anadromous salmonid and related aquatic resources. The Draft Policy precludes new diversions during the summer thereby protecting summer rearing habitat. The Draft Policy proposes that new water right applications could divert water during an October 1 through March 31 diversion season. New water diversions would not be allowed at other times of the year unless a site-specific study shows through collection and analysis of site specific data that the diversion would have no impact on the fishery resource. Staff is considering revisions to the Draft Policy that would provide incentives for authorized diverters to modify summer diversions to enhance conditions for fish and wildlife.

**Comment 1.10.64:** Flow restrictions under the policy affect only diversion during the wet season, between October 1 and March 31. For our study [NCRCD], however, we focused on spring and summer flows, which have been suggested as the most significant flow-related limiting factor for the Napa River watershed by several recent studies (Stillwater Sciences Limiting Factors Analysis 2002, Stillwater Sciences Steelhead Growth Analysis 2007, RWQCB Sediment TMDL 2005). Passage and spawning opportunities for steelhead appear to be limited not by wet season water diversions but rather by artificial barriers and the naturally flashy hydrology of the region. Implementation of a policy that focuses solely on maintaining the wet season hydrograph could be over restrictive to water diverters, while not achieving the primary goal of protecting (and possibly restoring) steelhead populations. In fact, such a policy may give a false sense of protection for the species, while missing the real population bottlenecks during more limiting parts of the freshwater life cycle.. (*Clinton Pridmore, Napa County Resource Conservation District*)

**Response:** See response to 1.10.62.

**Comment 1.10.65:** The SWRCB's study focuses on how much winter flow salmon and steelhead need for migration and spawning, but doesn't even discuss low summer and fall conditions that are known to be more limiting. (*NA, Sierra Club Redwood Chapter*)

**Response:** See response to 1.10.62.

### **Topic 1.11 Policy Approach - Other Limiting Factors**

**Comment 1.11.1:** The policy is a one-size-fits-all solution which perhaps addresses the smallest problem our northern California watersheds face, "low winter flows" and "keeping stream channels scoured during high flow events". Your plan does not address the main fish problems (warm summer water, reduced summer flows, livestock breaking down stream banks, dirt in creeks smothering fish eggs, riparian summer use) (*R. Stuart Bewley, Bewley/Motluk Family Limited Partnership*)

**Response:** See section D.5 in Appendix D of the Task 3 report for a discussion of how the Draft Policy does not constitute a one-size-fits all approach. The Draft Policy does not attempt to predict instream flow needs for each stream, and instead relies on a protective regional criterion to establish a suitable threshold flow below which uncertainty on site-specific instream flow needs can be addressed by site specific study. The site specific study element of the draft Policy is provided as a means to determine instream flow needs on a site specific basis.

It is not possible to develop a flow related limiting factor-based criterion at a regional scale that

can be used to identify site-specific instream flow needs. That is only possible using site specific data and population modeling analysis, the latter which is associated with uncertainty even at the site scale and can be prohibitively expensive for most smaller water right applicants. The regional criteria are intended to be used when site specific information on instream flow needs is absent. Staff note however, that information on site specific flow-related limiting factors may be used to refine water right applications.

The Draft Policy precludes new diversions during the summer thereby protecting summer flows. Staff acknowledges that factors other than flow elements addressed in the Draft Policy have and will continue to influence anadromous salmonid populations. However, the policy was not designed to provide a comprehensive evaluation of all such factors, nor to rectify such.

**Comment 1.11.2:** Limiting factors linked to flow regimes is an issue that this proposed policy must consider. For instance, if there has been severe aggregation and sedimentation related to historic land use (timber harvest, road construction) where habitat requirements have been altered; linkage of discussion and policy must be made to address such issue. For example, a stream condition where there was initially existing 5' holes with average flows that provided 7' of depth at the hole, and where currently the hole is now 2' and average flow only now provides 3' of total depth, what policy implications should address such an issue? *(Alan Levine, Coastal Action Group)*

**Response:** The State Board does not regulate timber harvest impacts through the water rights process, and this is beyond the scope of AB 2121.

**Comment 1.11.3:** This instream flow dedication will do nothing to improve the most critical factors affecting fisheries, including low summer flows, high water temperatures and lack of habitat and migration barriers. *(Patrick Garvey, Flora Springs Wine Company)*

**Response:** It is not possible to develop a flow related limiting factor-based criterion at a regional scale that can be used to identify site-specific instream flow needs. That is only possible using site specific data and population modeling analysis, the latter which is associated with uncertainty even at the site scale and can be prohibitively expensive for most smaller water right applicants. The regional criteria are intended to be used when site specific information on instream flow needs is absent. Staff note however, that information on site specific flow-related limiting factors may be used to refine water right applications.

The Draft Policy precludes new diversions during the summer thereby protecting summer flows. Staff acknowledges that factors other than flow elements addressed in the Draft Policy have and will continue to influence anadromous salmonid populations. However, the policy was not designed to provide a comprehensive evaluation of all such factors, nor to rectify such.

**Comment 1.11.4:** The limiting factors for fisheries, such as salmonids, differ in different watersheds. Increasing the quantity of water when, for example, turbidity and sedimentation is the limiting factor, may be a waste rather than an improvement. *(Bill Kocher, City of Santa Cruz Water Department)*

**Response:** Comment noted. These are site specific effects that are possible in some cases, but it is not possible to identify the precise relationship of such limiting factors with flow on a regional basis. It is also possible that sedimentation problems become worse with flow reductions because the balance between sediment transport capacity and supply is made worse. Site specific study results can be used to recommend an MBF that considers such factors as

needed.

**Comment 1.11.5:** Algae, invasive fish species, declining number of trout and salmon, and other negative transformations are all caused in part by low flows and high temperatures. (*Jerry Lewis*)

**Response:** Comment noted. These are among many limiting factors identified in Appendix D of the Task 3 Report.

### **Topic 1.12 Policy Approach - KMTGE Proposal**

**Comment 1.12.1:** Reject the Draft Policy and adopt a policy founded upon a watershed management-based approach for investigating and mitigating impacts, processing water right applications, and managing water diversions. The proposed approach contains the following elements: (1) A set of goals and objectives broader than protection of anadromous fisheries that includes consideration of all competing uses of water; (2) Practical impact assessment guidelines consisting of narrative criteria that would replace the Draft Policy's rigid criteria; (3) Incentives for implementing alternative actions that provide equivalent or better resource protection than the existing default standards; (4) Provisions to allow small projects with negligible effects to proceed without unnecessary studies and diversion restrictions; (5) Clear guidelines for conducting impacts evaluations and water availability analyses and for providing decisions within a reasonable time-frame. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** In developing the Draft Policy, the State Water Board responded to the legislative counsel's digest which expressed the need for a policy consisting of measures to protect native fish populations, with a particular focus on anadromous salmonids and their habitat.

The water cost analysis described in the SED (section 6.8), in conjunction with the comparisons of protectiveness provided for in the Task 3 Report (Tables 5-2, 6-2, 7-2, 8-1), can be used to assess how the Policy balances competing uses of instream flow. In the water cost analysis, the alternative Policy criteria are compared in general terms of how relatively restrictive they are with respect to limiting diversion and how protective they are of fish habitat. The SED concludes that Policy criteria are protective, yet are among the least restrictive of the alternatives considered in terms of limiting diversion.

In addition, a sensitivity study (Stetson and R2, 2009) was performed based on feedback in peer reviewer and public comments to provide more comparisons of the relative benefits and impacts to fisheries and irrigation associated with different diversion restrictions. The study compared the potential water diversion volume for 9 different MBF alternatives and 5 MCD alternatives and calculated the number of days of spawning and passage opportunities for 5 of the MBF alternatives with an MCD of 5% of the 1.5 year peak flow (the Draft Policy regional criteria). A diversion season of December 15 to March 31 was used for the sensitivity study instead of the October 1 to March 31 proposed in the Draft Policy. The study concluded that an MBF criterion based on a 0.7 ft steelhead minimum spawning depth criterion in the validation sites would be similarly protective as one based on a 0.8 ft criterion and would provide a slightly higher potential diversion volume.

Staff is considering revisions to the Draft Policy to (1) clarify the intent of proposing regional criteria while also allowing site specific studies to obtain site specific criteria; (2) provide additional guidance in the site specific study provisions; (3) address diversions in smaller

watersheds; (4) provide incentives for authorized diverters to modify diversions to enhance conditions for fish and wildlife.

**Comment 1.12.2:** A watershed management approach is preferable to the Draft Policy's regional criteria approach. In March 2007, Trout Unlimited and Ellison, Schneider & Harris submitted a joint recommendation to the Water Board to include a Watershed Management Approach as an alternative in the Draft Policy. The Draft Policy includes a brief provision (Section 12.0) for a "watershed approach" that purports to give "flexibility . . . to groups of diverters who endeavor to work together to allow for cost sharing, real-time operation of water diversions, and implementation of mitigation measures, . . . consistent with the principles for maintaining instream flows provided in section 2.2." The Draft Policy's entire discussion is only 3 pages. The Draft Policy watershed management section does not provide the functionality of the watershed management approach we recommended in March 2007 because the Draft Policy's watershed approach is merely a mechanism for groups of applicants to jointly attempt to comply with the Draft Policy requirements, and is not tailored to actual watershed conditions and water user needs. Since submission of the March 2007 letter, a very substantial amount of work leads even more strongly to the conclusion that a watershed management approach should be the foundation of the entire policy, and not just a permitting strategy alternative to rigid regional criteria. The panoply of habitat factors considered by the Draft Policy should not be thrown out, but should instead be reexamined and incorporated into a new process and approach for analyzing and considering water right petitions and applications on a watershed basis. This practical approach would take into account the specific factors limiting the fishery in the watershed, and the hydrology and environmental issues specific to the watershed. Clear policy guidance for conducting environmental and hydrologic studies that take into account actual stream and watershed factors, including environmental and economic benefits of leaving onstream dams in place, should replace the Draft Policy's one-size-fits-all minimum bypass flow equations and bypass facility requirements. The proposed watershed approach is unlike the Draft Policy's "watershed alternative". As noted, the Draft Policy's "watershed alternative" is actually only a mechanism for groups of water users to jointly satisfy the Policy's criteria. The coordinated processing of applications can be useful, and it has been helpful in at least one instance (Anderson Creek applications group), but it is not the same as the watershed-based policy we propose. A true watershed alternative would provide positive incentives for resource stewardship, and a feasible and effective policy alternative that actually improves the administration of water rights and the management of natural resources. The watershed alternative would also strive to produce scientifically and technically sound decisions in a process that is fair, transparent, and efficient for both applicants/petitioners and protestants. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** The watershed approach section of the Draft Policy states that watershed groups would need to demonstrate consistency with the policy principles, and does not state the regional criteria need to be complied with. The watershed approach section also allows for the coordination of diversions. Staff is considering revisions to the Draft Policy to (1) clarify the intent of proposing regional criteria while allowing site specific studies; (2) provide additional guidance in the site specific study provisions; (3) address diversions in smaller watersheds; (4) provide incentives for authorized diverters to modify diversions to enhance conditions for fish and wildlife, (5) clarify the usage of the watershed approach provisions. Some of the projects that were initial participants in the Anderson Creek watershed group ended up receiving individual permits that were processed separately from the watershed approach effort. The remaining projects will be reviewed on a case-by-case basis as Division resources allow.

**Comment 1.12.3:** Assembly Bill 2121 is not solely concerned with restoring populations of anadromous fishes. AB 2121 was enacted by the Legislature to fix a fundamentally broken water right system that can neither protect natural resources nor efficiently process and evaluate the effects of the numerous water diversion applications in the North Coast region. The 2004 petition to the Water Board by Trout Unlimited and the Peregrine Audubon Society, the sponsors of AB 2121, make this point clear: Trout Unlimited and Peregrine Audubon's petition seeks "reform of the water rights system " to protect the environment. And AB 2121 echoes the goal, directing the Water Board to adopt "principles and guidelines for maintaining instream flows . . . for the purposes of water right administration." (Water Code 1259.4 (emphasis added).) The traditional mode of processing applications individually ended when the backlog of applications in the Russian River and Navarro River systems reached high numbers in the late- 1990s. Water Board staff retirements and hiring freezes compounded the processing delay. Increased concern over fishery resources in the North Coast by the Department of Fish and Game and NOAA Fisheries placed greater scrutiny on, and therefore delay for, the pending applications. The DFG-NMFS Draft Guidelines attempted to impose conservative screening criteria to expedite processing of small projects, but the Draft Guidelines backfired as screening criteria both because the criteria were too restrictive, and because they were often used as absolute requirements and not just screening criteria. Fish and Game and Water Board staff in many cases misapplied the criteria as one-size-fits all standards for every project in an attempt to reject those projects to clear some of the backlog. These delays, coupled with increased enforcement actions, have created a backlog of over 300 pending applications and numerous pending change and extension petitions in the North Coast region today. Assembly Bill 2121 provided the ideal opportunity for the Water Board to address the fundamental problems inherent in the water right system. Unfortunately, the Draft Policy, like the Draft Guidelines before it, is concerned solely with instream flows for anadromous fisheries, and it does not strive to improve the processing of water rights applications or facilitate real improvement in water management. It is thus not responsive to the Legislature's direction. Water right process improvements are embedded within our proposed watershed management approach. The approach outlined below will be more efficient, transparent, and fair to all applicants and protestants, and will lead to scientifically and technically sound decisions. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Comment noted.

**Comment 1.12.4:** A Water Board watershed management-based policy should be founded upon a set of goals and objectives broader than protection of fisheries resources. It should be based upon the principle of preserving fish and other natural resources within the North Coast region while serving agricultural, municipal, domestic, and industrial uses which are dependent on the water - the same balancing engaged in for Decision 1610, the same balancing required by the State Constitution, statutes, and judicial decisions. Consistent with this principle, the policy should be based upon the following goals:

1. Improve the efficiency, scientific and technical accuracy, and fairness of the water right process.
2. Contribute to the management of natural resources within the watersheds and provide incentives for stewardship, such as encouraging existing diverters to shift to winter offstream storage.
3. Process permits and approve permit changes consistent with the other goals.
4. Facilitate compliance with the Water Code and other laws and regulations.
5. Condition water right applications and petitions in a manner that maintains instream flows

needed for the protection of fishery and other resources. In general, diversions should be conditioned to a rainy season of diversion, to periods of high flows, to reasonably maintain the natural flow variability, to minimize to the extent practicable the effects of onstream dams, and to avoid significant cumulative diversion effects. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** These ideas appear to be consistent with the Draft Policy's approach.

**Comment 1.12.5:** The watershed management-based policy should establish strategies for improving the efficiency of processing individual as well as groups of applications and petitions. This includes: (1) individual application processing; (2) batch processing involving joint or coordinated hydrological and biological studies and CEQA documents, including coordinated Water Board review of a group of pending projects in a watershed (The Anderson Creek watershed pilot project is an example); (3) coordinated processing and watershed management that provides opportunities to implement alternative mitigation and enhancement activities that provide equivalent or better resource protection than the current system or proposed Draft Policy would allow; (4) incentives for applicants and petitioners to reach agreements with existing water right holders to include them in a watershed management program; (5) encouragement of stewardship of natural resources, such as expediting the processing of permits for moving an existing diversion to winter storage to improve dry season streamflows; (6) scientifically-based impact evaluation guidelines, appropriate project terms and conditions, small project and de minimum project exceptions, and other administrative changes for application processing. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** See response to 1.12.2.

**Comment 1.12.6:** The fundamental element of the watershed management-based approach is that projects will be scientifically and technically evaluated from a comprehensive watershed perspective, and that appropriate terms and conditions tailored to the resources affected by the projects will be identified. Because the watershed management-based approach will better utilize existing scientific studies and support additional on-the-ground scientific and technical evaluations of actual streams rather than blanket application of generic one-size-fits-all screening criteria, it will foster better science and provide the public with far better information on the health of the watersheds. The watershed management-based approach will also provide opportunity to implement alternative actions that provide equivalent or better resource protection than the default standards. Examples may include fish passage improvements, stream shading, and shifting of existing spring, summer and fall diversions to the winter rainy season. This holistic approach to restoration and management is essential if the actual resources affected by diversions are to be addressed. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** These ideas appear to be consistent with the Draft Policy's watershed approach provisions.

**Comment 1.12.7:** In the watershed management-based policy, scientifically based impact evaluation guidelines would replace the rigid "Regional Criteria". The rigid Regional Criteria of the Draft Policy are not workable. Practical resource impact and water availability guidelines are essential in order to give water users sufficient flexibility to assess the actual environmental

impacts and resource needs of the watershed. Such watershed-based analyses are preferable to generic one-size-fits-all criteria that do not necessarily consider the actual conditions in the watersheds. Practical resource impact and water availability guidelines should require the coordination of hydrological and biological analyses amongst applicants and petitioners to provide cost and time efficiencies and to improve the science on which actions are based. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** See section D.5 in Appendix D of the Scientific Basis Report (R2 2008) for a discussion of how the Draft Policy does not and cannot constitute a one-size-fits all approach. The Draft Policy does not attempt to predict instream flow needs for each stream, and instead relies on a protective regional criterion to establish a suitable threshold flow below which uncertainty on site-specific instream flow needs can be addressed by site specific study. The option for conducting site specific studies was included in the Policy as a means to allow the collection and evaluation of more information specific to a given stream, with the recognition that one-size does not fit all and that stream conditions can be highly variable between and even within a given watershed. However, the option to conduct such studies is up to the individual applicant. Absent such, the Draft Policy requires adherence to a set of regionally protective criteria that Staff believes will improve instream flow conditions for anadromous fish. The Draft Policy also contains provisions for a watershed approach which would allow applicants to coordinate hydrological and biological analyses. Staff received many suggestions regarding the watershed approach provisions, and will be reevaluating those provisions based on the comments received.

**Comment 1.12.8:** The scientifically based impact evaluation guidelines of the watershed management-based policy should include narrative impact evaluation criteria (as opposed to the Policy's numeric minimum bypass and maximum cumulative diversion criteria) for appropriate minimum bypass flow, cumulative diversion, onstream dam limitations, and be based on the actual geographic extent of anadromy based on field data. The hallmark of these narrative criteria should be that they will be tailored to address the specific features of projects within each watershed and the potential impacts caused by those projects as determined by site-specific field evaluations and data. A second hallmark of narrative criteria should be that they would function to screen smaller projects with lesser impacts and to move those projects through an expedited review process. Larger projects with greater effects would follow a more involved evaluation process. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** See response to 1.12.2.

**Comment 1.12.9:** In the scientifically based impact evaluation guidelines of the watershed management-based policy, the applicant/petitioner should identify the upper limit of anadromy in relation to the project in order to determine whether special terms and conditions are required for the protection of salmonids. The upper limit of anadromy determination should consider both the upper limit of spawning habitat as well as the upper limit of habitat open to passage that are available in normal and above-normal water year types. Where possible, the upper limit should consider the quality of habitat available over a range of water year types. Extremely wet water year types are not required to be considered in determining the upper limit of anadromy. Applicant/petitioner should be encouraged to utilize previous estimates of the upper limit of anadromy from critical habitat designations or other stream surveys, as well as any evidence of



natural and artificial barriers to passage that may be generally known to landowners or identified in public records including the CalFish database. Alternative methodologies would include a fisheries biologist's field report or determination that the project is located above a stream reach with a 12% of greater slope over 300 linear feet. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Section A.3.0 of the Draft Policy describes the requirements for the determination of the upper limit of anadromy required as part of the water availability analysis. The suggestions by the commenter are the same provisions required by the Policy except for the distinction between spawning and passage habitat and the consideration of water year proposed by the commenter. However, according to Section D.2.6 in Appendix D of the Task 3 report, it is important to protect for wet year flow variability, including in the context of establishing distribution limits. Basing a range delineation on drier years may eliminate habitat available during wetter years that is crucial for population resilience from impacts during drier years. In the judgment of Staff's technical experts, however, it is unlikely that there will be a significant increase in the range of anadromous salmonid habitat when comparing wet with extremely wet years. Chapter 1 of the Scientific Basis Report (R2, 2008) explains the need for protecting flows in streams formerly supporting juvenile steelhead, including upstream of artificial barriers, and in ephemeral streams.

**Comment 1.12.10:** For the scientifically based impact evaluation guidelines of the watershed management-based policy, special terms and conditions that are tailored to watershed conditions should be developed for permits issued through a coordinated watershed management approach. For example, where appropriate, a watershed management plan would describe the enforceable management objectives and the watershed standards and actions the participants will take to accomplish the objectives and standards, all of which will take into account watershed size and all physical parameters, and be based on site specific information. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Comment noted. Water right permits already are written to contain conditions written for the specific diversion. Staff is considering modifying the watershed approach provisions of the Draft Policy to acknowledge potential coordination of diversions within a watershed.

**Comment 1.12.11:** In the scientifically based impact evaluation guidelines of the watershed management-based policy, conservation and mitigation measures would be targeted to the highest priority resources needs of the watershed, and not necessarily those related to specific water diversion effects. Off-site and out-of-kind conservation and mitigation measures would be incorporated in special terms and conditions. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** These ideas appear to be consistent with the Draft Policy's watershed approach provisions. In addition, staff is considering policy revisions that would provide incentives for authorized diverters to modify diversions to enhance conditions for fish and wildlife.

**Comment 1.12.12:** Our hydrological and fisheries analyses of the Draft Policy support the establishment of exceptions from minimum bypass flow requirements, cumulative diversion

limitations, season of diversion limitation, and other flow and habitat mitigation for small projects in small watersheds. By excepting the environmentally benign projects, applicants, agency staff and protestants can appropriately focus on the larger, more difficult projects. We propose the following exceptions for the watershed management-based policy:

Drainage areas of 160 acres or less - No minimum bypass flow, no maximum cumulative diversion limitation, and no season of diversion limitation should be required. Rationale: The smallest watershed evaluated by R2 for the Draft Policy was 160 acres. R2 determined that no salmonid habitat exists in watersheds this size and smaller. A minimum bypass is not required because the small and intermittent unimpaired streamflow is typically insufficient to support aquatic life. A season of diversion restriction is not required because there is little to no water flow outside the winter rainy season.

161 acres to 1.19 square mile - Provided that salmonids are not present at the point of diversion, diversions should be required to bypass February median flows (as proposed in DFG-NMFS Draft Guidelines); the season of diversion should be limited to the rainy season (generally October 1 to March 31); active bypass of minimum bypass flows should be allowed; a cumulative effects test should be developed that considers the rate of diversion, watershed area and mean annual flow to ensure that the proposed project is logically evaluated in the context of existing projects. If salmonids are present, a biologically-appropriate minimum bypass flow and shorter season of diversion (such as December 15 to March 31) would likely be required if the diversion is upstream of a stream reach supporting Coho salmon or another species that requires higher flows early in the rainy season. Rationale: R2 did not find salmonid habitat in watersheds less than 1.19 square mile; however, watersheds larger than 160 acres may support aquatic life.

Larger than 1.19 square mile - A biologically-appropriate minimum bypass flow should be required; the season of diversion should be limited to the rainy season (generally October 1 to March 31); a passive bypass facility should be installed, if feasible; a cumulative effects test should be developed that considers the rate of diversion, watershed area and mean annual flow to ensure that the proposed project is logically evaluated in the context of existing projects.

Municipal Diversions - Municipal diversions should not be required to be retrofitted with bypass facilities. Rationale: Municipal water use is the highest use of water per Water Code section 106.

Diversions above municipal reservoirs - Diversions above municipal reservoirs should not be required to be retrofitted with bypass facilities. Rationale: Diversions from streams tributary to municipal reservoirs will not affect fisheries already impacted by the existing municipal projects. Bypass Facilities for Dam within the Russian River system constructed prior to 1982 - Diversions within the Russian River system constructed prior to 1982 (completion date of Warm Springs Dam) should not be required to be retrofitted with a bypass facility. Rationale: Lake Sonoma and Warm Springs Dam caused more extensive habitat loss than all other existing diversions in the Russian River watershed. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** The validation site data described in the Scientific Basis Report (R2, 2008) should not be used to conclude that there is no habitat in streams smaller than 160 acres because the field study was not conducted with the goal of delineating the smallest size basin supporting anadromous salmonids. The smallest stream, the East Fork Russian River tributary, was not readily accessible and there may have been suitable habitat-characteristics and channel morphology found if access had been obtained. Figure E-9 in Appendix E of the Task 3 report indicates that critical habitat exists in streams draining less than 160 acres according to NMFS.

While a single small diversion by itself may have negligible impact, the cumulative effects of many small diversion can be adverse, akin to "death by 1000 cuts". Providing an automatic

exception to small projects overlooks the potential for cumulative effects potential. A cumulative effects test such as that proposed by the commenter should be required for all small projects.

**Comment 1.12.13:** Under the watershed management-based policy, the Water Board staff's requirement that private applicants and petitioners enter into an MOU for preparation of environmental documents should be rescinded. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** The State Water Board has no compelling reason to rescind the MOU process.

**Comment 1.12.14:** Under the watershed management-based policy, the Water Board should direct staff to triage the current backlog and develop protocols for approving petitions, applications, and registrations where there is lack of evidence of significant impacts. Many existing projects involve little more than descriptive changes to points of diversion, places of use, or purpose of use or extensions of time. Many projects are either unprotected or protests have been resolved and could be approved if direction was given to staff to do so. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** The Division attempted to implement a watershed approach in the past. The KMTGE group requested the Division to participate in a watershed pilot study on Anderson Creek, a tributary to the Navarro River. All of the pending water right applicants were represented by various agents in the KMTGE group. This was a priority assignment for Division Staff. The agents selected environmental consultants and directed the development of an instream flow study and fisheries assessment starting in September of 2007. The Division provided guidance towards a scope of work for this study. The environmental consultant selected by the agents did not produce timely work products and failed to turn in a final report, which was due by the September 15, 2008. In January of 2009 a new environmental consultant was hired to continue the work. In February 2009 a memo was produced outlining the additional work the new consultant thought was necessary to complete the study. Staff provided comments on the memo and outlined the additional work that still needed to be considered in order to permit the projects in this watershed approach. To date no further work regarding the watershed wide stream flow and fishery study has been produced. Some applicants have taken it upon themselves to proceed without the group. One project has been permitted separately from the watershed group and a few other applicants have proposed changes to their projects to make them consistent with the 2002 DFG/NMFS Draft Guidelines in an attempt to proceed with permitting outside of completion of the watershed group. Ultimately the watershed approach has been unsuccessful because of the failure of the environmental consultant selected by the agents to complete the fisheries work.

**Comment 1.12.15:** Under the watershed management-based policy, the applicant and Water Board staff should mutually develop a work plan at the start of the process. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** This is the current practice as part of the Memorandum of Understanding process for the development of the CEQA compliance/Public Trust and water availability analysis.

**Comment 1.12.16:** Under the watershed management-based policy, the applicant and Water Board staff should agree upfront to the scope of the environmental impact and water availability

studies, and the analytic methodologies for those studies. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** This is the current practice as part of the Memorandum of Understanding process for the development of the CEQA compliance/Public Trust and water availability analysis.

**Comment 1.12.17:** Under the watershed management-based policy, where there are acceptable alternative methodologies available to address a resource question, the applicant should be allowed to select the methodology. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** This is the current practice as part of the Memorandum of Understanding process for the development of the CEQA compliance/Public Trust and water availability analysis.

**Comment 1.12.18:** Under the watershed management-based policy, consistent with the mutually agreed-upon work plan and study methodologies, the applicant should be given more control of scheduling and document preparation. This will reduce Water Board staff time spent on the projects. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** The State Water Board has evaluated a number of processing changes, including a pilot project to process water right applications on Anderson Creek, a tributary to the Navarro River. In this Pilot Study the applicant's agents were given control of scheduling and document preparation. State Water Board staff provided guidance on the scope of work for an instream flow/fisheries study of the watershed but left the hiring of an environmental consultant to perform the study, scheduling, and document preparation in control of the applicant's agents. The outcome of the pilot project has ultimately been unsuccessful. The environmental consultant selected by the agents did not produce timely work products and failed to turn in a final report, which was due on September 15, 2008. A second consultant was hired to complete work on the study however no new progress has been made to date. Some of the applicants participating in the pilot project have since requested revisions to their applications to make them consistent with the 2002 DFG/NMFS Draft Guidelines in an attempt to proceed with permitting their project on an individual basis. This pilot project did not reduce staff time spent on the processing of these applications and likely prolonged processing of a few that could have been permitted in the time it took attempting to produce an instream flow/fisheries study.

**Comment 1.12.19:** Under the watershed management-based policy, the SWRCB should establish a process to obtain decisions with an opportunity for appeal on key issues before final action on the applications and petitions are taken. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** The State Water Board's current practice allows for the applicant and or their agents to appeal key decisions to the Division management for review and most key decision require management approval prior to any final decisions.

**Comment 1.12.20:** Several important watershed-based water right processing and resource enhancement efforts are underway. The following locally-initiated efforts are consistent with and

should be encouraged by the watershed management-based policy.

**Anderson Creek Pilot Project.** Applicants and Water Board staff are implementing a pilot project to coordinate the processing of twelve water right applications in the Anderson Creek watershed in Mendocino County.

**Mattole River Streamflow Enhancement Program.** Landowners on the Mattole River worked closely with Water Board staff to obtain small domestic registrations to allow for the diversion and offshore storage of water in the winter months in lieu of stream diversions in the low-flow season.

**Sonoma County Salmonid Coalition.** The Sonoma County Salmonid Coalition, a partnership of property owners, public agencies and conservation groups, is developing a watershed management program that will contribute to the recovery of protected salmonids in Alexander, Dry Creek, and Knights Valleys of Sonoma County. The Coalition has presented its work plan for developing the watershed program in its Draft Policy comment letter.

**Fish Friendly Farming.** The California Land Stewardship Institute's Fish Friendly Farming Environmental Certification Program works with farmers throughout Mendocino, Sonoma, Napa, and Solano counties to assess and evaluate agricultural lands, stream habitats, hydrology, water supply, water and soil conservation practices, and other features. The Institute's Draft Policy's comment letter presents a framework for conducting a watershed-based hydrologic and geomorphic analysis of a number of streams in Mendocino County and Napa County.

*(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Comment noted. Some of the projects that were initial participants in the Anderson Creek watershed group ended up receiving individual permits that were processed separately from the watershed approach effort. The remaining projects will be reviewed on a case-by-case basis as Division resources allow.

**Comment 1.12.21:** We strongly encourage the Water Board to consider our recommendations for replacing the Draft Policy with our proposed watershed management-based policy. Many of our proposals are supported by Trout Unlimited and the Peregrine Audubon Society as described in their joint comment letter with Ellison, Schneider & Harris and Wagner & Bonsignore. Our joint comments reflect our mutual concern with the Draft Policy and desire to advance the watershed management concept. We recommend that the Water Board direct staff to meet with stakeholders to further develop these joint recommendations and direct staff and stakeholders to report back to the Board as soon as possible. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Comment noted. Staff has had several meetings with Trout Unlimited, Wagner and Bonsignore, and Peter Kiel to discuss their Draft Joint Recommendations.

**Comment 1.12.22:** As an instream flows policy is developed it is important to recognize what is and is not mandated by A.B. 2121, which requires the Water Board to "adopt principles and guidelines for maintaining instream flows in coastal streams." Water Code § 1259.4 (a)(l). "Principles and guidelines" need not, and indeed should not, be the sort of hyper-technical, extremely restrictive, and very specific regional criteria contained within the Draft Policy. Instead, the Water Board should adopt principles that establish instream flow goals, and guidelines that provide planning tools to achieve those objectives. Principles and guidelines such as these need not be a long, overly technical or complex document. Rather, they should clearly and plainly set instream flow standards while also remaining flexible enough to be

applicable throughout the varied conditions of the north coast. The Coalition Comments contain recommendations for such an alternative instream flows policy. *(Jack Rice, California Farm Bureau)*

**Response:** The Draft Policy provides five policy principles in Section 2.2 which are in narrative format. See section D.5 in Appendix D of the Task 3 report for a discussion of how the Draft Policy does not and cannot constitute a one-size-fits all approach. The Draft Policy does not attempt to predict instream flow needs for each stream, and instead relies on a protective regional criterion to establish a suitable threshold flow below which uncertainty on site-specific instream flow needs can be addressed by site specific study. The option for conducting site specific studies was included in the Policy as a means to allow the collection and evaluation of more information specific to a given stream, with the recognition that one-size does not fit all and that stream conditions can be highly variable between and even within a given watershed. However, the option to conduct such studies is up to the individual applicant. Absent such, the Draft Policy allows applicants to use a set of criteria that are conservatively protective throughout the policy area that Staff believes will maintain instream flow conditions for anadromous fish.

Staff is considering revisions to the Draft Policy to (1) clarify the intent of proposing regional criteria while also allowing site specific studies to obtain site specific criteria; (2) provide additional guidance in the site specific study provisions; (3) address diversions in smaller watersheds; (4) provide incentives for authorized diverters to modify diversions to enhance conditions for fish and wildlife.

The comments referred to as "Coalition Comments" are addressed in individual responses found elsewhere in this response document for comments received from Kronick, Moskovitz, Tiedemann and Girard, P.C.; Wagner and Bonsignore Consulting Engineers, and Ellison, Schneider, and Harris, LLC.

**Comment 1.12.23:** Recognizing that it is absolutely necessary to develop a workable instream flows policy, Farm Bureau has been engaged with our members, county farm bureaus, the Wine Institute, Fish Friendly Farming and other stakeholders to develop and implement an alternative to the Draft Policy. We request, and are encouraged to hope, that the Water Board and staff will support these efforts to achieve a balanced approach to diverting water while protecting instream resources within the policy area. *(Jack Rice, California Farm Bureau)*

**Response:** The commenter is referencing to the comments provided by Kronick, Moskovitz, Tiedemann and Girard, P.C.; Wagner and Bonsignore Consulting Engineers, and Ellison, Schneider, and Harris, LLC regarding a proposal to consider an alternative watershed based approach. Staff provides responses to these comments here.

**Comment 1.12.24:** Our review of the Draft Policy has made it clear that the proposed policy is simply too restrictive and rigid to be workable. However, we also recognize that an instream flow policy is necessary for the policy area. For these reasons Farm Bureau is working with our members and other stakeholders to develop an alternative watershed-based approach, described in the Coalition Comments, that will protect instream flows while also ensuring farmers will be able to divert water within the policy area. We will continue to refine and implement this alternative and look forward to working with the Water Board and staff in this process. *(Jack Rice, California Farm Bureau)*

**Response:** Staff is considering revisions to the Draft Policy to (1) clarify the intent of proposing regional criteria while also allowing site specific studies to obtain site specific criteria; (2) provide

additional guidance in the site specific study provisions; (3) address diversions in smaller watersheds; (4) provide incentives for authorized diverters to modify diversions to enhance conditions for fish and wildlife.

The commenter is referencing to the comments provided by Kronick, Moskovitz, Tiedemann and Girard, P.C.; Wagner and Bonsignore Consulting Engineers, and Ellison, Schneider, and Harris, LLC regarding a proposal to consider an alternative watershed based approach. Staff provides responses to these comments here.

**Comment 1.12.25:** We support and incorporate by reference into these comments the joint legal and technical comments on the Proposed Policy separately submitted by Ellison, Schneider & Harris LLP, Kronick, Moskovitz, Tiedemann & Girard, P.C. and Wagner & Bonsignore Consulting Civil Engineers. Those comments clearly set forth the numerous substantive, procedural and legal defects of the Proposed Policy. (*Leonard Stein, Jackson Family Investments, LLC*)

**Response:** Comment noted.

### **Topic 1.13 Policy Approach - TU/Trush Proposal**

**Comment 1.13.1:** The State Water Board should consider the framework proposal for defining management objectives presented in MTTU 2008 and these comments; and work with TU/PAS, McBain & Trush, other stakeholders and responsible agencies before the next workshop to assess whether the approach is viable and to determine what additional analysis is needed to make it operational. (*Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society*)

**Response:** Comment noted.

**Comment 1.13.2:** If the approach proposed in MTTU 2008 is not viable, adopt the MTTU 2000 alternative with three amendments: (1) substitution of the revised regional estimation of active channel flow for the prior 10% exceedance calculation; (2) adoption of a December 15 to March 31 season of diversion; (3) development of an exception for very small projects. (See Joint Principles, p. 3.) (*Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society*)

**Response:** (1) The "active channel" concept proposed by MTTU is conceptual and appears to have been developed from relatively small streams in a local area. The determination of the flow level of the active channel is largely subjective, and as an instream flow method does not appear to have undergone sufficient peer review in terms of reproducibility and demonstrated linkage with salmonid habitat flow needs. Its applicability may thus be limited to a subset of streams within the policy area, although it may very well provide useable results for certain site specific applications.

(2) Staff is reevaluating the diversion criteria in the Draft Policy based on consideration of the comments and suggestions that have been received and is considering revising the Policy to use the more conservative DFG-NMFS proposed diversion season start date of 12/15.

(3) Very small projects can cumulatively have a deleterious effect on downstream flows. An automatic exemption without consideration of cumulative effects may not be protective of anadromous salmonids and their habitat downstream. Staff note however, that a site specific

assessment can be performed to demonstrate that the project or collection of projects in question will not adversely affect downstream flows. Staff is reevaluating the flow related criteria in the Draft Policy based on consideration of the comments and suggestions that have been received.

**Comment 1.13.3:** Trout Unlimited is keen to do two things: develop further guidance for site-specific studies, and consider whether a re-alignment of the regional criteria might result in standards that could be a better option for more applicants and equal or exceed the draft's protections for fish. In Dr. Bill Trush's commentary, he attempts not to define a better formula, but to identify a better management objective. Doing so would serve both purposes. The approach begins with articulation of two flow thresholds. The first is the flow that fills the active channel, where most spawning takes place. (See MTTU 2000.) The second flow, which he calls the winter baseline flow, is the flow that keeps riffles flowing, sustains juvenile rearing habitat, and prevents redds from de-watering. The first management objective is to retain flows between those two depths. Flows above the active channel (spawning) flow get too fast. Flows below the winter baseline (wetted riffle) flow impair basic biological functions. His proposed framework seeks to direct most diversions to times when flows are above the spawning flow, reduce (but not necessarily eliminate) diversions when flows are between the spawning flow and wetted riffle flow, and try to avoid diversions below the wetted riffle flow. Second, Dr. Trush notes that a variable diversion rate based on a percentage of daily ambient flows would offer the most finely tuned way to optimize diversions and stream flows. The final component of the framework is to define what levels of deviation from the management objective are acceptable, in order to make decisions on water right permits and to determine appropriate mitigation measures. He does so by proposing that we define three levels of impact: no impact; impacts presumed acceptable with standard terms and conditions; and impacts that might be acceptable but require additional studies. (*Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society*)

**Response:** The "active channel" concept proposed by MTTU is conceptual and appears to have been developed from relatively small streams in a local area. The determination of the flow level of the active channel is largely subjective, and as an instream flow method does not appear to have undergone sufficient peer review in terms of reproducibility and demonstrated linkage with salmonid habitat flow needs. Its applicability may thus be limited to a subset of streams within the policy area, although it may very well provide useable results for certain site specific applications.

Nonetheless, the objectives identified here are generally suitable for consideration in the development of site specific study protocols. Staff will consider these recommendations.

**Comment 1.13.4:** In the alternative proposed in the Trush commentary, because diversions accounting for less than five percent of daily ambient flow would have no discernable impact, such diversions could be exempt from further diversion limitations. For example, if a retrofit fill and spill reservoir was in a location where cumulatively no more than 5% of the drainage area above the upper point of anadromy was behind a fill and spill dam, it would not require a bypass flow pegged to the spawning (active channel) flow. If it were on a class III stream, it would be fully exempt. If it were on a class II stream, the bypass flow would be set to the lower wetted riffle (winter baseline) flow. (*Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society*)

**Response:** While in principle the approach suggested could be used as part of a site specific study, the approach appears conceptual in nature and requires more rigorous scientific



development. The assumptions (e.g., <5% has no discernable impact) need clearer definition, and the specific methods require more detail regarding implementation decisions (e.g., how to quantify daily ambient flow).

**Comment 1.13.5:** In the alternative proposed in the Trush commentary, a diversion below the upper point of anadromy could adopt a variable pumping rate if feasible, and set the rate at a level that would not harm fish. For those who do not have that option, standard terms for minimum bypass flow (set at the active channel level) and a rate of diversion limitation would apply so as to approximate the defined management objective. For the rate of diversion standard term, we propose the MTTU 2000 calculation. *(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society)*

**Response:** Comment noted. While in principle the approach suggested could be used as part of a site specific study, the approach appears conceptual in nature and requires more rigorous scientific development.

**Comment 1.13.6:** All of the standard calculations - the "regional criteria" in Policy terms - are adapted from alternatives analyzed in the record. As compared to the draft regional criteria, the realigned variables in MTTU 2008 would establish a lower minimum bypass flow in smaller watersheds, with a somewhat more rigorous cumulative effects test and rate of diversion limitation. But it would also permit quite a few reservoirs in small watersheds to operate without a term requiring the active channel (spawning and migration) bypass flow. Depending on location, they would operate "fill and spill," or adhere to the lower winter baseline (wetted riffle) bypass flow. As compared to the Joint Guidelines, the realigned criteria would have a somewhat higher (active channel) minimum bypass flow where it is necessary for spawning and migration, and a similar (wetted riffle) winter baseline flow where it is necessary for other ecological functions; it would also permit a slightly higher number to operate without a minimum bypass term and condition. As compared to McBain & Trush/Trout Unlimited's earlier proposal, it features a similar active channel bypass flow for the benefit of anadromous fish, but refines the calculation for estimating active channel flows in the absence of site-specific studies. It also goes beyond the earlier proposal in that it results in a lower (wetted riffle) bypass flow in many circumstances, and an exception in others. It also provides a vehicle to encourage variable rate diversions for those pumpers who seek the most effective means to divert water without harming fish. In other words, the proposal is more finely tailored to individual circumstances, and responsive to the needs of different streams. We think it will work better for farmers and for fish. *(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society)*

**Response:** The criteria used to exempt reservoirs in small watersheds from DS, MBF, and MCD criteria appear subjective. The overall approach, including consideration of variable pumping, may be sufficient for designing site specific studies where it would be important to demonstrate through data and analysis that the proposed project is still protective of anadromous salmonids and their habitat at the POD and downstream.

The "active channel" concept proposed by MTTU is conceptual and appears to have been developed from relatively small streams in a local area. The determination of the flow level of the active channel is largely subjective, and as an instream flow method does not appear to have undergone sufficient peer review in terms of reproducibility and demonstrated linkage with salmonid habitat flow needs. Its applicability may thus be limited to a subset of streams within the policy area, although it may very well provide useable results for certain site specific applications.

It appears that the median riffle crest thalweg (RCT) metric proposed is considered as a surrogate for the active channel. However, the RCT method appears flawed hydraulically for the following reasons: (i) each riffle crest has its unique stage-discharge curve, where plotting each curve on the same graph will result in a cloud of curves. It is difficult to see how any one set of points picked from each stage-discharge curve to define an RCT-Q curve can be considered more representative of instream flow needs than another set of points; (ii) Related to this, there is no biologically based criterion proposed for selecting the appropriate flow at which RCT depth should be measured at each location; the present approach relies on opportunistic data with no distinction of the relative extent to which the flow is beneficial to habitat. Moreover, picking a median RCT depth value appears to be arbitrary. In addition, the assumption of surrogacy needs more specific support beyond the conceptual stage.

Staff is reevaluating the flow related criteria in the Draft Policy based on consideration of the comments and suggestions that have been received.

**Comment 1.13.7:** By defining management objectives rather than flow formulas, Mr. Trush's flow objectives function either as a guide to site-specific studies or as a reference point for defining standard regional estimates (the "regional criteria") and allow for a more consistent policy approach. *(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society)*

**Response:** Comment noted.

**Comment 1.13.8:** McBain and Trush and Trout Unlimited suggest an alternative framework proposal consisting of three management objectives.

(1) Maintain stream flows between two levels, the winter baseline flow (the flow that keeps riffles flowing, sustains juvenile rearing habitat, and prevents redds from dewatering) and the active channel flow (where most spawning takes place). Flows above the active channel get too fast. Flows below the winter baseline impair basic biological functions. The key is to divert water (but not too much) when flows are above the active channel, reduce (but not necessarily eliminate) diversions when flows are between the active channel and winter baseline flows, and avoid diversions below the winter baseline flow. Site-specific studies could be used to estimate these two flows.

(2) Address rates of diversion and cumulative effects. A variable diversion rate would offer the most finely tuned way to optimize diversions and stream flows. In an ideal world, diverters could vary their rate of diversion to match stream extractions to a percentage of ambient flows within a range defined to have "no impact." A variable diversion rate would offer the most finely tuned way to optimize diversions and stream flows. For diversions that cannot precisely match a percentage of ambient flows, the management imperative is to mimic the stated objective by imposing standard terms and conditions such as a bypass flow and rate of diversion limitation.

(3) No management regime is perfect. The protocol needs to define acceptable levels of deviation from the ideal (which could also be thresholds for imposing mitigation terms like a minimum bypass flow or thresholds for requiring site-level studies).

*(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society)*

**Response:** Suggestions noted. Some of the elements noted in the three objectives may be

suitable to consider during the development of site specific study designs. However, the approach appears conceptual in nature and requires more rigorous scientific development.

**Comment 1.13.9:** A methodology for recommending instream flows in small streams must have biological objectives. McBain and Trush and Trout Unlimited propose a methodology consisting of three flow objectives derived based on subdividing a hydrograph into three broad categories of streamflow and anadromous salmonid life history needs: (1) a baseline streamflow that essentially keeps riffles flowing, sustains juvenile rearing habitat, and prevents redds from dewatering, (2) a storm recession streamflow when most spawning occurs, and (3) a peak runoff streamflow when the adults are actively migrating into headwater watersheds and some adults are beginning spawning activities. The flow objectives would consider diversion scenarios that would cause either no impact, minimal impact, or larger impacts, with hypothesized spawning habitat impacts based on limited field study. Under the suggested flow objectives, no diversions would be allowed from the winter baseline flow, which, based on a case study, would be equivalent to the February median flow. When streamflows are higher than the winter baseline flow, diversions could occur that are based on percentages of the ambient unregulated daily streamflow. In other words, a variable diversion rate could be allowed. An important feature of the three flow objectives is that each goal is quantifiable and offers many innovative solutions to satisfying each one. In contrast, MBF3 already has the goal “built into it” (i.e., a product of many instream flow studies regressed) that offers little opportunity for innovative solutions other than seeking a variance. Another important feature of the three flow objectives is that they can be used to establish biological goals for headwater fill-and-spill reservoirs. If 5% of the watershed above the upper limit of anadromy, say at 0.5 mi<sup>2</sup>, is behind headwater reservoirs, the daily variable diversion rate at the upper limit of anadromy would be a maximum of 5%. (*Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society*)

**Response:** This methodology is an alternative conceptual model that may be suitable for use in site specific studies, but requires greater specificity on the basis and implementation of the criteria.

It appears that the median riffle crest thalweg (RCT) metric proposed is considered as a surrogate for the active channel. However, the RCT method appears flawed hydraulically for the following reasons: (i) each riffle crest has its unique stage-discharge curve, where plotting each curve on the same graph will result in a cloud of curves. It is difficult to see how any one set of points picked from each stage-discharge curve to define an RCT-Q curve can be considered more representative of instream flow needs than another set of points; (ii) Related to this, there is no biologically based criterion proposed for selecting the appropriate flow at which RCT depth should be measured at each location; the present approach relies on opportunistic data with no distinction of the relative extent to which the flow is beneficial to habitat. Moreover, picking a median RCT depth value appears to be arbitrary. In addition, the assumption of surrogacy needs more specific support beyond the conceptual stage.

Staff note that objectives (2) and (3) are provided via the MCD element in the Draft Policy.

Staff is reevaluating the flow related criteria in the Draft Policy based on consideration of the comments and suggestions that have been received.

**Comment 1.13.10:** Application of McBain and Trush and Trout Unlimited’s proposed objectives would cause proposed projects to be conditioned with terms and conditions designed to approximate the management objective and evaluated with other existing diversions to assess

the level of deviation from that objective. A retrofit fill and spill reservoir on a Class III stream above UPA with less than 5% of the drainage area impaired would be exempt from a bypass requirement. The same project on a Class II stream would be permitted, but require a minimum bypass term set at the winter baseline flow. Similarly, a diversion below the upper point of anadromy could adopt a variable pumping rate if feasible, and set the rate at a level that would not harm fish. For those who don't have that option, standard terms for minimum bypass flow (set at the active channel level) and a rate of diversion limitation would apply so as to approximate the defined management objective. For those requiring a fixed rate of diversion, we propose a refinement of the MTTU 2000 calculation as an estimate for the term. Protocols to assign the appropriate standard terms and cumulative effects analyses for other situations could be developed to approximate whatever thresholds of significance are adopted. *(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society)*

**Response:** Comment and proposal noted. However, Staff note that the conceptual and specific criteria listed would require a more concrete and regional analysis to evaluate their suitability for use as regional guidelines in the absence of site specific data.

**Comment 1.13.11:** McBain and Trush and Trout Unlimited found that the recommendations of the Scientific Basis overestimated streamflows necessary for protectiveness in Davenport Creek. Site specific studies showed that excellent conditions for upstream passage (with essentially no pause or splashing) occur above 15 cfs. However, application of the recommendations of the Scientific Basis show Upper MBF3 (risk averse) = 32.1 cfs, Lower MBF4 (below which there is substantial risk of impacting population sustainability) = 18.8 cfs, and QFP (minimum fish passage streamflow) = 31.7 cfs (using 0.7 ft passage depth and equation E-1 in Appendix E of the Scientific Basis). All three parameters seem to substantially overestimate streamflows necessary for protectiveness. *(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society)*

**Response:** The regional protective criteria developed for the Draft Policy should not be considered to have site specific accuracy, and are not intended to be used to predict the site specific needs accurately for every stream. To be regionally protective, the regional criteria are designed to limit water diversions so that adequate flows are available for spawning and passage at sites with the most restrictive instream flow needs. At some sites, therefore, more than adequate flows will be provided by regionally protective criteria, of which Davenport Creek may be one. Only site specific data can indicate whether Davenport Creek is one that is highly sensitive to flow diversion or is one that can support additional diversion beyond that permitted by the regional criteria. See section D.5 in Appendix D of the Scientific Basis Report (R2, 2008). This comment serves to demonstrate the value of applicants completing site specific studies. In this case, such studies appear to show that suitable conditions for upstream passage occur at flows less than those that would otherwise be required by the regional criteria. Of note however, is that the flows required by the regional criteria would be protective of passage for Davenport Creek.

#### **Topic 1.14 Policy Approach - Rudy Light Proposal**

**Comment 1.14.1:** If this policy is adopted, especially with the Minimum Bypass Flow and the Maximum Cumulative Diversion requirements, there will never ever be another pond built on a small drainage. Here is a chart using real stream gage data showing that unless your drainage area is at least 6,400 acres or 10 square miles, you'll never be able to build a pond. The reason for this is that the formula used for the MBF in the Draft Policy results in very few collection days when the watershed area is small. The graph shows that in a drainage area of 4 square miles or

2,560 acres, one can divert fewer than 10 days per year. That won't fill any but the tiniest of ponds. On the few very rainy storm days when you can collect above the MBF, the Maximum Cumulative Diversion limitation kicks in. (*Rudolph Light*)

**Response:** The regional criteria are provided for use when site specific data are not available. The Scientific Basis Report, Appendix E (R2, 2007) describes how the percentage of instream flow needed for fish increases with decreasing drainage area. This discussion was reflected in the formulation of the regional minimum bypass flow equation as a function of drainage area. However, if site specific data are available, the Draft Policy allows water right applicants the option of performing a site-specific study to more accurately determine the fishery resource instream flow needs for a particular location.

The comment regarding the shortcomings of the MBF formula for upstream water users is noted. Staff is reevaluating the flow related criteria in the Draft Policy based on consideration of the comments and suggestions that have been received.

**Comment 1.14.2:** Below 200 to 400 acres of drainage area, no diversion is possible using the proposed regional criteria. According to the commentary written by the engineering firm of Wagner and Bonsignore in response to the Draft Policy, all of the 71 ponds in the Maacama Watershed have a drainage area of less than 550 acres. Sixty of these 71 ponds have a drainage area of 200 acres or less and therefore would never have an allowable diversion day. No diversion would be possible under this policy for a substantial majority of these applicants. This MBF formula must be changed, so that for watersheds of less than 320 acres, no MBF or MCD requirements should be in place at all. Also, the MBF formula should be based on annual flow rather than instantaneous rate. MCD restrictions should be reserved only for large watersheds, measured in tens of square miles. (*Rudolph Light*)

**Response:** See response to 1.14.1.

**Comment 1.14.3:** The enclosed timeline deals exclusively with our application, a real example of how the water right process actually works between an applicant and the Division. But this timeline also serves to show how cumbersome and expensive the application process is for a very small project. The timeline is, I think, a strong argument for exempting small projects from excess regulations provided there is water available for wintertime storage. Watershed areas of less than 160 acres can safely be exempted from all requirements except water availability without harm to fish or fish habitat. These streams are too small for anadromous fish to spawn in, and as long as no more than 10% of the annual waterflow is taken, there is no significant flow impairment downstream of the project. (*Rudolph Light*)

**Response:** Regardless of the same timeline applying to all small projects, the argument does not change the problem of cumulative effects of many small projects diverting water in concert on downstream habitat. While an individual project by itself has a minor effect, the cumulative effects of many such projects can be major, thus it is important to address this via a cumulative effects analysis.

**Comment 1.14.4:** Small watersheds do not in general support rearing habitat because they are too small and there is little if any summer or fall water present. The chart shows that for watersheds less than 0.25 mi<sup>2</sup>, the Draft Policy would not allow any diversion to occur. The solution for this is to revise upward the MBF for all Drainage Areas of less than 20 square miles and which are also greater than 200 acres (0.31 mi<sup>2</sup>), and to permit at least 60 days of diversion no matter how small the Drainage Area is. This should be developed by professional engineers

because it is very complex. (*Rudolph Light*)

**Response:** Chapter 1 of the Scientific Basis Report (R2, 2008) explains the need for protecting flows in streams formerly supporting juvenile steelhead, including upstream of artificial barriers, and in ephemeral streams. For example, coho salmon juveniles are known to be transient and move in and out of small streams during the fall-winter-spring period, and NMFS has identified streams with drainages less than 0.31 mi<sup>2</sup> supporting critical habitat. Only site specific data and concurrence from DFG would indicate whether a stream does not support fish habitat and whether the proposed diversion is protective both at the POD if fish habitat is present and downstream. Professional engineers were involved in the development of the Draft Policy elements.

**Comment 1.14.5:** Surely there should be some allowable diversion in very small watersheds, 200 acres or less, simply because there is so little incremental water for anadromous fish. Since so many ponds are placed in very small watersheds, and since the total runoff of all of them together is small relative to the total runoff of the streams in which these are tributaries, instream flows can be protected and still make some water available for appropriation in watersheds of 200 acres or less. For watersheds of 200 acres (0.31 mi<sup>2</sup>) or less, the MBF could be eliminated, substituted by volumes. In addition, limitations would be placed on just the storage season and amount of water that may be collected. The proposal is as follows: 1) Set diversion dates of December 15 - March 31; 2) Calculate annual runoff using Rainfall-Runoff Method or Drainage Area Ratio Method as appropriate; 3) Reserve a bypass of 80% of annual runoff, and allow collection of no more than 20% of annual runoff, subject to a further restriction as described in 4) below; 4) Set an overriding maximum diversion in acre-feet equal to 30% of the Drainage Area in acres, (i.e., if Drainage Area is 100 acres, maximum diversion could be no more than 30 acre-feet); 5) Continue to ensure cumulative flow impacts are not exceeded downstream; and 6) Possibly restrict this to watersheds in which no salmonids can spawn as well as limit it to no more than 200 acres. (*Rudolph Light*)

**Response:** It cannot be assumed that the cumulative effects of eliminating the regional MBF criteria or imposing only a volume limit for the regional MCD would be negligible in all small watersheds. While an individual project by itself may have a minor effect, the cumulative effects of many such projects can be major, thus it is important that water right applicants perform a site-specific cumulative effects analysis, referred to as an Instream Flow Analysis in the Draft Policy.

Staff's responses to the six specific components in the proposal are as follows: (1) Staff is reevaluating the diversion criteria in the Draft Policy based on consideration of the comments and suggestions that have been received and is considering revising the Policy to use the more conservative DFG-NMFS proposed diversion season start date of 12/15; (2) the calculations for determining annual runoff are described in Section A.2.1.3 and include the methods suggested by the commenter; (3) and (4) The commenter did not provide the underlying science regarding this proposal. They appear to be assumptions at present. The commenter has not demonstrated that these criteria are protective of habitat-flow needs in a regional framework for protectiveness to anadromous salmonids and their habitat; (5) Staff agrees that downstream cumulative impacts need to be evaluated; and (6) smaller streams that do not support spawning can still support juvenile habitat which must also be protected.

**Comment 1.14.6:** The Commenter provided an analysis of his proposed alternative, the minimum bypass flow using the NMFS/DFG Draft Guidelines and the Policy minimum bypass flow equation for diversion in class III stream with 65 ac drainage area (without correcting the

Policy equation for DA at upper limit of anadromy). The Commenter found that diversion would never be allowed under the Policy, and that his proposed alternative would provide more flow for fish than the NMFS/DFG Draft Guidelines minimum bypass flow equation. Using his alternative, even in very dry years, fish will get plenty of water with some water still available for diversion. The Commenter further states that this approach has an advantage in that the whole idea of the instantaneous MBF is eliminated and there is no need to construct a bypass flow structure because the diversion season begins on December 15. The commenter states the landowner must keep the valve at the bottom of the pond open, but is sure that compliance among landowners will be nearly 100%. (*Rudolph Light*)

**Response:** Comment and suggestion noted. The commenter did not provide data showing that the amount of water provided by his proposed alternative flow criteria protects fish habitat on a regional basis. Regarding the specific example given, the DFG-NMFS draft guidelines were found to recommend a MBF less than the MBF4 criterion in streams smaller than about 5 mi<sup>2</sup>. While the DFG-NMFS guidelines may be protective in some small streams, there is no guarantee they will be regionally protective for all such streams.

**Comment 1.14.7:** The Maximum Cumulative Diversion is another burden on diverters in small watersheds. The winter floods would fill small ponds rather quickly if allowed to, but the MCD severely limits the maximum filling rate. I have not done the calculation for MCD but it is easy to see how restrictive it is. On medium sized watersheds, say 800 to 8,000 acres or so where collection can be made for only 10 to 25 days each year because of the MBF limitation, the presence of an MCD rate will almost ensure ponds cannot fill. The window of flow is simply too narrow. The solution for this is to eliminate the requirement for any MCD for all watersheds less than 20 square miles (= 12,800 acres), although an MBF may be appropriate for watersheds greater than 200 acres. Utilize the MCD concept where it makes a difference to instream flow, not to every watershed. (*Rudolph Light*)

**Response:** The comment regarding the shortcomings of the MCD criteria for upstream water users is noted. Staff is reevaluating how the Draft Policy addresses diversions in small watersheds based on consideration of the comments and suggestions that have been received.

**Comment 1.14.8:** Designing and constructing a passive bypass structure will cost tens of thousand of dollars and two structures would have to be built, one to ensure a MBF and the other to satisfy the MCD requirement. For small streams in drainage areas of 200 acres or less, this doesn't make any sense because the benefit of the added water going downstream is low compared to the cost of construction and monitoring. For small watersheds of 200 acres or less, no bypass structures should be required. The rationale is straightforward. In watersheds of this size, even if all the water were reserved for fish, the incremental gain for fish habitat and water volume is small. In most of these small watersheds there are no salmonids anyway. For the landowner, however, being able to collect up to even 19.5 acre-feet on a 65-acre watershed can be critical to his operation, and without the cost and trouble associated with bypass flow structures. (*Rudolph Light*)

**Response:** The comment regarding the shortcomings of the passive bypass system and regional MBF and MCD criteria for upstream water users is noted. Staff is reevaluating the flow related criteria in the Draft Policy based on consideration of the comments and suggestions that have been received.

## Topic 1.15 Policy Approach - TU/WB/ESH Proposal

**Comment 1.15.1:** TU/PAS and WB/ESH believe that the SWRCB must adopt a policy to comply with AB 2121 (policy). The policy must be adopted soon, because indefinite delays do not serve our mutual goal of having a functioning water right process. We do not agree, however, whether the Draft Policy proposed by the SWRCB is the appropriate foundation for such a policy. TU/PAS believe that the Draft Policy provides a reasonable foundation that can be improved upon. WB/ESH believe that some of the scientific principals and some of the technical analysis that support the Draft Policy is useful, but the approach of the Draft Policy to prescribe regional diversion limitations without site-specific studies is fatally flawed. *(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** The Draft Policy does not attempt to predict instream flow needs for each stream, and instead relies on a protective regional criterion to establish a suitable threshold flow below which uncertainty on site-specific instream flow needs can be addressed by site specific study. The option for conducting site specific studies was included in the Policy as a means to allow the collection and evaluation of more information specific to a given stream, with the recognition that one-size does not fit all and that stream conditions can be highly variable between and even within a given watershed. However, the option to conduct such studies is up to the individual applicant. Absent such, the Draft Policy allows applicants to use a set of criteria that are conservatively protective throughout the policy area that Staff believes will maintain instream flow conditions for anadromous fish.

**Comment 1.15.2:** The Draft Policy is principally concerned with conditioning new water right applications and some petitions for change to prevent adverse effects on salmonids and salmonids habitat. TU/PAS and WB/ESH agree that the SWRCB should take a broader view of the policy and its mandate to improve the administration of water rights within the Water Code's context of balancing multiple beneficial uses of water (including agricultural, municipal, domestic, industrial, and instream beneficial uses), protecting the public trust, and providing for water quality control. The SWRCB should adopt a watershed management-oriented policy based upon the principle of preserving fish and other natural resources within the North Coast region while serving the needs of the agricultural, municipal, domestic, and industrial uses which are dependent on the water. Consistent with this principle, the policy should be based upon following goals: (1) Improve the efficiency, scientific and technical accuracy, and fairness of the water right process; (2) Contribute to the management of natural resources within the watersheds and provide incentives for stewardship, such as encouraging existing diverters to shift to winter offstream storage; (3) Process permits and approve permit changes consistent with the other goals; (4) Facilitate compliance with the Water Code and other laws and regulations; (5) Condition water right applications and petitions in a manner that maintains instream flows needed for the protection of fishery and other resources. In general, as the Draft Policy states, most diversions should be conditioned to a rainy season of diversion, to periods of high flows, to reasonably maintain the natural flow variability, to minimize to the extent practicable the effects of onstream dams, and to avoid significant cumulative diversion effects. (See Draft Policy section 2.2.) *(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers; Roland Sanford, Mendocino County Water Agency)*



**Response:** Comment noted.

**Comment 1.15.3:** The draft policy proposes three basic nonexclusive strategies for processing water right applications and petitions: (1) individually with site-specific studies; (2) as a group with watershed-based studies; and (3) using predefined criteria such as the Draft Policy's "Regional Criteria." TU/PAS and WB/ESH agree that the policy should include additional guidance both for applicants who pursue site-specific studies and for applicants who pursue watershed-based permit processing and resource management. We disagree about the utility of the regionally protective criteria strategy. TU/PAS believe that the Regional Criteria of the Draft Policy can and should be improved, although TU/PAS do not recommend adoption of the specific criteria proposed in the Draft Policy. WB/ESH believe that the Regional Criteria should not be adopted because the criteria are too rigid to address the specific factors unique to each watershed and because the criteria are so conservative that most projects cannot satisfy them. *(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** The Draft Policy regional criteria are intended to be conservative regionally, and thus may be overly protective relative to instream flows in many streams where site specific data are not available. The site specific study element of the draft Policy is provided as a means to determine instream flow needs on a site specific basis. This commenter also stated in subsequent comments that many water right applications are located in small watersheds; and stated that application of the proposed regional criteria to these projects would result in lost yield. Staff received other comments regarding application of the regional criteria to small watersheds, and is considering modifications to the regional criteria based on the comments and suggestions that have been received

**Comment 1.15.4:** Both TU/PAS and WB/ESH believe that the final policy should provide an expedited permitting process that includes standard terms and calculations for bypass flows, seasons of diversion, maximum cumulative diversions, the location of onstream dams, and the evaluation of cumulative effects, as one of the three strategies to satisfy the principles stated in Draft Policy section 2.2. Specifically, such standard terms and conditions, consistent with the intent of the Draft Policy's criteria, could reduce the level of review otherwise required under CEQA and the public trust doctrine, because they would be presumed protective regionally. However, they would not be the exclusive means to comply with the principles stated in Draft Policy section 2.2, and they would not, by themselves, be sufficient basis for decision on each application which complied with them. *(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** The Draft Policy contains provisions for different approaches to the proposed regional criteria. These include site specific studies and the watershed approach.

**Comment 1.15.5:** TU/PAS and WB/ESH agree that while projects generally should provide a minimum bypass flow, maximum cumulative diversion, season of diversion, and onstream dam limitations, small project and de minimus project exceptions should be developed for these standard terms and conditions. As described below, we request that the Board direct staff to meet with stakeholders to further define these terms. *(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Very small projects can cumulatively have a deleterious effect on downstream flows. An automatic exemption without consideration of cumulative effects may not be protective of anadromous salmonids and their habitat downstream. Staff note however, that a site specific assessment can be performed to demonstrate that the project or collection of projects in question will not adversely affect downstream flows. Staff is reevaluating the flow related criteria in the Draft Policy based on consideration of the comments and suggestions that have been received.

**Comment 1.15.6:** TU/PAS and WB/ESH understand the complexities of the North Coast region, and we are concerned that the Draft Policy will not accomplish its objectives. Although TU/PAS and WB/ESH will be submitting separate comments on the Draft Policy, we believe that it is important for the SWRCB to understand the many areas in which we agree before the SWRCB considers revisions to its Draft Policy. We also recommend that the SWRCB direct staff to meet with stakeholders to further develop these joint recommendations and direct staff and stakeholders to report back to the Board as soon as possible, and no later than the July 2 Board workshop.

Both TU/PAS and WB/ESH consider the following set of shared principles to be mutually dependent, and we do not necessarily support each individual principle in the context of a policy that does not advance the other principles. (For instance, TU/PAS do not support a small project exception unless the policy includes scientifically-based regional criteria and both individual and policy effectiveness monitoring. Similarly, WB/ESH do not support adoption of regional criteria that include minimum bypass flow and maximum cumulative diversion calculations unless there are small project and de minimus project exceptions from the criteria, the minimum bypass flow and maximum cumulative diversion calculations consider the watershed size, hydrology and ecological resources affected by a given project, the extent of anadromy is based on actual field data, and applicants have a choice between regional criteria, site-specific and watershed permitting approaches.)

*(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Comment noted.

The Draft Policy does not attempt to predict instream flow needs for each stream, and instead relies on a protective regional criterion to establish a suitable threshold flow below which uncertainty on site-specific instream flow needs can be addressed by site specific study. The Draft Policy contains an option for conducting site specific studies as a means to allow the collection and evaluation of more information specific to a given stream, with the recognition that one-size does not fit all and that stream conditions can be highly variable between and even within a given watershed. However, the option to conduct such studies is up to the individual applicant. Absent such, the Draft Policy allows applicants to use a set of criteria that are conservatively protective throughout the policy area that Staff believes will maintain instream flow conditions for anadromous fish.

The Draft Policy provides a watershed approach alternative that allows water right applicants in

a watershed to apply as a watershed group. This would allow water right applicants to take into account the real manner in which water diversions are made in the watershed.

**Comment 1.15.7:** The commenters provided a power point presentation summarizing recommendations regarding (1) stream flow recommendations, (2) procedural reform (3) guidance for the watershed approach, (4) incentives for stewardship, (5) monitoring and reporting, (6) policy effectiveness review, and (7) enforcement. *(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Comment noted. This comment has been superceded by more detailed comments found in "Draft Joint Recommendations for the North Coast Instream Flow Policy", dated April 30, 2009. Please see staff responses bound separately.

**Comment 1.15.8:** The commenters' flow recommendations consist of: (1) define management objectives that can be evaluated using standard calculations, site specific studies, watershed approach; (2) protect the "sweet spot" for spawning, which is between the winter baseline flow and the spawning flow; (3) do not require evaluation of all fishery impacts at the POD; (4) do not prorate the minimum bypass flow for water diversions above anadromy. *(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Comment noted. This comment has been superceded by more detailed comments found in "Draft Joint Recommendations for the North Coast Instream Flow Policy", dated April 30, 2009. Please see staff responses bound separately.

**Comment 1.15.9:** For diversions above the upper limit of anadromy, if a cumulative effects test is not passed, a minimum bypass flow equal to the spawning flow should be used. *(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Comment noted. This comment has been superceded by more detailed comments found in "Draft Joint Recommendations for the North Coast Instream Flow Policy", dated April 30, 2009. Please see staff responses bound separately.

**Comment 1.15.10:** The cumulative effects test for determining the amount of bypass flow that would be needed for PODs above anadromy could be (1) a percentage reduction in average annual volume determined for a drainage area of approximately 1 square mile, or (2) the known spawning limit (volumetric range likely similar to the 2002 Draft Guidelines); or (3) site specific studies could be used to demonstrate no impact to spawning success. *(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Comment noted. More details regarding this comment are found in "Draft Joint Recommendations for the North Coast Instream Flow Policy", dated April 30, 2009. Please see staff responses bound separately.

**Comment 1.15.11:** The commenters' flow recommendations consist of: (1) management objectives that can be evaluated using standard calculations, site specific studies, watershed approach; (2) cumulative effects not necessarily calculated at the point of diversion (3) minimum bypass flow and maximum cumulative diversion terms not necessarily prorated for all diverters. *(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Comment noted. This comment has been superceded by more detailed comments found in "Draft Joint Recommendations for the North Coast Instream Flow Policy", dated April 30, 2009. Please see staff responses bound separately.

**Comment 1.15.12:** The "sweet spot" between the salmon spawning flow ( $Q_s$ ) and the winter baseline flow for the wetted riffle ( $Q_{wb}$ ) should be maximized.  $Q_s$  was provided in the May 1, 2008 Trush Commentary.  $Q_{wb}$  is equal to the February median flow. For stream flows lower than  $Q_{wb}$ , allow a 5% instantaneous reduction in flow or something functionally equivalent. For stream flows between  $Q_{wb}$  and  $Q_s$ , water diversions that cause less than a 10% instantaneous reduction in flow should be allowed. For stream flows above  $Q_s$ , water diversions that cause up to 20% instantaneous reduction in flow should be allowed. *(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Comment noted. While in principle the approach suggested could be used as part of a site specific study, the approach appears conceptual in nature and requires more rigorous scientific development. The assumptions (e.g., <5% has no discernable impact) need clearer definition, and the specific methods require more detail regarding implementation decisions (e.g., how to quantify daily ambient flow).

**Comment 1.15.13:** For diversions above the upper limit of anadromy, where the POD is on a watershed drainage area less than 64 acres (typically Class III), if a cumulative effects test is passed, no minimum bypass flow is needed. *(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Comment noted. This comment has been superceded by more detailed comments found in "Draft Joint Recommendations for the North Coast Instream Flow Policy", dated April 30, 2009. Please see staff responses bound separately.

**Comment 1.15.14:** For diversions above the upper limit of anadromy, where the POD is on a watershed drainage area greater than 64 acres (typically Class II), if a cumulative effects test is passed, a minimum bypass flow equal to the winter baseline flow should be used. *(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Comment noted. This comment has been superceded by more detailed comments found in "Draft Joint Recommendations for the North Coast Instream Flow Policy", dated April 30, 2009. Please see staff responses bound separately.

**Comment 1.15.15:** For diversions above the upper limit of anadromy, if a cumulative effects

test is not passed, increase the minimum bypass flow above the winter baseline flow as necessary to pass the cumulative effects test. *(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Comment noted. This comment has been superceded by more detailed comments found in "Draft Joint Recommendations for the North Coast Instream Flow Policy", dated April 30, 2009. Please see staff responses bound separately.

**Comment 1.15.16:** The cumulative effects test for determining the amount of bypass flow that would be needed for PODs above anadromy could be set up as follows. The Point of Evaluation (PoE) would be 1 square mile, or a site specific determination of the upper limit of anadromy could be used. A diversion would pass the cumulative effects test if it depletes not more than 5% of the average annual volume at the PoE. A flexible approximation that could be used is to assess whether a diversion is causing a reduction of not more than 5% of the streamflow below the Qwb. Or, a diversion would pass the cumulative effects test if it depletes not more than 10% of the average annual volume at PoE if no bypass reservoirs collectively deplete 5% of the volume. A flexible approximation that could be used is to assess whether a diversion is causing a reduction of not more than 5% of the stream flow below Qwb and 10% below Qs). Or site-specific studies could be used to assess whether a diversion passes the cumulative effects test. The commenter indicates they are developing evaluation criteria for site specific studies. *(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Comment and proposal noted. However, Staff note that the conceptual and specific criteria listed would require a more concrete and regional analysis to evaluate their suitability for use as regional guidelines in the absence of site specific data.

**Comment 1.15.17:** For diversions below the upper limit of anadromy, the minimum bypass flow would be equal to the spawning flow, and the maximum cumulative diversion would be established. The maximum cumulative diversion would be a variable rate not to exceed 20% of the instantaneous spawning flow, Qs, with intake set to avoid diversions below Qs. *(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Comment and proposal noted. However, Staff note that the conceptual and specific criteria listed would require a more concrete and regional analysis to evaluate their suitability for use as regional guidelines in the absence of site specific data.

**Comment 1.15.18:** The joint stakeholders' proposal contains more management objectives and implementation than regional formulas. This should work equally well whether using site-specific studies, regional estimates, or watershed approach. It includes procedural reform, monitoring/reporting, regional gauging, incentives for stewardship, watershed approach. *(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Comment noted. This comment has been superceded by more detailed comments found in "Draft Joint Recommendations for the North Coast Instream Flow Policy", dated April

30, 2009. Please see staff responses bound separately.

**Comment 1.15.19:** The joint stakeholders' proposal focuses on small projects above the upper limit of anadromy and the cumulative effects of diversion on salmon. *(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Comment noted.

**Comment 1.15.20:** There are three minimum bypass flow outcomes based on watershed size and cumulative effects: (1) no bypass; (2) winter baseline flow; (3) spawning flow *(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Comment noted. This comment has been superseded by more detailed comments found in "Draft Joint Recommendations for the North Coast Instream Flow Policy", dated April 30, 2009. Please see staff responses bound separately.

**Comment 1.15.21:** Above the upper limit of anadromy, the cumulative effects test determines the need for salmon spawning bypass. If there is little or no cumulative effects and the watershed is small (0.1 square mile, class III), no bypass is required. If there is little or no cumulative effects and the watershed is larger, the winter baseline flow should be bypassed. Active management of the bypass flow would be allowed with proof of compliance. *(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Comment noted. This comment has been superseded by more detailed comments found in "Draft Joint Recommendations for the North Coast Instream Flow Policy", dated April 30, 2009. Please see staff responses bound separately.

**Comment 1.15.22:** All minimum bypass flows can be calculated with regional estimates or site specific studies. The salmon spawning flows should be based on the proposal provided in the Trush commentary (May 1, 2008). The winter baseline flows are proposed to be based on February median flows. The policy will provide guidance on conducting site specific studies. *(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** See response to 1.13.10 regarding regional applicability of the proposal, and response to 1.15.30 regarding conceptual and implementation problems with the riffle concept as proposed for spawning flows.

**Comment 1.15.23:** The season of diversion should generally be December 15 through March 31, unless other seasons accomplish the same objectives. *(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Recommendation and suggestion noted. Staff has received several comments expressing concern regarding the proposed diversion season start date of October 1. In particular, NMFS, DFG, the Regional Boards, and the peer reviewers pointed out that Scientific Basis Report did not adequately evaluate some effects on habitat and water quality that could stem from implementation of the October 1 start date. Some commenters identified valid implementation issues with the October 1 start date. Many commenters suggested that the State Water Board utilize the diversion season start date recommended by the NMFS-DFG Draft Guidelines of December 15. Since the December 15 start date is more protective than the October 1 start date, and commenters have noted that historically there is not much stream flow available between October 1 and December 15, Staff proposes to revise the Draft Policy's proposed diversion season start date to December 15.

**Comment 1.15.24:** Suggested changes to water right procedures include the following recommendations: (1) Develop initial work plan (include all parties) after public notice; (2) Provide written guidance on environmental studies: Applicants may prepare draft CEQA/public trust document, Meet/confer with parties on studies, Guidance on appropriate study approaches, baseline, thresholds of significance; (3) Provide mechanism to review staff decisions at key points of the permit process (consider designating one board member or rotation of members); (4) Provide application-related documents (work plan, WAA, studies) readily available to parties and public to improve transparency; (5) Develop MOU with DFG, Regional Boards on permit coordination (e.g., section 1600) (*Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** These suggested changes to the water right procedures have been common practice for the Division of Water Rights. (1)(2) Current Division practice is to require the applicant to enter into a Memorandum of Understanding (MOU) for the preparation of the CEQA/Public Trust documentation and water availability analysis. The process includes meeting with the applicants, usually their agents, the various Federal, State and Local governmental agencies to determine the baseline for the environmental review process and develop a work plan for conducting the supporting documentation and studies. This usually includes site visits by Division staff and the various representatives of governmental agencies the environmental consultants and the applicant and their agent. This process is designed to develop the CEQA documents and the supporting studies and documents. It includes the development of the appropriate studies and evaluations to address the compliance with CEQA. (3) The State Water Board annually adopts a Resolution re-delegating various authorities to the Deputy Director of the Division of Water Rights. The Resolution is posted on the Division of Water Rights web page. The Re-Delegation Resolution provides direction and requirements for the Deputy Director to review staff decisions at key points. (4) The files and records are readily available to the public upon request. Draft CEQA/ Public Trust documents and the water availability analysis are posted on the Division of Water Rights web page for review and comment ([www.waterrights.ca.gov](http://www.waterrights.ca.gov).) The Division provides electronic notification of public notices. The procedure for requesting electronic notification is posted on the Division's web page. (5) The Division provides separate notification to the Department of Fish and Game (Headquarters Sacramento and the Regional Offices) and the Regional Water Quality Control Board.

**Comment 1.15.25:** On January 15, 2009, Bill Trush provided a Powerpoint presentation, "Prescribing Instream flows in Small North Coastal California Stream," which contained results for site specific studies he conducted on Davenport Creek (1.07 sq. mi. watershed), Sullivan Gulch (2.35 sq. mi. watershed), and Elder Creek (6.5 sq. mi. watershed). (*Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter*

*of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Comment noted. While in principle the approach suggested could be used as part of a site specific study, the approach appears conceptual in nature and requires more rigorous scientific development.

**Comment 1.15.26:** This document provides text describing the methodology used by Bill Trush to develop the analysis for his January 15, 2009 Powerpoint presentation. This methodology is for small streams of 5 sq. mi. and below. It could work for streams of up to 10 sq. mi. but additional data would be needed. *(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Comment noted. While in principle the approach suggested could be used as part of a site specific study, the approach appears conceptual in nature and requires more rigorous scientific development.

**Comment 1.15.27:** The Salmon and Steelhead Spawning and Migration Flow Threshold ("Salmon Spawning Flow" or QS) is a streamflow threshold important for protecting two steelhead and salmon life history functions in small North Coast California streams: (1) maintaining natural abundance and availability of spawning habitat; and (2) minimizing unnatural adult exposure, stress, vulnerability, and delay during spawning migration. *(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Comment noted. This comment has been superceded by more detailed comments found in "Draft Joint Recommendations for the North Coast Instream Flow Policy", dated April 30, 2009. Please see staff responses bound separately.

**Comment 1.15.28:** The Winter Baseline Flow Threshold (QWB) is a streamflow threshold important to managing several steelhead and salmon life history functions in small North Coast California streams: (1) maintaining good benthic macroinvertebrate habitat in riffles to foster high stream productivity, (2) preventing redd desiccation and maintaining hyporeic subsurface flows, (3) sustaining high quality and abundant juvenile salmonid rearing habitat, and (4) facilitating smolt out-migration. *(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Comment noted. This comment has been superceded by more detailed comments found in "Draft Joint Recommendations for the North Coast Instream Flow Policy", dated April 30, 2009. Please see staff responses bound separately.

**Comment 1.15.29:** The winter baseline streamflow threshold, Qwb, can be estimated using (1) benthic macroinvertebrate (BMI) habitat mapping, or (2) by using the streamflow at the median riffle crest thalweg that inundates the dominant particle size of the riffles (quantified as the D84 in a 100 rock-count; or (3) by using the February median flow. For further details, please refer to the document. *(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*



**Response:** The basis behind the recommendations needs to be supported beyond the conceptual phase presented in the document.

**Comment 1.15.30:** The salmon spawning flow,  $Q_s$ , can be determined using two methods.

(1) Spawning habitat rating curves in which the X-axis =  $Q$  (cfs) and the Y-axis = spawning habitat (ft<sup>2</sup>). Habitat mapping results should be evaluated using spawning habitat rating curves for each spawning habitat site separately.  $Q_s$  is the highest streamflow that sustains any spawning habitat based on a review of the spawning habitat rating curves. The recommended methodology is to set  $Q_s$  at a level to account for all good habitat defined as individual sites with at least 15 ft<sup>2</sup> for coho and 10 ft<sup>2</sup> for steelhead. (i.e., increasing flow does not produce additional spawning locations with areas of those sizes.)

(2) Streamflows that produce the minimum fish depths at the median riffle crest thalweg (RCT) can act as a surrogate for  $Q_s$ . Stage height for  $Q_s$  at the RCT is estimated by selecting the "fish depth" appropriate to the diversion. If only steelhead spawn in the vicinity of the POD, then  $Q_s$  is assigned a RCT depth of 0.7 ft. If steelhead and coho salmon spawn in the vicinity of the POD, then  $Q_s$  is assigned a RCT depth of 0.8 ft. If all three species are present,  $Q_s$  is assigned a depth of 1.0 ft. The streamflow magnitude for  $Q_s$  is estimated by associating the selected RCT depth with streamflow in the  $Q - RCT$  curve constructed from the RCT field surveys.

This approach requires an assessment of the Upper Limit of Anadromy (ULA) for each anadromous salmonid species. Where the project is above the ULA but still requires calculation of  $Q_s$  (this will happen only where there are large cumulative effects), the methodology directs the studies to the nearest downstream reach of anadromous fish habitat. (*Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Comment and suggestion noted. However, Staff's technical experts note that (1) This is an alternative conceptual model that may be suitable for use in site specific studies, but requires greater specificity on the basis and implementation of the criteria; (2) it appears that the median riffle crest thalweg (RCT) metric proposed is considered as a surrogate for the active channel. However, the RCT method appears flawed hydraulically for the following reasons: (i) each riffle crest has its unique stage-discharge curve, where plotting each curve on the same graph will result in a cloud of curves. It is difficult to see how any one set of points picked from each stage-discharge curve to define an RCT- $Q$  curve can be considered more representative of instream flow needs than another set of points; (ii) Related to this, there is no biologically based criterion proposed for selecting the appropriate flow at which RCT depth should be measured at each location; the present approach relies on opportunistic data with no distinction of the relative extent to which the flow is beneficial to habitat. Moreover, picking a median RCT depth value appears to be arbitrary. In addition, the assumption of surrogacy needs more specific support beyond the conceptual stage.

**Comment 1.15.31:** This document contains calculated basic data for developing regional  $Q_s$  and  $Q_{opt}$  relationships for Davenport Creek, Sullivan Gulch, Rock Creek, Elder Creek, Big Sulphur Creek, and Scott Creek. (*Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Comment noted.

## 2.0 Policy Principles

**Comment 2.0.1:** The section entitled "Principles for Maintaining Instream Flows" (page 2 of the Policy) is well-balanced and generally effective. The following additional principle should be incorporated into this section to increase effectiveness: "Dams and other structures creating a barrier to fish passage that are currently permitted will be reviewed to determine if they pose a threat to salmonids, other fish and wildlife, necessary habitat, and water quality." In addition, these principles should be used to formulate the Minimum Bypass Flow calculations outlined on page 4. (*Joshua Basofin, Defenders of Wildlife; Don McEnhill, Russian Riverkeeper; and Linda Sheehan, California Coastkeeper Alliance*)

**Response:** The suggestion to add another principle to section 2.2 of the Draft Policy is noted; however, the State Water Board does not propose to review all permitted onstream dams for potential effects to habitat or water quality. The State Water Board already has continuing authority to protect public trust uses and to prevent the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of water in the state, regardless of basis of right. The State Water Board's exercise of these authorities may require notice and an opportunity for hearing.

The minimum bypass flow criteria described on page 4 of the Draft Policy reflect policy principle number 2, "Water shall be diverted only when stream flows are higher than the minimum instream flows needed for fish spawning and passage."

**Comment 2.0.2:** On page 2 of the new draft policy, SWRCB identifies five guiding principles that are, with one exception, similar to the underlying principles of the DFG-NMFS (2002) Draft Guidelines. The implementation and enforcement of a policy that achieves these objectives would minimize take of listed salmon and steelhead and substantially promote the recovery of these species. NMFS fully supports rules that limit the approval of new appropriative water rights to only periods when flows are naturally high. NMFS agrees that minimum bypass flows should be required for all projects that affect flow in reaches that support salmonid habitats, including seasonal streams that may not support fish but do support aquatic biological production that sustains fisheries (e.g., the growth and transport of fish food items such as aquatic macroinvertebrates). Without minimum bypass flows, water diversions have the potential to dewater streams or otherwise degrade salmonid habitats, thereby exposing salmon and steelhead to stranding, desiccation, reduced growth, or increased predation. NMFS also agrees that the construction of new on-stream dams must be restricted, and that cumulative adverse effects of diversions on stream functions must be considered and limited. (*Dick Butler, US National Marine Fisheries Service*)

**Response:** Comment noted.

**Comment 2.0.3:** In Draft Policy Section 2.2, the statement "Protection of fishery resources is in the public interest" leaves out other beneficial uses adversely effected by diversion practices that the policy intends to address. (*Alan Levine, Coastal Action Group*)

**Response:** Section 2.2 of the Draft Policy does not exclude other beneficial uses that could be affected by diversion practices. Section 1257 of the Water Code states that the State Water Board "shall consider the relative benefit to be derived from (1) all beneficial uses of the water concerned including, but not limited to, use for domestic, irrigation, municipal, industrial,

preservation and enhancement of fish and wildlife, recreational, mining and power purposes, and any uses specified to be protected in any relevant water quality control plan, and (2) the reuse or reclamation of the water sought to be appropriated, as proposed by the applicant. The Board may subject such appropriations to such terms and conditions as in its judgment will best develop, conserve, and utilize in the public interest, the water sought to be appropriated."

**Comment 2.0.4:** Policy principle number 2 would automatically fall into place if principle number 1 was enforced. *(Alan Levine, Coastal Action Group)*

**Response:** Policy principle number 1 provides a calendar period during which diversion could occur. Policy principle number 2 accounts for the naturally varying and cyclic nature of stream flow on an instantaneous basis, and ensures minimum stream flow is available for fish during periods of time when stream flows become low.

**Comment 2.0.5:** It is not clear how policy principle no. 5 is to be enforced. Criteria and process that will meet instream flow needs and fish migration needs must be defined. *(Alan Levine, Coastal Action Group)*

**Response:** Policy principle number 5 would be addressed through implementation of the water availability analysis described in Section 4.1 and Appendix 1 of the Draft Policy.

**Comment 2.0.6:** The City supports the five Principles described in Section 2.2 and requests that a principle be added to include granting of rights for diversions of water for water supply and other appropriate purposes. *(Susan Gorin, City of Santa Rosa)*

**Response:** The State Water Board already has authority to issue water rights for water supply and other beneficial uses. Section 1257 of the Water Code states that the State Water Board "shall consider the relative benefit to be derived from (1) all beneficial uses of the water concerned including, but not limited to, use for domestic, irrigation, municipal, industrial, preservation and enhancement of fish and wildlife, recreational, mining and power purposes, and any uses specified to be protected in any relevant water quality control plan, and (2) the reuse or reclamation of the water sought to be appropriated, as proposed by the applicant. The Board may subject such appropriations to such terms and conditions as in its judgment will best develop, conserve, and utilize in the public interest, the water sought to be appropriated."

**Comment 2.0.7:** The second policy principle in Section 2.2 of the Draft Policy states that "Water shall be diverted only when stream flows are higher than the minimum instream flows needed for fish spawning and passage." Peer reviewers (Lang, 2008; McMahon, 2008) suggest that impacts on rearing salmonids need equal consideration with those on migrating and spawning adults. Steelhead juveniles typically spend two years in freshwater (Barnhart, 1989) and coho salmon spend a full year feeding before migrating to the ocean (Groot and Margolis, 1991). Dr. Lang (2008) points out that factors such as "food availability, food delivery from upstream, and hiding cover, that are also important and not well characterized" by modeling exercises and cites Harvey et al. (2006) as demonstrating differences in growth rates of juvenile salmonids between diverted and undiverted streams. *(Patrick Higgins, Consulting Fisheries Biologist/Sierra Club Redwood Chapter)*

**Response:** The Harvey et al. (2006) study referenced by the Commenter is not representative of conditions expected when following the proposed Policy diversion season, MBF and MCD elements. That study involved summer diversion of the majority of low flow. This case will never occur during the winter diversion season under the Policy. The winter base flow is below the

proposed MBF level in streams where juvenile over-wintering occurs. Furthermore, growth rates of juveniles are generally reduced or negligible during the winter depending on water temperature and food availability patterns. During the spring growth period, the diversion season element protects water temperatures conducive to growth, the MBF element of the Policy protects flows that are important for food production and hiding cover, and the MCD element protects freshets that are important for food production and delivery. The MCD element also provides for the essential resources referred to by citing Lobon-Cervia (2003), who were addressing availability of habitat space, not food supply.

**Comment 2.0.8:** The Principles stated in Draft Policy Section 2.2 are correct. They are substantive, as implementation of the water code. The principles are (1) water diversions shall be seasonably limited; (2) water shall be diverted when flows are higher than the minimum flows required for spawning and fish passage; (3) water shall be diverted in a manner that maintains the natural flow variability; (4) onstream dams shall be limited and conditioned to protect natural resources; and (5) cumulative effects caused by multiple diversions shall be avoided. (*Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society*)

**Response:** Comment noted.

**Comment 2.0.9:** Draft Policy Section 2.2 identifies five principles for the maintenance of instream flows. (Policy, pp. 2-3.) The five principles are intended to guide permit terms and conditions under any of the Policy's three strategies. They are: (1) water diversions shall be seasonably limited; (2) water shall be diverted when flows are higher than the minimum flows required for spawning and fish passage; (3) water shall be diverted in a manner that maintains the natural flow variability; (4) onstream dams shall be limited and conditioned to protect natural resources; and (5) cumulative effects caused by multiple diversions shall be avoided. (Id.) They are substantive, as implementation of the Water Code. We support the adoption of these principles. (See Joint Principles, p. 2.) (*Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society*)

**Response:** Comment noted.

**Comment 2.0.10:** DFG concurs with the five guiding principles specified in the Policy, and, with the inclusive definition of "fish" and modification of the fifth principle, feels that it will serve to protect fisheries resources. DFG suggests modifying the fifth policy principle to read as follows: "Cumulative effects of water diversions on instream flows needed for the protection of fish and their habitat shall be analyzed and either minimized with appropriate mitigation to provide instream flow protection or, if minimization is not possible, avoided by restricting new diversions within that watershed." DFG says this change is necessary to ensure that protection is provided against adverse impacts caused by multiple water diversions within a watershed. Multiple small diversions, which in and of themselves may not be adverse, can be located in watersheds where the impacts of all diversions cumulatively contribute to conditions that adversely impact fisheries resources. (*Donald Koch, State of California Department of Fish and Game*)

**Response:** The comment suggests adding implementation language into the principle statement. Implementation of the fifth principle, including addressing cumulative impacts from multiple diversions in a watershed, is addressed in the Instream Flow Analysis section of the policy.

**Comment 2.0.11:** Policy should take a broad watershed-scale approach. (*TU Form Letter*)

**Response:** Comment noted. The Draft Policy includes a watershed approach option.

### 3.0 Policy Applicability

#### Topic 3.1 Policy Applicability - General

**Comment 3.1.1:** The 4/3/08 Point Reyes Light reports that the Marin Resource Conservation District held a December workshop on the "Yeoman Program" ([www.yeomansplow.com.au/](http://www.yeomansplow.com.au/) and [www.keyline.com.au/](http://www.keyline.com.au/)). The websites state "Yeomans.. . pioneered.. . the use of on-farm irrigation dams in ... a system of amplified contour ripping that controlled rainfall run off and enabled the fast flood irrigation of undulating land with out the need for terracing." Such a watershed-wide fenceline-to-fenceline contouring designed to withhold water has the potential to significantly add to the existing 62% impairment and diminish in-stream flows throughout the Watershed even if no further instream dams are constructed. It is not clear that your regulatory proposal for our creeks are equipped to deal with the Yeoman Program. (*Gordon Bennett, Sierra Club Marin Group*)

**Response:** Comment noted. The State Water Board has authority over appropriations of water from surface streams and subterranean streams. The Draft Policy sets forth a process for administering new and pending water right applications. The Yeoman Program does not fit within this regulatory framework and would need to be addressed separately through the continuing authority of the State Water Board to protect public trust uses and to prevent the waste or unreasonable use of water.

**Comment 3.1.2:** This policy is assumed to protect smaller (non-anadromous) fish populations. This assumption does not hold true if anadromy is limited by blockage by a dam. All aquatic life must be considered as a beneficial use. (*Alan Levine, Coastal Action Group*)

**Response:** The Draft Policy contains provisions ensuring diverters located in stream reaches above anadromy provide contributory flows to maintain conditions needed for fish populations downstream of the upper limit of anadromy. Therefore, smaller (non-anadromous) fish populations may also be protected by the Policy. Policy applicability upstream of passage barriers is discussed in Section 1.2.1 of the Scientific Basis Report (R2, 2008). Conditions suitable for non-anadromous fish populations exist above dams that block anadromous fish and therefore warrant protection.

**Comment 3.1.3:** The Policy area should be expanded to cover the Klamath System (Salmon, Trinity, and Scott Rivers) as the State Water Board's responsibility extends beyond the realm of AB 2121. It must be recognized that there is a very serious fishery crisis where survival of salmon stocks may be dependent on this policy. (*Alan Levine, Coastal Action Group*)

**Response:** Water Code section 1259.4 (a)(1) provides a statutory deadline of January 1, 2008 for adopting principles and guidelines for maintaining instream flows in the north coast area of California for the purposes of water right administration. Water Code section 1259.4 (a)(2) provides the State Water Board the authority to adopt principles and guidelines for maintaining instream flows in other regions of the State. Due to funding and staffing limitations, and to be responsive to the statutory deadline, the State Water Board has chosen to initially focus on principles and guidelines for the north coast area. After the State Water Board adopts this policy, instream flow policies for other areas of the state may be considered.

**Comment 3.1.4:** This policy should be expanded to apply beyond applications to appropriate water, small domestic use and livestock stockpond registrations, and water right petitions to consider existing water rights, misuse of water, and transfers that are seriously limiting instream flows and having adverse effect on the anadromous fishery (*Alan Levine, Coastal Action Group*)

**Response:** Staff is considering revisions to the Draft Policy that would provide incentives for authorized diverters to modify diversions to enhance conditions for fish and wildlife. The State Water Board already has continuing authority to protect public trust uses and to prevent the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of water in the state, regardless of basis of right. The State Water Board's exercise of these authorities may require notice and an opportunity for hearing.

**Comment 3.1.5:** We support the concept of minimum bypass flow. It is very important. However, we feel that the concept should be applied to all diversions, new and existing. (*Alan Levine, Coastal Action Group*)

**Response:** This suggestion is noted; however, the State Water Board does not plan to place minimum bypass flow requirements on all existing water rights. The State Water Board already has continuing authority to protect public trust uses and to prevent the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of water in the state, regardless of basis of right. The State Water Board's exercise of these authorities may require notice and an opportunity for hearing.

**Comment 3.1.6:** Extend [the] exemptions [provided in section 3.2 of the Draft Policy] to all streams where minimum instream flows have been previously established by the Division or DFG for the protection of fishery resources. Water Right Order 95-17, Order Amending Water Rights and Requiring Changes in Water Diversion Practices to Protect Fishery Resources and to Prevent Unauthorized Diversion and Use of Water, establishes minimum flows and measures to protect fishery resources in Lagunitas Creek from the effects of water diversion by the Marin Municipal Water District and the North Marin Water District. Marin Municipal and NMWD have worked closely with the State Water Board to comply with WR 95-17, and North Marin Water District urges the State Water Board to place no further obligations such as compliance with the above Policy on the NMWD Lagunitas Creek Water Rights. Additionally, Permit 18800 (A025927) for Novato Creek requires reservoir releases in accordance with schedules requested by DFG for the benefit of fish. NMWD urges the State Water Board to place no further obligations such as compliance with the above Policy on the NMWD Novato Creek Water Rights. (*Chris DeGabriele, North Marin Water District*)

**Response:** Comment noted. Staff will evaluate whether the wording of section 3.2 of the Draft Policy needs modification.

**Comment 3.1.7:** While we understand that the geographic scope of the Draft Policy was driven by AB 2121, we believe that the State Water Board should expand the focus to include the Klamath and Eel rivers, which have greater potential for fish recovery and equal or greater identified water rights enforcement needs. (*Jay Halcomb et al, Sierra Club Redwood Chapter; NA, Sierra Club Redwood Chapter*)

**Response:** Water Code section 1259.4 (a)(1) provides a statutory deadline of January 1, 2008 for adopting principles and guidelines for maintaining instream flows in the north coast area of California for the purposes of water right administration. Water Code section 1259.4 (a)(2) provides the State Water Board the authority to adopt principles and guidelines for maintaining

instream flows in other regions of the State. Due to funding and staffing limitations, and to be responsive to the statutory deadline, the State Water Board has chosen to initially focus on principles and guidelines for the north coast area. After the State Water Board adopts this policy, instream flow policies for other areas of the state may be considered.

**Comment 3.1.8:** The exemptions included in the draft policy for the Russian River below Coyote Dam and Dry Creek below Warm Spring Dam should be extended to include all streams within the policy area where minimum instream flow requirements have previously been established by the Division or DFG. Accordingly, the exemptions stated in Policy Section 3.2 should be applied to MMWD operations on Lagunitas Creek and Walker Creek, in Marin County, just as they are proposed to be applied to Sonoma County Water Agency operations on the Russian River and Dry Creek. The Russian River and Dry Creek exemptions are stated as being provided because State Water Board Decisions 1030 and 1610 previously established minimum instream flows for the protection of the fishery resources. State Water Board Order WR 95-17 for Lagunitas Creek, has also previously established instream flow requirements needed to protect fishery resources in Lagunitas Creek, Marin County from the effects of water diversion by Marin Municipal Water District. Water right permit 16892 for Walker Creek was amended to include fish and wildlife protection and enhancement as a stated purpose, to acknowledge the agreement between MMWD and the DFG to establish minimum instream flows in Walker Creek for the benefit of fish. There is no fair reason or distinguishing feature why decisions 1030 and 1610 which are hardly recent decisions, would warrant an exemption from the policy while Order WR 95-17 and permit 16892 would not. *(Paul Helliker, Marin Municipal Water District)*

**Response:** Comment noted. Staff will evaluate whether the wording of section 3.2 of the Draft Policy needs modification.

**Comment 3.1.9:** The Draft Policy is not likely to recover coho salmon, Chinook salmon and steelhead in northern California for the following reasons: (1) there seems to be a great deal of reluctance on behalf of the State Water Board to fully engage in this effort as indicated by the tone of the report, a lack of willingness to set limits on diversion and to enforce CA Water Code § 1052, 1055, 1243, and 1375; and (2) the geographic area of the Policy does not cover some northern California watersheds with greater need for water rights reform for Pacific salmon species protection, such as the Scott, Shasta and Eel Rivers. *(Patrick Higgins, Consulting Fisheries Biologist/Sierra Club Redwood Chapter)*

**Response:** Section 11 of the Draft Policy describes the enforcement authority provided to the State Water Board. Policy section 4.1 describes the analysis that water right applicants would need to provide in order to assess water availability. Water Code section 1259.4 (a)(1) provides a statutory deadline of January 1, 2008 for adopting principles and guidelines for maintaining instream flows in the north coast area of California for the purposes of water right administration. Water Code section 1259.4 (a)(2) provides the State Water Board the authority to adopt principles and guidelines for maintaining instream flows in other regions of the State. Due to funding and staffing limitations, and to be responsive to the statutory deadline, the State Water Board has chosen to initially focus on principles and guidelines for the north coast area. After the State Water Board adopts this policy, instream flow policies for other areas of the state may be considered.

**Comment 3.1.10:** The restricted geographic scope of the draft policy misses basins with greater need. The Policy implementation is restricted to coastal watershed from the Mattole River south to San Francisco Bay (Figure 1) and does not include either the Klamath or the Eel River basins,

which have enormous fisheries potential, more wildlands, and arguably greater need for help resolving flow issues. The Shasta and Scott river basins are both recognized as water quality impaired to the degree that fisheries resources are compromised. CDFG is currently attempting to issue Incidental Take Permits (ITP) under the California Endangered Species Act for agricultural operations in these watersheds (CDFG, 2006a; 2006b). Lack of flows is confounding coho recovery under both State and federal ESA and, similarly, over-diversion is thwarting attainment of water quality standards under recently completed Scott and Shasta TMDLs (NCRWQCB, 2006a; 2006b). Despite the critical need for resolution of water supply issues, SWRCB WRD involvement is not apparent in either the ITP process or TMDL Implementation. California Department of Water Resources (DWR) staff have taken a similarly passive role in management of groundwater, which is directly linked to surface water supply problems in both basins. DWR has also failed to provide effective Watermaster Service and a new law permits the privatization of the service, which poses a potentially substantial impediment for insuring public trust oversight. Timely action to restore flow and improve water quality in the Scott and Shasta Rivers could get the best return on investment for the WRD, if fish production is the index. *(Patrick Higgins, Consulting Fisheries Biologist/Sierra Club Redwood Chapter)*

**Response:** Water Code section 1259.4 (a)(1) provides a statutory deadline of January 1, 2008 for adopting principles and guidelines for maintaining instream flows in the north coast area of California for the purposes of water right administration. Water Code section 1259.4 (a)(2) provides the State Water Board the authority to adopt principles and guidelines for maintaining instream flows in other regions of the State. Due to funding and staffing limitations, and to be responsive to the statutory deadline, the State Water Board has chosen to initially focus on principles and guidelines for the north coast area. After the State Water Board adopts this policy, instream flow policies for other areas of the state may be considered.

**Comment 3.1.11:** Why were the Eel River and the southern part of the Russian River excluded from the Policy? *(Mark Hilovsky and Rod Silva)*

**Response:** Water Code section 1259.4 (a)(1) provides a statutory deadline of January 1, 2008 for adopting principles and guidelines for maintaining instream flows in the north coast area of California for the purposes of water right administration. Water Code section 1259.4 (a)(2) provides the State Water Board the authority to adopt principles and guidelines for maintaining instream flows in other regions of the State. Due to funding and staffing limitations, and to be responsive to the statutory deadline, the State Water Board has chosen to initially focus on principles and guidelines for the north coast area. After the State Water Board adopts this policy, instream flow policies for other areas of the state may be considered.

**Comment 3.1.12:** The Draft Policy should not apply to streams in Sonoma County because there is no issue regards winter flow in Sonoma streambeds. *(Sam Keen)*

**Response:** The Draft Policy protects fish habitat in Sonoma County not only through winter flow diversion limits but also by precluding new water diversions during the summer thereby protecting summer flows and through onstream dam permitting requirements that project fish habitat. The Draft Policy allows water right applicants to demonstrate through water availability analysis whether their project impacts fishery resource instream flow needs.

**Comment 3.1.13:** DFG recommends the Policy be revised to address measures to protect native fish populations in those streams within the policy area that 1) support native fish but no longer support anadromous fish because of dam construction or other habitat alteration, or 2) never supported anadromous fish but support other native fisheries resources (some also listed



under the Endangered Species Act). (*Donald Koch, State of California Department of Fish and Game*)

**Response:** The Draft Policy already contains provisions protecting streams which have the historic presence of anadromous salmonids. Class I streams, for which the Draft Policy includes specific onstream dam mitigation measures, are defined as those streams that include the historical presence of fish. The upper limit of anadromy, utilized as part of the implementation of the flow-related criteria, is based on the current or historical range of anadromous fish, whichever extends the farthest upstream.

There are insufficient existing data to develop a method to define regional instream flow needs of all other fish species. In general, the provision of flows and natural flow variability that benefits anadromous salmonids will also likely benefit other species of fish as well as other aquatic organisms (e.g., Marchetti and Moyle 2001. Effects of flow regime on fish assemblages in a regulated California stream, *Ecological Applications* 11(2): 530-539). The draft Policy MBF and MCD regional criteria respectively protect base flows and flow variability to which other native species are likely adapted.

**Comment 3.1.14:** The list of named streams in the policy area (Appendix 3) may not be complete. A more comprehensive approach is to state that all streams are covered by the Policy in the policy area. The language in Policy Section 3.2 should be revised as follows: "This policy applies to water diversions from all streams and tributaries discharging to the Pacific Ocean from the mouth of the Mattole River south to San Francisco, and all streams and tributaries discharging to northern San Pablo Bay. The policy area includes approximately 5,900 stream miles and encompasses 3.1 million watershed acres (4,900 square miles) in Marin, Sonoma, portions of Napa, Mendocino, and Humboldt counties, as indicated on Figure 1. The policy applies to all water diversions from all streams in the policy area." (*Donald Koch, State of California Department of Fish and Game*)

**Response:** Comment noted. Individual diverters may find the list of streams useful.

**Comment 3.1.15:** Policy Section 3.3 should specify which water rights are not covered by the Policy. For example, are transfers, petitions submitted under Water Code Section 1707, and temporary urgency permits covered? (*Donald Koch, State of California Department of Fish and Game*)

**Response:** Water right law is complex and involve State and Federal regulations, State Water Board Decisions and Orders, State Water Board policy, and legal precedent. It is unrealistic to establish specific types of water rights which would never be affected by the policy provisions.

**Comment 3.1.16:** Though the Eel River is not considered in AB 2121, the river is noted as impaired due to Temperature and Sediment issue. Flow is a related factor to those impairments. AB 2121 considerations should apply (see attached Coastal Action Group comments on North Coast Flows Policy). The Eel River salmon productive capacity is limited due to the above noted impairments. It can be argued that additional limitations should be attached to diversion from Eel River Flows. (*Ellen Drell, The Willits Environmental Center; Alan Levine, Coastal Action Group*)

**Response:** Comment noted. Water Code section 1259.4 (a)(1) provides a statutory deadline of January 1, 2008 for adopting principles and guidelines for maintaining instream flows in the north coast area of California for the purposes of water right administration. Water Code section

1259.4 (a)(2) provides the State Water Board the authority to adopt principles and guidelines for maintaining instream flows in other regions of the State. Due to funding and staffing limitations, and to be responsive to the statutory deadline, the State Water Board has chosen to initially focus on principles and guidelines for the north coast area. After the State Water Board adopts this policy, instream flow policies for other areas of the state may be considered.

**Comment 3.1.17:** The Sonoma County Water Agency was requested to reduce diversion from the Russian River during a specific time period last summer. It has been reported by the SCWA that this specific goal was met. However, in part, some percentage of the demand and use was supplanted by ground water pumping by the City of Santa Rosa. Ground water pumping from this area of the Santa Rosa Plain would effect, both, stored ground water levels and subsurface flows that eventually reach the Russian River (there is proven connectivity with the subsurface flows and tributary streams to flow into the Russian River). The SWRCB should request accurate accounting of pumping and sales by the City of Santa Rosa to get a more accurate picture of what the reduction of use actually was.

The goal of 20 percent per capita reduction in use is a good and reasonable conservation target. However, since domestic use of water in California is less than 10% of the total water use, the 20% reduction target for per capita domestic use pales in the face of what a 20% reduction of agricultural use would mean to available water supplies ( this assumes that agriculture consumes from 70% to 80% of the State's available water). In this case a 10% reduction in agricultural use would have huge available supply implications. (*Alan Levine, Coastal Action Group*)

**Response:** Comment noted. Sonoma County Water Agency's diversions from the Russian River are exempt from complying with the flow-related criteria of the Draft Policy because existing State Water Board Decisions provide minimum instream flows.

**Comment 3.1.18:** It is a single focus policy to benefit anadromous fish and ignores all other wildlife, such as migratory waterfowl, large and small mammals and invertebrates except to serve as fish food. (*Rudolph Light*)

**Response:** Provision of flows in streams that are protective of anadromous salmonids also conveys benefits to other aquatic organisms, as well as waterfowl and mammals inhabiting or using the flows so provided. In their comments on the Draft Policy, DFG generally agreed with the premise that within the policy area where anadromous salmonids are, or have historically been present, the protective flows to support anadromous salmonids will also be protective of other smaller native species.

**Comment 3.1.19:** It is directed against agricultural water users and rural residents but no one else such as urban water users will suffer. The mainstem of the Russian River is actually exempted from the Policy, as are Dry Creek and Lake Sonoma, and Lake Mendocino. (*Rudolph Light*)

**Response:** Policy section 3.2 states that the regionally protective instream flow criteria and the instream flow analysis do not apply to water diversions from the Russian River downstream of Lake Mendocino, and Dry Creek downstream of Lake Sonoma because these streams have existing minimum instream flow requirements that were established in State Water Board Decisions. The minimum instream flow requirements in these Decisions are site specific and take precedent over the regional flow criteria described in the Draft Policy. Staff may consider revising this section of the policy to clarify the intent of the language.

**Comment 3.1.20:** The Policy's narrow focus on anadromous fish does not fit mission of watching over all beneficial use and cannot be in the best interest of the State nor even in the best interest of the Public Trust Doctrine. (*Rudolph Light*)

**Response:** In general, the provision of flows and natural flow variability that benefits anadromous salmonids will also likely benefit other species of fish as well as other aquatic organisms (e.g., Marchetti and Moyle 2001. Effects of flow regime on fish assemblages in a regulated California stream, Ecological Applications 11(2): 530-539). The draft Policy MBF and MCD regional criteria respectively protect base flows and flow variability to which other native species are likely adapted.

In addition, staff note that provision of flows in streams that are protective of anadromous salmonids also conveys benefits to other aquatic organisms, as well as waterfowl and mammals inhabiting or using the flows so provided. In their response to the Draft Policy, DFG generally agreed with the premise that within the policy area where anadromous salmonids are, or have historically been present, the protective flows to support anadromous salmonids will also be protective of other smaller native species.

The State Water Board already has continuing authority to protect public trust uses and to prevent the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of water in the state, regardless of basis of right. The State Water Board's exercise of these authorities may require notice and an opportunity for hearing.

**Comment 3.1.21:** Draft Policy, Page 6 section 3.1 Fishery Resources covered by the policy - No support was provided for the concept that instream flows for anadromous fish are also adequate for smaller native fishes. Supporting information should be provided because resident fish have very different life histories and IFIM results are not directly transferable to species that were not considered in the analysis. (*Elliott Matchett*)

**Response:** There are insufficient existing data to develop a method to define regional instream flow needs of all other fish species. In general, the provision of flows and natural flow variability that benefits anadromous salmonids will also likely benefit other species of fish as well as other aquatic organisms (e.g., Marchetti and Moyle 2001. Effects of flow regime on fish assemblages in a regulated California stream, Ecological Applications 11(2): 530-539). The draft Policy MBF and MCD regional criteria respectively protect base flows and flow variability to which other native species are likely adapted.

In addition, staff note that provision of flows in streams that are protective of anadromous salmonids also conveys benefits to other aquatic organisms, as well as waterfowl and mammals inhabiting or using the flows so provided. In their response to the Draft Policy, DFG generally agreed with the premise that within the policy area where anadromous salmonids are, or have historically been present, the protective flows to support anadromous salmonids will also be protective of other smaller native species.

**Comment 3.1.22:** The Division is charged with protecting all public trust resources within its jurisdiction and not solely anadromous salmonid species. The policy may not sufficiently protect other aquatic or semi-aquatic species. Many of these species are state or federally listed or are state "species of Special Concern". Among these are several non-fish species that have instream habitat requirements that differ from those of fish. For example, the maintenance of gravel bars and shallow, wide stream profiles may be more important for foothill yellow-legged

frogs than fish. In many streams, multiple frog species may coexist with or without fish. The policy does not specify flow requirements for these non-fish species or class II streams that provide important habitat for these species. A more comprehensive approach may show that only a small change or no change would be needed from the proposal established for anadromous salmonids, while additional evaluation and adjustment of the proposal may be necessary for species with more specific requirements. In some situations habitat restoration (replanting of riparian buffer zones) may preclude the need for adjusting flows that may in fact reduce available water for users. Ideally, any instream flow management policy should consider factors other than physical habitat requirements that are hypothesized to influence species populations and overall ecosystem health. For example, flow requirements may be optimized for improved water quality or to help prevent invasion or expansion of exotic species such as bullfrogs and predatory fish. (*Elliott Matchett*)

**Response:** The Draft Policy continued with the same goals as the DFG-NMFS 2002 Draft Guidelines, which were also focused on protecting winter habitat for anadromous salmonids and precluding new summertime diversions. Developing regional instream flow criteria that protect all forms of wildlife has yet to be achieved in general, and it is common for flows that benefit one species guild may not be optimal for another, as discussed in section D.3 of the Scientific Basis Report (R2, 2008). The state of instream flow management at a regional scale is such that a subset of species must be focused on, and site specific needs of other species can be addressed as necessary. In any case, the draft Policy protects winter base flows and flow variability for the largest fish species typically present, and thus is likely to preserve a more natural flow environment for other species than might otherwise occur without the Policy.

Staff note that provision of flows in streams that are protective of anadromous salmonids also conveys benefits to other aquatic organisms, as well as waterfowl and mammals inhabiting or using the flows so provided. In their response to the Draft Policy, DFG generally agreed with the premise that within the policy area where anadromous salmonids are, or have historically been present, the protective flows to support anadromous salmonids will also be protective of other smaller native species. However, DFG recommended that the Policy require that if a watershed supports native fish larger than salmonids, adjustments to the MBF will be required based on consultation with DFG.

It is not possible to develop a flow related limiting factor-based criterion at a regional scale that can be used to identify site-specific instream flow needs for either anadromous salmonids or other species. That is only possible using site specific data and population modeling analysis.

**Comment 3.1.23:** In addition to the general comments above, we request clarification about the precise coverage of an instream flows policy. It is our understanding that the Draft Policy, or whatever policy is adopted instead, is intended to apply only to the watersheds referenced in Water Code § 1259.4(a)(I). Specifically, the "coastal streams from the Mattole River to San Francisco and in coastal streams entering northern San Pablo Bay ...." However, a review of the streams listed in Appendix 4 of the Draft Policy, "Streams Within the Policy Area," revealed a number of streams that do not flow into any of the aforementioned watersheds. During the February staff workshop held in Santa Rosa, Water Board staff was asked whether this inclusion was intentional or inadvertent. Staff indicated that the Draft Policy was only intended to cover the Water Code 1259.4 (a)(I) watersheds and that streams outside this area would be removed. In order to assist in correcting this mistake, Farm Bureau reviewed Appendix 4 and developed the following list of streams that appear in Appendix 4, but are tributaries to the Eel River or flow into the Pacific Ocean north of the Mattole River and should therefore not be included in the instream flow policy area: Baechtel Creek, Bear Valley Creek, Benmore Creek, Cave Creek,

Curley Cow Creek, Dinner Creek, Dutch Charlie Creek, Harmonica Creek, Highland Creek, Huckleberry Creek, Long Branch Creek, Moody Creek, Nelson Creek, Peter Gulch, Saint Mary's Creek, Section Four Creek, South Fork Dry Creek, Standley Creek, Waldron Creek, Bear Pen Creek, Beer Bottle Creek, Broaddus Creek, China Creek, Davis Creek, Domingo Creek, Hale Creek, High Valley Creek, Hollister Creek, Kroll Creek, McNutt Gulch, Mule Creek, Peaked Creek, La Rue Gulch, Sebbas Creek, Sherwood Creek, South Fork Redwood Creek, Swartz Creek, West Fork Sproul Creek. (*Jack Rice, California Farm Bureau*)

**Response:** Staff thanks the commenter for their review and will update the list of streams in Appendix 4 to eliminate the listed streams with the exception of Bear Valley which is in Napa County in the Policy area.

**Comment 3.1.24:** Flow Policy should include an official statement on the peripheral canal and the 2 California aqueducts. (*Matt Richardson*)

**Response:** Comment noted. These water delivery systems are outside of the geographic area of the Draft Policy.

**Comment 3.1.25:** The mainstem of the Russian River, Lakes Sonoma and Mendocino are exempt from this Policy. Preserving "a level of stream flow that ensures anadromous salmonids are protected from deleterious effects of water diversion" without dealing with these two major dams and the loss of those tributaries associated with these dams is dereliction of duty. The SWRCB will tell you the lakes and the mainstem are not under their jurisdiction because they are "regulated streams", but does that make it reasonable to target only agricultural ponds and small water districts (e.g., Brooktrails and Pine Mountain near Willits, Redwood Valley County and Willow and Millview Water Districts near Ukiah, Westport, Fort Bragg, Mendocino Township and others)? Small water districts up and down the coast and inland will be affected in their ability to deliver water to their customers. This Policy gives the SWRCB control of a 700-gallon storage tank for domestic use or 7 acre-foot pond used for ag and wildlife but no control over the 70,000 acre-feet of Lake Mendocino. Large urban users will not be affected - Santa Rosa will feel no pain - there are no limits to the increase in urban and suburban demand for water - agricultural operations found in small watersheds are the target. (*Roland Sanford, Mendocino County Water Agency; Jim Wattenburger, Mendocino County Board of Supervisors*)

**Response:** Policy section 3.2 states that the regionally protective instream flow criteria and the instream flow analysis do not apply to water diversions from the Russian River downstream of Lake Mendocino, and Dry Creek downstream of Lake Sonoma because these streams have existing minimum instream flow requirements that were established in State Water Board Decisions. The minimum instream flow requirements in these Decisions are site specific and take precedent over the regional flow criteria described in the Draft Policy. Staff will consider revising the policy to clarify the intent of this section's language.

**Comment 3.1.26:** The Policy is clearly written to benefit salmon. How will the Policy positively or negatively affect other wildlife? If a person has to remove a dam, where will the birds and mammals go? (*Roland Sanford, Mendocino County Water Agency; Jim Wattenburger, Mendocino County Board of Supervisors*)

**Response:** See response to 3.1.18.

**Comment 3.1.27:** The policy's narrow focus on the protection of endangered fish species ignores the habitat needs of native fishery species. The Napa River is home to one of the most

diverse native fisheries in Northern California, supporting well-over 20 native species. It is not clear if the protective measures proposed under the policy will serve to safeguard habitat and flow requirements for native fisheries and other species. (*Brad Wagenknecht, Napa County Board of Supervisors*)

**Response:** See response to 3.1.22.

**Comment 3.1.28:** The goal of the policy should be the protection and recovery of all federally and state listed salmonids (chinook, coho, steelhead). (*Thomas Weseloh, California Trout Keeper of the Streams*)

**Response:** The legislative digest for AB 2121 directed the State Water Board to develop principles and guidelines to ensure that new water right permits include appropriate fish measures that are protective of anadromous salmonid and related aquatic resources. The Draft Policy accomplishes this goal.

### **Topic 3.2 Policy Applicability - Lake Mendocino and Lake Sonoma**

**Comment 3.2.1:** The Draft Policy would specifically exempt the mainstem Dry Creek below Lake Sonoma and Warm Springs Dam and the mainstem Russian River below Lake Mendocino and Coyote Dam from the minimum bypass and maximum cumulative diversion limitations of the Draft Policy even though these two major reservoirs have brought about major losses of fishery habitat and fish populations in the North Coast counties. No pertinent facts or meaningful rationale is provided for the exemption. The appropriate right holders for these facilities may seek future changes in their water rights by petition, providing a basis for conditioning the water rights to remedy the damage they have inflicted on the state's endangered fisheries. The express exemption provided in the Draft Policy would arbitrarily foreclose such an opportunity. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** These reaches are exempted from the Policy regionally protective instream flow criteria because the State Water Board has previously established minimum instream flows for these reaches in State Water Board Decisions. Staff is considering revisions Policy section 3.2 to provide clarification.

**Comment 3.2.2:** Work Plan and Estimation of all diversion in the Russian River: It is unclear as to the status and reliability of any information that can be obtained at this time. The SWRCB has been noticed regarding litigation for statutory non compliance of the SCWA Urban Water Management Plan. If the UWMP is not accurate or reliable, the accuracy of demand, use, and supply data is in question. In addition, factors related to AB 2121 regarding diversion and use in the Russian River watershed must be considered. (*Alan Levine, Coastal Action Group*)

**Response:** Comment noted.

**Comment 3.2.3:** There is a fundamental question which must be asked: Will the requirements of this policy by themselves bring the fish back to a sustainable level? Of course not. The decline of the salmon population is the result of a very large and complex ecological problem that few are willing to admit can be solved only by including the effects of Lake Mendocino and Lake Sonoma. Both these reservoirs are exempted from the Policy and the Policy not only pretends they do not exist, but pretends these reservoirs have no impact on the fish. (*Rudolph*)

*Light)*

**Response:** Policy section 3.2 states that the regionally protective instream flow criteria and the instream flow analysis do not apply to water diversions from the Russian River downstream of Lake Mendocino, and Dry Creek downstream of Lake Sonoma because these streams have existing minimum instream flow requirements that were established in existing State Water Board Decisions. The minimum instream flow requirements in these Decisions are site specific and take precedent over the regional flow criteria described in the Draft Policy. Staff will consider revising this section of the policy to provide clarification.

**Comment 3.2.4:** Warm Springs Dam, Lake Sonoma, and Lake Mendocino played a major historical role in the salmonid population decline along the mainstem Russian River. The Policy specifically exempts Lake Sonoma, Dry Creek, and the mainstem Russian River. This is a concern because dam operations and water distribution along the mainstem of the Russian River will inevitably be revisited because of concerns regarding ongoing voluntary water conservation efforts by water districts and communities that have the need for water from Lake Sonoma. The Policy must take the presence of these dams into account, or the goal of greater salmonid populations cannot possibly be achieved. (*Rudolph Light*)

**Response:** See response to 3.2.3.

**Comment 3.2.5:** The Policy does not address the impact of Lake Sonoma, Lake Mendocino and the main stem of the Russian which have had the major affect on the salmonid populations within the Russian River watershed. Current summer releases to Upper Russian River and Dry Creek have no benefit. (*Richard and Annette Rhodes, Rhodes Vineyards*)

**Response:** See response to 3.2.1.

**Comment 3.2.6:** For those creeks which empty into the mainstem of the Russian River, the channels will never recover at their confluence with the mainstem unless releases from Lakes Mendocino and Sonoma are modified. These releases seriously interfere with the hydrologic process where a creek joins the mainstem. (*Roland Sanford, Mendocino County Water Agency; Jim Wattenburger, Mendocino County Board of Supervisors*)

**Response:** See response to 3.2.1.

**Comment 3.2.7:** The Draft Policy recognizes that habitat for anadromous fish in these watersheds is affected by many land uses and land management practices. The pending water rights that are the subject of this policy are one of many the land uses with effects on streams. However, none of the major changes in these watersheds resulting from land use and development are considered in the application of the policy. These changes include construction of six very large on-stream reservoirs (Lake Mendocino, Lake Sonoma, Milliken Reservoir, Lake Hennessey, Bell Canyon Reservoir and Rector Reservoir) which have significantly altered downstream creek and river channels. (*Beverly Wasson, California Land Stewardship Institute*)

**Response:** See response to 3.2.3.

**Comment 3.2.8:** This effort to make sure the fish have enough water needs to go ahead, even though we cannot expect it alone to solve the whole problem. For instance; an earlier speaker asked about the effect of the Russian River having year-round flow nowadays in contrast to its flood and trickle regime in Indian times. I would suggest at least one effect has been to increase

the populations of predatory fish that prey on small salmonids heading out to the ocean. Both non-native Bass and native Pike Minnow have taken advantage of the increased habitat to increase their populations. *(Chuck Williams)*

**Response:** Comment noted.

**Comment 3.2.9:** Another earlier speaker suggested allowing the Russian River to return to its original state of summertime low flow. That should work to limit the predatory fish populations, but I don't believe it's necessary to dry it up all summer. Instead, consider a temporary dry-down for maybe 2-3 weeks, probably toward the end of summer when irrigation, recreation and natural sources have slowed. In addition to predatory fish control, a period of low flow would allow easier access to pick up litter, remove the steel jacks that hamper recreation, and control invasive plants that threaten the riparian habitat. *(Chuck Williams)*

**Response:** Comment and suggestion noted.

## 4.0 Regional Criteria

### Topic 4.1 Regional Criteria - General

**Comment 4.1.1:** The regional criteria were developed using data from larger watersheds not representative of North Coast diversions. *(Sam Aanestad, Senator 4th District and Bob Dutton, Senator 31st District)*

**Response:** The MBF regional criteria are based on data for streams that are representative of streams larger than 1 sq.mi. The Scientific Basis Report (R2, 2008) demonstrates that the data used to develop and evaluate the draft Policy MBF regional equation reflect habitat-flow needs that have the same general data scatter as data collected in the same and other regions. These habitat-flow needs reflect the fundamental relationships between flows, fluvial geomorphology, and fish habitat that exist in the North Coast and other regions.

After considering the collective peer review and public comments, Staff's experts' concluded that an MBF criterion for streams draining less than 1 sq.mi. set equal to the criterion at 1 sq.mi. appears reasonable from a protectiveness standpoint as discussed in the response to 4.3.21.

**Comment 4.1.2:** 85% of pending projects are so small that they cannot comply with the Draft Policy and would be forced into vague site-specific study or an undefined process to request an "exception". *(Sam Aanestad, Senator 4th District and Bob Dutton, Senator 31st District)*

**Response:** Comment noted. Staff is reevaluating the flow related criteria, water availability methodology, and site specific study provisions in the Draft Policy based on consideration of the comments and suggestions that have been received.

**Comment 4.1.3:** The Policy does not assess the potential benefits or impacts to the stream systems. *(Sam Aanestad, Senator 4th District and Bob Dutton, Senator 31st District)*

**Response:** There are numerous case studies that demonstrate the benefits of restoring and managing instream flows. Studies on Putah Creek have shown this (e.g., Marchetti and Moyle 2001. Effects of flow regime on fish assemblages in a regulated California stream, Ecological Applications 11(2): 530-539). For a much greater range of case studies, see: Locke, A., and nine others. 2008. Integrated approaches to riverine resource stewardship: Case studies,



science, law, people, and policy. Instream flow Council, Cheyenne WY.

The Scientific Basis Report (R2, 2008) evaluated effects of changed hydrology on passage and spawning habitat availability using data collected in validation sites, in addition to more general considerations of the benefits of protecting instream flows. The Draft Policy ensures that habitat conditions will not deteriorate beyond conditions already imposed by existing permitted diversions. Effectiveness of the Policy would ultimately need to be determined through monitoring. Staff note that anadromous fish populations are influenced by many other factors besides flow. Thus, there is no certainty that numbers of salmon and steelhead will increase upon implementation of the Draft Policy. However, the opportunity for populations to increase will most certainly be less without the Draft Policy.

**Comment 4.1.4:** The Draft Policy is not a workable approach to protecting instream flows. Instead of providing water users guidance on appropriate instream flows, it establishes restrictive regional criteria that severely limits the ability to divert water when it is most plentiful. (*Pat Geib Alexander, Geib Ranch Vineyards; Corrin Amaral; Myles Anderson; Anne Arns; Peter Bradford, Bradford Ranch; Carrie Brown; Jeffery Carlton, Dutton Ranch Corporation; Thomas Carpenter; Brian Churm, Potter Valley Growers, Inc.; Ned Coe, Bill Coe & Sons; Annette Cooley, Cooley Logging; Casey Cooley; Christopher Dohring; Alfred Edelbacher; Sandy Elles, Napa County Farm Bureau; Brian Fedora; Nicholas Ferrari; Tom Gamble, Gamble Ranch; Sara and Gary Giannandrea, Three G's Hay and Grain; Donald Gordon, Gordon Family Ranch; Dominic Grossi, Marin County Farm Bureau; Ted Hall, Long Meadow Ranch; Katherine Harnden, Harnden Ranches; Joseph Hurlbut; Leo Hurley, Wrath Cellars and Vineyard; Wayne Lamb; Dennis Meisner; James Mooney; Robert Mueller, McKenzie-Mueller Vineyards and Winery; Peter Nissen, Napa County Farm Bureau; Jack Olsen, San Mateo County Farm Bureau; Butch Parton; Frost Pauli; Loren Poncia; George Rau; Barbara Reed; Steve Reese, Denner Ranches Inc.; Annette Rhodes, Rhodes Vineyards; Richard Rhodes, Rhodes Vineyards; Jay Russ, J. Russ Company; Erin Russell; Gary Sack, California Farm Bureau; Tito Sasaki, Sasaki Vineyards; Janet Sclar, Amity Heritage Roses; R. Simcoe, Mast Ranch Vineyard, FLP; William Smith; Al Wagner, Clos Du Val Wine Company; Gary Wilsey, Wilsey Vineyard, LLC; Silvie Wilson; Terrence Wilson, Rancho Chimiles; Windy Wilson; Kristi Wrigley*)

**Response:** The Draft Policy protects instream flow not only through limitations on winter flow diversions but also by precluding new water diversions during the summer thereby protecting summer flows and through onstream dam permitting requirements that protect fish habitat.

If water is truly plentiful during the diversion season, new water right applications will be able to demonstrate in the required water availability analysis that the project has no impact on the fishery resource instream flow needs and the application will be permitted. In addition, the Policy allows the use of results of a site-specific study instead of the conservatively protective regional criteria to more accurately assess the fishery resource instream flow needs at a particular location (Policy, Section 4.1.8).

**Comment 4.1.5:** By attempting to apply specific criteria across a very diverse region, the Draft Policy will force the majority of pending applications to perform site-specific studies or to seek exceptions. (*Corrin Amaral; Carrie Brown; Jeffery Carlton, Dutton Ranch Corporation; Thomas Carpenter; Ned Coe, Bill Coe & Sons; Annette Cooley, Cooley Logging; Casey Cooley; Christopher Dohring; Sandy Elles, Napa County Farm Bureau; Brian Fedora; Nicholas Ferrari; Tom Gamble, Gamble Ranch; Dominic Grossi, Marin County Farm Bureau; Katherine Harnden, Harnden Ranches; Joseph Hurlbut; Leo Hurley, Wrath Cellars and Vineyard; Dennis Meisner; Robert Mueller, McKenzie-Mueller Vineyards and Winery; Peter Nissen, Napa County Farm*

*Bureau; Jack Olsen, San Mateo County Farm Bureau; Frost Pauli; Loren Poncia; George Rau; Steve Reese, Denner Ranches Inc.; Annette Rhodes, Rhodes Vineyards; Richard Rhodes, Rhodes Vineyards; Erin Russell; Gary Sack, California Farm Bureau; Tito Sasaki, Sasaki Vineyards; Janet Sclar, Amity Heritage Roses; William Smith; Al Wagner, Clos Du Val Wine Company; Gary Wilsey, Wilsey Vineyard, LLC; Silvie Wilson; Terrence Wilson, Rancho Chimiles; Windy Wilson)*

**Response:** Staff agrees that the Policy area is a very diverse region. Because of this, the regional protective criteria developed for the Draft Policy should not be considered to have site specific accuracy, and are not intended to be used to predict the site specific needs accurately for every stream. To be regionally protective, the regional criteria are designed to limit water diversions so that adequate flows are available for spawning and passage at sites with the most restrictive instream flow needs. At some sites, therefore, more than adequate flows will be provided by regionally protective criteria. Only site specific study can determine where on the protectiveness spectrum a given site lies, as described in section D.5 of Appendix D of the Scientific Basis Report (R2, 2008). The Draft Policy contains provisions for site specific studies.

Staff is reevaluating the flow related criteria in the Draft Policy based on consideration of the comments and suggestions that have been received.

**Comment 4.1.6:** The Draft Policy is not based on sound science. It sets standards for very small watersheds, less than a couple square miles, even though the supporting science comes from large watersheds. *(Corrin Amaral; Myles Anderson; Anne Arns; Vincent Bartolomei, Bartolomei Brothers Vineyard; Peter Bradford, Bradford Ranch; Jeffery Carlton, Dutton Ranch Corporation; Thomas Carpenter; Ned Coe, Bill Coe & Sons; Annette Cooley, Cooley Logging; Casey Cooley; Christopher Dohring; Brian Fedora; Nicholas Ferrari; Dominic Grossi, Marin County Farm Bureau; Ted Hall, Long Meadow Ranch; Katherine Harnden, Harnden Ranches; Leo Hurley, Wrath Cellars and Vineyard; Wayne Lamb; James Mooney; Robert Mueller, McKenzie-Mueller Vineyards and Winery; Peter Nissen, Napa County Farm Bureau; Jack Olsen, San Mateo County Farm Bureau; Butch Parton; Frost Pauli; Loren Poncia; George Rau; Barbara Reed; Steve Reese, Denner Ranches Inc.; Annette Rhodes, Rhodes Vineyards; Richard Rhodes, Rhodes Vineyards; Erin Russell; Janet Sclar, Amity Heritage Roses; R. Simcoe, Mast Ranch Vineyard, FLP; William Smith; Al Wagner, Clos Du Val Wine Company; Gary Wilsey, Wilsey Vineyard, LLC; Windy Wilson)*

**Response:** The comments received from the DFG and NMFS during the public comment period have not questioned the scientific basis behind the recommendations of the Draft Policy. In addition, external technical peer reviewers have indicated the scientific basis is sound.

Staff is reevaluating the flow related criteria in the Draft Policy for projects with small watershed based on consideration of the comments and suggestions that have been received.

**Comment 4.1.7:** It seems to us, that if implemented, this new policy with the requirements of its bypass as proposed or the removal of our dam will affect the fisheries, and the environment will suffer dramatically. The new policy would result in the pond not filling because of the diversion restriction requiring extremely high flows only to be allowed to be diverted. As a result, during the dry season, when typically water flows year round from our existing pond, seepage would not exist at all, further compromising the many environmental concerns. In addition, our pond supports an ecosystem of several species of wildlife that did not exist prior to the pond. Our pond duck population has grown from 2 to 32. *(Robert Battinich and Tom Spinardi, Aladdin Depot)*

**Response:** Existing unauthorized ponds with pending applications are subject to the Policy; however, the State Water Board will consider processing water right applications submitted prior to January 1, 2008 using the DFG-NMFS guidelines. In addition, the Policy allows water right applicants to rely on the results of a site-specific study rather than using the conservatively protective regional criteria to more accurately determine the fishery resource instream flow requirements at a particular location. Staff note that in the Commenter's situation, the collection of site specific information including the quantification of the flow rate of seepage and how it benefits instream resources downstream, would be useful.

Staff is reevaluating the flow related criteria in the Draft Policy for projects with small watershed based on consideration of the comments and suggestions that have been received.

**Comment 4.1.8:** I find the Draft Policy lacking any sound basis for implementation. If this policy is the result of the best scientific research the State of California has to offer then we better just roll over and let someone else take over; China could probably do a better job. *(Peter Bradford, Bradford Ranch)*

**Response:** The comments received from the DFG and NMFS during the public comment period have not questioned the scientific basis behind the recommendations of the Draft Policy. In addition, external technical peer reviewers have indicated the scientific basis is sound.

**Comment 4.1.9:** The instream flow criteria must simply be based on worst case scenarios including the effects of climate change, creek side well pumping, long drought periods, interception of natural spring flows, and longer than average recovery times for the species. To do less would be to put further study, pilot projects, and subtle details before common sense, legal requirements, and timely action. *(Kimberly Burr)*

**Response:** Comment noted. Because of the various levels of uncertainty indicated, the Draft Policy proposes regional criteria that are of necessity conservative following adaptive management principles and the precautionary principle which requires the protection against potential harm to the environment, in the absence of a scientific consensus that harm would not ensue. The regional criteria are designed to limit water diversions so that adequate flows are available for spawning and passage at sites with the most restrictive instream flow needs. If the regional criteria are in error and are too high, then the steelhead, Chinook and coho fisheries will be protected and have a chance to recover. If the regional criteria are in error and too low, then the fish populations may go extinct and never have the chance to recover. See discussion on the burden of proof and consequences in section D.1 of Appendix D of the Task 3 report.

**Comment 4.1.10:** If the policy exempts certain periods from minimum instream flow requirements, by its language and thereby through its implementing regulations, it will not satisfy the requirements of the law. Maintaining instream flows is a year round challenge. "On cold spring mornings when air temperatures approached 0 deg C, flow in streams 10 draining catchments with upstream vineyards receded abruptly, by as much as 95% over hours, corresponding to times when water is used to protect grape buds from freezing." (Hydrologic impacts of small-scale instream 7 diversions for frost and heat protection in the California wine country Deitch, Kondolf, and Merenlender; 2008). Relying solely on a mathematical model may not be adequate to maintain instream flows, which is required year round, at critical periods on the margin of the season of diversion. *(Kimberly Burr)*

**Response:** The Draft Policy maintains instream flows not only by limiting winter flow diversions

but also by precluding new water diversions during the summer thereby protecting summer flows. The regional criteria are designed to limit water diversions so that adequate flows are available for spawning and passage at sites with the most restrictive instream flow needs. It would not be possible under the MBF element to withdraw up to 95% of the water unless site specific study indicates such action will not adversely affect anadromous salmonids and their habitat. Once permits are issued, existing water rights are subject to the continuing authority of the State Water Board to protect public trust uses and to prevent the waste or unreasonable use of water.

**Comment 4.1.11:** The peer review comments by Lawrence Band related to altered flow effects on stream morphology, depth, and fish passage are important and should be considered. (*Alan Levine, Coastal Action Group*)

**Response:** Complete responses to Dr. Band's and other per reviewer's comments have been prepared in a separate document.

**Comment 4.1.12:** NMFS (2001) disagrees with a bypass flow based on the February median flow. Bypass flows must protect all stream functions. "Bypass flows should not be some minimum value that does not fulfill all stream functions; instead it should be a dynamic fluctuating flow that effectuates all needed stream functions and processes" (ref: need to protect the natural hydrograph). The SWRCB's Draft Policy (2008) addresses aspects of the flow issue but in a seriously convoluted way. Allowing unauthorized onstream dams (and diversions) that restrict flows and block migration will preclude attainment of the desired goal - habitat maintenance. (*Alan Levine, Coastal Action Group*)

**Response:** The Scientific Basis Report (R2, 2008) evaluated the February median bypass flow and found it only partially protective for streams within the policy area. The Draft Policy is proposing different bypass flow criteria that the Scientific Basis Report found to be more fully protective in the policy area. The Draft Policy states the State Water Board will consider permitting existing unauthorized dams if mitigation as described in policy section 4.4 is implemented.

**Comment 4.1.13:** The SWRCB's Draft Policy (2008) conflicts with NMFS (2001) regarding (1) avoiding the "flatlining" of stream flows; (2) inclusion of diversions under riparian right in cumulative impacts analyses; (3) maintenance of a diversion season from December 15 through March 31; (4) historic habitat and stream flows above migration restrictions should be protected; (5) cumulative effects assessments should include representative dry years; (6) assessments, reports, and cumulative effects analysis should be presented in understandable form. (*Alan Levine, Coastal Action Group*)

**Response:** Staff responds to each of the Commenter's potential conflicts with NMFS (2001) as follows: (1) the MBF and MCD elements proposed for the draft Policy do not result in flatlining; (2) the Instream Flow Analysis required by the Policy considers all senior water rights, which includes riparian statements of diversion and use (3) Staff is reevaluating the diversion criteria in the Draft Policy based on consideration of the comments and suggestions that have been received and is considering revising the Policy to use the more conservative DFG-NMFS proposed diversion season start date of 12/15; (4) historic habitat and stream flows above migration restrictions are protected under the draft Policy, for reasons explained in Section 1.2.1 of the Scientific Basis Report; (5) cumulative effects analyses required by the Instream Flow Analysis must be based on ten water years of record, which should include dry years; and (6) the requirements suggested by the commenter are provisions stated in the Draft Policy Appendix

1, Guidelines for Preparation of Water Supply Report and Instream Flow Analysis.

**Comment 4.1.14:** The draft policy prescribes protection measures to ensure minimum instream flows. Such prescriptions include minimum bypass flows, season of permissible diversion, and maximum cumulative diversion. It is stated that the proposed SWRCB policy for maintaining instream flows and related prescriptions are based on the Joint CDFG/NMFS Guidelines. However the precise recommendations in the Joint CDFG/NMFS Guidelines are not followed. *(Alan Levine, Coastal Action Group)*

**Response:** The criteria and principles noted in the DFG-NMFS 2002 Draft Guidelines were carefully reviewed and considered during the development of the Draft Policy. This analysis can be found in the Scientific Basis Report (R2, 2007). Four of the main elements in the Draft Policy (minimum bypass flow, maximum cumulative diversion, diversion, and permitting requirements for onstream dam) were patterned after those provided in the DFG-NMFS 2002 Draft Guidelines. The Draft Policy is a refinement of the recommendations of the DFG-NMFS 2002 Draft Guidelines using additional and more detailed analysis by practiced experts in the field of instream flow needs for salmonids, including anadromous species. Where differences exist, they reflect criteria determined to be equally as or more protective than the DFG-NMFS guidelines.

Staff is reevaluating the diversion criteria in the Draft Policy based on consideration of the comments and suggestions that have been received and is considering revising the Policy to use the more conservative DFG-NMFS proposed diversion season start date of 12/15.

**Comment 4.1.15:** The criteria provided in a NMFS letter from James R. Bybee to Mr. Harry Schueller/SWRCB, dated April 18, 2001 still applies. This document was written to address issues and concerns that NMFS had regarding the SWRCB's January 23, 2001 policy proposal. All of the issues discussed in this letter apply to the SWRCB's currently proposed (December 2008) policy, and should be considered for future policy development or alteration of the currently proposed policy. *(Alan Levine, Coastal Action Group)*

**Response:** The Draft Policy is a refinement of the recommendations of the DFG-NMFS 2002 Draft Guidelines using additional and more detailed analysis by practiced experts in the field of instream flow needs for salmonids, including anadromous species. The comments received from the DFG and NMFS during the public comment period have not questioned the scientific basis behind the recommendations of the Draft Policy. Comment noted.

**Comment 4.1.16:** Any technical analysis associated with the Draft Policy should identify confidence intervals and how those confidence intervals may affect the results of the analysis. *(Darren Cordova, MBK Engineers)*

**Response:** Confidence intervals were used in the development of the MBF criterion in the adjustment of the MBF regression equation upwards by three standard errors of the intercept coefficient estimate. Also see response 6.2.1 to comments by peer reviewer Dr. R. Woodward. The sensitivity study (Stetson and R2, 2009) conducted after release of the Draft Policy evaluated the effects of changing confidence intervals on anadromous salmonid passage and spawning habitat availability.

**Comment 4.1.17:** The Policy will lock up the water resources in Humboldt, Mendocino, Sonoma, Napa and Marin Counties despite the fact that only a small fraction of their watersheds is diverted to use *(Eileen G. Crane, Champcal Estates; Eileen G. Crane, Domaine Carneros;*

*Patrick Garvey, Flora Springs Wine Company; Jan Shrem, Clos Pegase)*

**Response:** Comment noted. The commenter did not provide sufficient information to provide a more detailed response.

**Comment 4.1.18:** Our comments and criticisms of the draft Policy are documented in Patrick Higgins' comments. In brief, we believe the Policy as written still allows for potentially damaging diversions. *(Ellen Drell, The Willits Environmental Center)*

**Response:** Comment noted.

**Comment 4.1.19:** Did you determine the biological benefits associated with the bypass criteria? How did you determine there would be increased stream flows, and when will those increases occur? *(Nick Frey, Sonoma County Winegrape Commission)*

**Response:** Biological benefits were evaluated in general, and specifically for anadromous salmonid spawning and passage in the Scientific Basis Report (R2, 2008) and the sensitivity analysis. The analyses were based on estimates of unimpaired flows modified by diversion scenarios.

**Comment 4.1.20:** Generally, Sanctuary Forest expresses the need for variances or exemptions to the standard policy provisions based on the specific hydrology of a watershed. *(Eric Goldsmith, Sanctuary Forest)*

**Response:** The Policy allows the use of results of a site-specific study instead of the conservatively protective regional criteria to more accurately assess the fishery resource instream flow needs at a particular location (Policy, Section 4.1.8).

**Comment 4.1.21:** By focusing on higher minimum bypass flows as a sole means of improving habitat and rebuild populations, little will be accomplished. Pumping during peak flows will increase, as water right holders scramble to obtain water to maintain their operations. This will eliminate the beneficial effects of high flows on maintaining appropriate stream morphology. *(David Graves, Saintsbury)*

**Response:** The Draft Policy protects fish habitat not only by limiting winter flow diversion limits but also by precluding new water diversions during the summer thereby protecting summer flows and through onstream dam permitting requirements that project fish habitat. During the diversion season, the draft Policy does not focus exclusively on MBF, it also includes the MCD element which preserves natural flow variability and limits diversions to the diversion season thereby protecting summer flows.

Potential indirect impacts of implementation of the Policy on water use are discussed in the SED Appendix D. These impacts include the potential impact of shifting to groundwater pumping and its effects on summer flows.

**Comment 4.1.22:** The policy can not be applied to all streams and still allow a continuation of existing water uses. For example, if the draft standards were to be applied retroactively, the instream flow requirements would be so high that they likely would consume all of MMWD's Lagunitas Creek and Walker Creek reservoir systems' municipal water supply yield. The chart below demonstrates how the minimum bypass flow requirement is highly biased against smaller streams, in high rainfall areas, like Lagunitas and Walker Creeks. *(Paul Helliker, Marin Municipal*

*Water District)*

**Response:** The Draft Policy does not propose to reopen existing permits and licenses. However, existing water rights are subject to the continuing authority of the State Water Board to protect public trust uses and to prevent the waste or unreasonable use of water.

**Comment 4.1.23:** The third policy principle in Section 2.2 of the Draft Policy states that "The maximum rate at which water is diverted in a watershed shall not adversely affect the natural flow variability needed for maintaining adequate channel structure and habitat for fish." This policy requires calculation of minimum bypass flow and maximum cumulative diversion, but lack of recent or historic flow data and problems with application of models confound accurate estimates (Lang, 2008). Even if the minimum bypass flow and the maximum cumulative diversion were accurately calculated, they do not properly account for interactions between diversions. Synergy between diversions in multiple tributaries will cause unintended consequences on flows, fish passage and alteration of substrate quality in downstream reaches that need to be more fully considered (Band, 2008; Gearheart, 2008). (*Patrick Higgins, Consulting Fisheries Biologist/Sierra Club Redwood Chapter*)

**Response:** The concern regarding unimpaired flow data availability affects all water resource assessments, thus hydrologic estimation techniques must be relied on. Fortunately, mean annual flow and the 1.5 year flood magnitude are among the more robust hydrologic statistics that can be estimated. The maximum cumulative diversion criteria limits the total diversion by all diverters upstream of each point of interest in the watershed. This directly prevents diversions from multiple tributaries from unintended consequences on flows, fish passage and alteration of substrate quality in downstream reaches. Water right applicants are required by the Policy to prepare a Instream Flow Analysis that considers interactions with senior water rights in the watershed. The daily flow study portion of the Instream Flow Analysis considers the timing of interactions of diversions in multiple tributaries at the points of interest.

**Comment 4.1.24:** The Draft Policy hinges on relatively accurate estimate of minimum bypass flow and maximum cumulative diversion. Although the scientific basis for calculation of these statistics is theoretically sound, accurate calculation is confounded by lack of historic records and problems with model simulations. (*Patrick Higgins, Consulting Fisheries Biologist/Sierra Club Redwood Chapter*)

**Response:** Comment noted. In locations where data are not available, they may be estimated using the adjustment of streamflow methods described in the Policy Section A.5.2.1.

**Comment 4.1.25:** State any exceptions to the Regional Criteria explicitly in the Policy, not implicitly through the formulas contained in Appendices. For example, the Draft Policy states that the MCD term is applied at every POD; however, when following the formulas in the Appendix, there are circumstances in which the MCD term does not get applied at the POD. (*Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society*)

**Response:** Comment noted. Staff will consider the suggested change to the Policy language in the final Policy.

**Comment 4.1.26:** We agree that the proposed regional criteria for minimum bypass flow (MBF) and maximum cumulative diversion (MCD) would be protective. The MBF and MCD regional criteria attempt to span a wide range in watershed sizes. In the smaller watersheds, generally

watersheds less than 5 square miles but particularly those less than 2 square miles, the proposed regional criteria would also cause large numbers of applicants to pursue case-by-case variances through a procedure that remains somewhat undefined. We believe it is possible to reconfigure the criteria in a way that reduces the need for - and helps focus - site-specific studies, while delivering scientifically-valid standards for aquatic resources. We also revisit the MBF and MCD framework, adopted first in the NMFS/CDFG 2002 guidelines and revised in this recent proposal in a manner that generally assigns biological functions to MBF and physical functions to MCD. We suggest a framework, based on the scientific record, for a staged diversion rate that could result in greater water supply reliability and at least as much protection for fish. Our latest proposal is not fully defined, but we offer it here for your consideration. We look forward to discussing it with you. (See Bill Trush, McBain & Trush, Draft A.B. 2121 Instream Flow Policy: Framework Proposal for Defining Stream Management Objectives, April 30, 2008, attached to these comments as Exhibit 1. ("MTTU 2008")). *(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society)*

**Response:** Comment and suggestion noted. Staff is reevaluating the flow related criteria in the Draft Policy based on consideration of the comments and suggestions that have been received. Staff will provide additional details on the requirements of a site-specific study in the Policy.

**Comment 4.1.27:** The Joint Guidelines contained standard terms and calculations for minimum bypass flow, season of diversion, maximum diversions and the evaluation of cumulative effects, the location of onstream dams, and other guidance. The Draft Policy contains similar standard calculations, which it terms Regionally Protective Criteria. Some water users would prefer that the final Policy dispense with standard terms and calculations entirely. Plainly, that approach would fail to comply with the intent of the legislature. On the other hand, if the Final Policy includes standard criteria in this form and those criteria are based on a solid scientific foundation, then the Policy will be responsive to a primary purpose of the statute. *(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society)*

**Response:** Comment noted.

**Comment 4.1.28:** Draft Policy Section 2.3 defines Regionally Protective Instream Flow Criteria for season of diversion, minimum bypass flow (MBF), and maximum cumulative rate of diversion (MCD). (Policy, pp. 3-6.) As compared to the Joint Guidelines, the Regional Criteria differ in a few significant ways. The Regional Criteria assigns responsibility for protecting biological functions to the MBF criterion and responsibility for protecting physical functions to the MCD criterion. Partly for this reason, as compared to the Joint Guidelines, the draft criteria yield a significantly higher MBF calculation, particularly in the smallest watersheds, and a somewhat larger maximum diversion, particularly in larger watersheds. The draft criteria yield more water for diversion in many locations, particularly in large watersheds or small watersheds located far above the point of anadromy, but less water in the smallest watersheds where the upper point of anadromy is nearby. These small watersheds have the highest concentration of pending applications and "non-filer" reservoirs. The season of diversion would also begin October 1, rather than December 15. The scientific work behind the draft policy represents a significant advance in our understanding of these issues. The reasoning and the analysis is, for the most part, very solid. If the State Water Board were to adopt the draft criteria, they would have to be considered protective. *(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society)*

**Response:** Comment noted. Staff is reevaluating the flow related criteria in the Draft Policy



based on consideration of the comments and suggestions that have been received and is considering revising the flow related criteria for small watersheds and using a diversion season consistent with the DFG-NMFS Draft Guidelines diversion season start date of 12/15.

**Comment 4.1.29:** A key intent of this policy was to focus on measures that protect native fish populations, with a particular focus on anadromous salmonids and their habitat. Even in the best possible outcome related to water diversions, fish will suffer, as a significant amount of water will be continue to be diverted from our streams. Thus it becomes important to focus on specific impacts on salmonid populations at its various lifecycles stages. Current scientific information indicates that the most crucial fisheries issues are migration barriers, late summer survival during periods of low water, and the timing of the diversion season that contributes to decreases in the critical first flows in salmonid streams. The water diversions that will be allowed under this proposed policy must all be evaluated specifically for their impacts on fish lifecycle stages, and if possible, some weighting must be determined to give priority to keeping water instream during those times where diversions will have the greatest negative impact on fish. (*David Katz and Huey Johnson, Resource Renewal Institute*)

**Response:** Comments and suggestions noted. The Draft Policy precludes new diversions during the summer thereby protecting summer flows and limits diversions during the winter season. The Draft Policy thus ensures that summer habitat conditions will not deteriorate beyond conditions already imposed by existing permitted diversions.

**Comment 4.1.30:** The Draft Policy's proposed minimum bypass flow and maximum cumulative diversion restrictions are not supported by sound science and will not produce biological benefits in small watersheds. Bypass flows are not justified in streams where there is little, if any, spawning habitat under natural conditions - shown to be drainages less than 2.75 square miles (1760 acres). The vast majority of projects pending or indicated as non-filer have watersheds less than 320 acres. The median size is less than 53 acres. These small watersheds were not shown to support spawning habitat. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** The comments received from the DFG and NMFS during the public comment period have not questioned the scientific basis behind the recommendations of the Draft Policy. In addition, external technical peer reviewers have indicated the scientific basis is sound. The MBF regional criteria are based on data for streams that appear to be representative of streams larger than 1 sq.mi. The Scientific Basis Report (R2, 2008) demonstrates that the data used to develop and evaluate the draft Policy MBF regional equation reflect habitat-flow needs that have the same general data scatter as data collected in the same and other regions. These habitat-flow needs reflect the fundamental relationships between flows, fluvial geomorphology, and fish habitat that exist in the North Coast and other regions.

Chapter 1 of the Scientific Basis Report explains the need for protecting flows in streams formerly supporting juvenile steelhead, including upstream of artificial barriers, and in ephemeral streams. However, existing site specific data are too limited to be able to evaluate more specifically how much flow is needed above the limit of anadromy on a regional basis. As discussed in section E.3.2.1 in Appendix E of the Scientific Basis Report, at a minimum, the amount of flow arriving at the point of anadromy must be sufficient to protect flow within the range of anadromy. To ensure that this flow is not threatened by new water right applications, the Draft Policy uses a basic hydrologic mass balance concept in establishing instream flow needs in upstream basins at a regional scale as represented by equation E.9 and its subsequent

algebraic manipulation. Staff note that studies have shown the importance of headwater streams, even those that are fishless, to the ecology and productivity of downstream areas that are occupied by fish (See Naiman, R.J. and J.J. Latterell. 2005, Principles for linking fish habitat to fisheries management and conservation. Journal of Fish Biology, 67 (Supplement B), 166-186.).

The validation site data described in the Scientific Basis Report should not be used to conclude that there is no habitat in streams smaller than 160 acres because the field study was not conducted with the goal of delineating the smallest size basin supporting anadromous salmonids. The smallest stream, the East Fork Russian River tributary, was not readily accessible and there may have been suitable habitat-characteristics and channel morphology found if access had been obtained. Figure E-9 in Appendix E of the Scientific Basis Report indicates that critical habitat exists in streams draining less than 160 acres according to NMFS. Only a site specific study can indicate whether additional water can be diverted upstream of the limit of anadromy without adversely affecting instream flow needs downstream.

Staff is reevaluating the flow related criteria in the Draft Policy for small watersheds based on consideration of the comments and suggestions that have been received.

**Comment 4.1.31:** The range and number of validation sites used (13) is too limited for the development of a uniform flow bypass standard for the entire Policy area. Fish passage ability varies by stream-specific conditions (e.g., channel depth, channel morphology, hydrology), and an adequate number of stream samples is required to fully represent the approximately 3,400 diverse streams in the region, which contain varying degrees of habitat complexity. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** To develop an accurate site specific prediction tool based on subsampling and extrapolation (e.g., as done in the Snake River Basin Adjudication Idaho, where around 200 streams were sampled to represent 1000 streams) would require years of data collection and analysis and cost more than is available through AB 2121. The regional protective criteria developed for the Draft Policy should not be considered to have site specific accuracy, and are not intended to be used to predict the site specific needs accurately for every stream. To be regionally protective, the regional criteria are designed to limit water diversions so that adequate flows are available for spawning and passage at sites with the most restrictive instream flow needs. Only site specific study can determine where on the protectiveness spectrum a given site lies, as described in section D.5 of Appendix D of the Scientific Basis Report (R2, 2008).

**Comment 4.1.32:** The compounding of restrictions for each separate Draft Policy element results in a cumulative effect that significantly limits diversion without demonstration that the actual protection of resources would be correspondingly enhanced. The Scientific Basis itself acknowledges that the regional approach "inherently results in overprotecting some streams" by assuming that "all other [non-flow] population regulating factors are non-limiting." [Scientific Basis at D-6]. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Comment noted. To be regionally protective, the regional criteria are designed to limit water diversions so that adequate flows are available for spawning and passage at sites with the most restrictive instream flow needs. Only site specific study can determine where on the protectiveness spectrum a given site lies, as described in section D.5 of Appendix D of the

Scientific Basis Report (R2, 2008). The Policy allows the optional use of results of a site-specific study instead of the regional criteria, to more accurately assess the fishery resource instream flow needs at a particular location (Policy, Section 4.1.8).

**Comment 4.1.33:** Some applications of the Draft Policy are arbitrary and unjustified. Requiring bypass flows in stream reaches above impassable fish barriers or in streams with no appreciable spawning potential is not logically justified. Limitations that unduly restrict wintertime diversions inhibit shifts by riparians from summertime diversions that are more harmful to instream resources. Requiring costly preparation by pre-approved paid professionals, of mitigation plans for non-native species eradication, gravel and woody debris enhancement, even where a proposed water project will have no impact on these attributes of fish habitat, raises due process issues. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Chapter 1 of the Scientific Basis Report explains the need for protecting flows in streams formerly supporting juvenile steelhead, including upstream of artificial barriers, and in ephemeral streams. Studies have shown the importance of headwater streams, even those that are fishless, to the ecology and productivity of downstream areas that are occupied by fish (See Naiman, R.J. and J.J. Latterell. 2005, Principles for linking fish habitat to fisheries management and conservation. *Journal of Fish Biology*, 67 (Supplement B), 166-186.).

Riparian diverters do not require a water right permit from the State Water Resources Control Board; therefore, the policy requirements would not apply to them. However, staff is considering revisions to the Draft Policy that would provide incentives for authorized diverters (including riparian diverters) to modify diversions to enhance conditions for fish and wildlife.

Section 4.4 of the Draft Policy indicates mitigation plans may be required for those projects that include onstream dams. The Direct Cost Analysis Report estimates the costs for preparing mitigation plans range from \$2,800 to \$3,800. Staff does not consider these to be high costs.

**Comment 4.1.34:** The Draft Policy and its documents do not provide the Water Board with sufficient information on which to make an informed decision concerning the Draft Policy or any policy for the north coast streams. Nowhere in the documentation is it revealed that over 66% of all drainages, where roughly 90% of all pending applications are located, are less than 1.19 square miles with essentially no spawning potential. No analysis is presented demonstrating the benefits to the fishery resources resulting from the proposed restrictions, nor the cost, in reduction of yield, that the restrictions impose on diversions. The impact of the Draft Policy on the availability or reliability of water needed for the economy or health of human communities in the north coast region is not analyzed, as required by Water Code section 13141. Without such essential information concerning benefits and trade-offs, the Water Board is unequipped to evaluate the Draft Policy. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** The validation site data described in the Scientific Basis Report should not be used to conclude that there is no habitat in streams smaller than 160 acres because the field study was not conducted with the goal of delineating the smallest size basin supporting anadromous salmonids. The smallest stream, the East Fork Russian River tributary, was not readily accessible and there may have been suitable habitat-characteristics and channel morphology found if access had been obtained. Figure E-9 in Appendix E of the Scientific Basis Report

indicates that critical habitat exists in streams draining less than 160 acres according to NMFS. Only a site specific study can indicate whether additional water can be diverted upstream of the limit of anadromy without adversely affecting instream flow needs downstream.

Chapter 1 of the Scientific Basis Report explains the need for protecting flows in streams formerly supporting juvenile steelhead, including upstream of artificial barriers, and in ephemeral streams. Studies have shown the importance of headwater streams, even those that are fishless, to the ecology and productivity of downstream areas that are occupied by fish (See Naiman, R.J. and J.J. Latterell. 2005, Principles for linking fish habitat to fisheries management and conservation. *Journal of Fish Biology*, 67 (Supplement B), 166-186.).

There are numerous case studies that demonstrate the benefits of restoring and managing instream flows. Studies on Putah Creek have shown this (e.g., Marchetti and Moyle 2001. *Effects of flow regime on fish assemblages in a regulated California stream*, *Ecological Applications* 11(2): 530-539). For a much greater range of case studies, see: Locke, A., and nine others. 2008. *Integrated approaches to riverine resource stewardship: Case studies, science, law, people, and policy*. Instream flow Council, Cheyenne WY.

The Scientific Basis Report (R2, 2008) evaluated effects of changed hydrology on passage and spawning habitat availability using data collected in validation sites, in addition to more general considerations of the benefits of protecting instream flows. The Draft Policy ensures that habitat conditions will not deteriorate beyond conditions already imposed by existing permitted diversions. Effectiveness of the Policy would ultimately need to be determined through monitoring. Staff note that anadromous fish populations are influenced by many other factors besides flow. Thus, there is no certainty that numbers of salmon and steelhead will increase upon implementation of the Draft Policy. However, the opportunity for populations to increase will most certainly be less without the Draft Policy.

The analysis and discussion of the impacts of the Policy on water yields are presented in the SED. Staff presented four examples of the effect of the Policy on water yield. Two of the four projects would receive all, or almost all, of the amount requested under the Draft Policy.

Staff addressed the requirements of Water Code section 13141 in the Direct Cost Analysis Report (Stetson Engineers, 2007).

**Comment 4.1.35:** The regional criteria are so restrictive that most pending applications will fail and be forced into either a site-specific variance or an exception. The Draft Policy puts forth "regional criteria" which are supposedly intended to identify projects that are protective of anadromous salmonid habitat. The regional criteria, however, were developed as one-size-fits-all criteria that are intended to identify, without site-specific study, those projects that would not impact anadromous salmonids. The regional criteria are so restrictive that most pending applications for water rights in the Policy area will fail and be forced into either a site-specific variance analysis (Section 4.1.8 of the Draft Policy) or an exception (Section 13.0 of the Draft Policy). Even then, the Policy direction for site-specific analyses presumes the regional criteria as the standard of protectiveness from which the variance analysis has a burden to refute. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** See response to 1.6.1.

**Comment 4.1.36:** There is no valid basis for using the NMFS-DFG Draft Guidelines or its concepts for developing or evaluating the Policy because of the following reasons: (1) The Scientific Basis acknowledged there was no clear basis for "the level of change in channel morphological response that would adversely affect salmonid habitat and production" and so adopted the 5 percent of 1.5-year flow concept posited in the Draft Guidelines. This, however, cannot be justified because the Draft Guidelines were not formally adopted by the State Water Board. (2) The Scientific Basis interpreted Water Code section 1259.4 to mean that the Draft Guidelines are to be used to develop the Draft Policy. However, Water Code section 1259.4 does not direct use of the Draft Guidelines in developing the Policy. It says that the Draft Guidelines can be used for water right administration prior to adoption of the Policy. This is an important distinction because the Draft Guidelines were never formally adopted. (3) The same problems that make the Draft Guidelines inapplicable to small watersheds make the Draft Policy inapplicable to small watersheds. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** (1) The 5 percent of 1.5 year flow concept was not justified because it was posited in the Draft Guidelines but because the Scientific Basis Report projects that the primary consequence on sediment transport and channel form by using this MCD is a small reduction in channel size and grain size characteristics which should not negatively impact fish habitat.

(2) The Draft Policy is a refinement of the recommendations of the DFG-NMFS 2002 Draft Guidelines using additional and more detailed analysis by practiced experts in the field of instream flow needs for salmonids, including anadromous species. The Draft Policy is supported by the findings of the Scientific Basis Report.

(3) Staff is reevaluating the flow related criteria in the Draft Policy for small watersheds based on consideration of the comments and suggestions that have been received.

**Comment 4.1.37:** The Draft Policy has taken scientific principles and analyses developed and applicable to large watersheds and applied requirements derived therefrom to watersheds of all sizes. (1) This is problematic because most pending applications for onstream reservoirs are located on small watersheds, high in the basin, from which the effects on the downstream hydrology and biota important to anadromous salmonids is minimal. (2) The Scientific Basis included investigations of 13 "validation sites" ranging in watershed size from 0.25 square miles to 34 square miles. The Scientific Basis also drew upon scientific literature developed for larger streams and rivers where anadromous salmonids are present. The Scientific Basis did not study or account for the processes occurring in small watersheds where most of the pending applications are located. The Draft Policy then failed to propose requirements that recognize differences between large and small watersheds. The details regarding these concerns are provided in separate comments. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** The MBF regional criteria are based on data for streams that appear to be representative of streams larger than 1 sq.mi. The Scientific Basis Report (R2, 2008) demonstrates that the data used to develop and evaluate the draft Policy MBF regional equation reflect habitat-flow needs that have the same general data scatter as data collected in the same and other regions. These habitat-flow needs reflect the fundamental relationships between flows, fluvial geomorphology, and fish habitat that exist in the North Coast and other regions. After considering the collective peer review and public comments, Staff's experts' concluded that

an MBF criterion for streams draining less than 1 sq.mi. set equal to the criterion at 1 sq.mi. appears reasonable from a protectiveness standpoint as discussed in the response to 4.3.21.

Chapter 1 of the Scientific Basis Report explains the need for protecting flows in streams formerly supporting juvenile steelhead, including upstream of artificial barriers, and in ephemeral streams. However, existing site specific data are too limited to be able to evaluate more specifically how much flow is needed above the limit of anadromy on a regional basis. As discussed in section E.3.2.1 in Appendix E of the Scientific Basis Report, at a minimum, the amount of flow arriving at the point of anadromy must be sufficient to protect flow within the range of anadromy. To ensure that this flow is not threatened by new water right applications, the Draft Policy uses a basic hydrologic mass balance concept in establishing instream flow needs in upstream basins at a regional scale as represented by equation E.9 and its subsequent algebraic manipulation. Staff note that studies have shown the importance of headwater streams, even those that are fishless, to the ecology and productivity of downstream areas that are occupied by fish (See Naiman, R.J. and J.J. Latterell. 2005, Principles for linking fish habitat to fisheries management and conservation. Journal of Fish Biology, 67 (Supplement B), 166-186.).

Staff is reevaluating the flow related criteria in the Draft Policy for small watersheds based on consideration of the comments and suggestions that have been received.

**Comment 4.1.38:** The Flow Alternative scenarios did not present a comprehensive sensitivity analysis that would isolate the impacts of individual Policy element alternatives. The Flow Alternative Scenarios were developed in such a way that comparison between any two scenarios involved change in more than one design element. Thus any impacts observed could not be attributed to a specific design element. The Scientific Basis was unable to identify or evaluate the effects of the regional criteria under investigation. A commonly applied and recommended procedure for evaluating the reliability and results of a simulation model is sensitivity analysis. When specification of a model parameter(s) is uncertain or is crucial in some way, it is important that a sensitivity analysis be performed. In this type of analysis, the parameter in question is varied slightly while holding all other parameters fixed. Observation of the change in model result then enables an assessment of model behavior and the sensitivity of the model to that parameter. Because this was not done in the Scientific Basis, an opportunity to test the model reliability was foregone and the opportunity to evaluate the design elements, which became the regional criteria, was foregone. For example, it may be that shifting the MBF or the MCD requirement could have little effect on habitat but a large effect on water available for diversion. Or the opposite may be true, but the analysis was not performed to answer that. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** As noted by the commenter, the Scientific Basis Report did not present a comprehensive sensitivity analysis that would isolate the impacts of individual Policy element alternatives, mostly reflecting budget and time limitations. However, combinations of flow alternative scenarios were evaluated in Appendix I of the Task 3 Report. Chapter 4 of the Task 3 Report provided an analysis of the results. The water cost analysis described in the SED (section 6.8) compared the amount of potential diversion volume for each of the Policy element alternatives.

In addition, a sensitivity study (Stetson and R2, 2009) was performed in response to public and peer review comments, to determine if the regional criteria could be reduced to allow more water

diversions without adversely affecting spawning and passage habitat for anadromous salmonids. The study compared the potential water diversion volume for 9 different MBF alternatives and 5 MCD alternatives and calculated the number of days of spawning and passage opportunities for 5 of the MBF alternatives with an MCD of 5% of the 1.5 year peak flow (the Draft Policy regional criteria). A diversion season of December 15 to March 31 was used for the sensitivity study instead of the October 1 to March 31 proposed in the Draft Policy. The study concluded that an MBF criterion based on a 0.7 ft steelhead minimum spawning depth criterion in the validation sites would be similarly protective as one based on a 0.8 ft criterion and would provide a slightly higher potential diversion volume. As a result, it was recommended that the MBF regression equation could be re-developed using a 0.7 ft minimum spawning depth criterion for steelhead instead of 0.8 and not adversely change passage or spawning habitat availability. The sensitivity study passage and spawning habitat analysis determined further that reductions of the MBF equation intercept term by one or more standard errors (SE) from the current proposed mean+3 SE would result in larger potential diversion volumes and further reductions in passage and spawning opportunities in more streams, and were not recommended for the protective regional criteria.

**Comment 4.1.39:** The benefit to the fishery due to specific individual projects was not analyzed. The Scientific Basis and Substitute Environmental Document analyses were conducted based on the assumption that the full amount of water available for diversion within the regional diversion constraint criteria would be diverted at the respective validation site(s). No actual existing or proposed project was evaluated. And because the watersheds of the validation sites selected are far larger than almost all pending projects, the impacts modeled correspond to far larger diversions than any actual project. For example, modeled diversions at the Franz Creek validation site averaged 1,200 AF/year under Flow Alternative Scenario 5. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** The Scientific Basis Report (R2, 2008) evaluated effects of changed hydrology on passage and spawning habitat availability using data collected in validation sites, in addition to more general considerations of the benefits of protecting instream flows. The criteria in the proposed Policy were developed using the analysis in the Scientific Basis Report in anticipation that implementation of the criteria would result in no deterioration of habitat conditions beyond conditions already imposed by existing permitted diversions. Effectiveness of the Policy would ultimately need to be determined through monitoring.

The water cost analysis in the Draft SED and the water diversion analysis in the sensitivity study (Stetson, 2009) provided a relative comparison of the amount of water that could be diverted under different combinations of potential Policy minimum bypass flow, maximum cumulative diversion and diversion season regional criteria.

Staff presented examples of how the Draft Policy would apply to specific diversion projects in their February 6, 2008 workshop presentation, which is available for viewing on the State Water Board's Instream Flow Policy webpage.

**Comment 4.1.40:** An evaluation of an alternative consisting of the proposed policy design elements was not presented in Appendix I of the Scientific Basis. None of the Flow Alternative Scenarios presented in Table I-1 appear to include the combination of elements (DS3, MBF3, MCD2) included in the proposed Policy in either the Scientific Basis or the Substitute Environmental Document. Hence, the proposed Policy remains unanalyzed, as required for CEQA compliance purposes. Further, it is not possible to evaluate the proposed Policy by

incrementally evaluating each of the design elements because "...it was not possible to completely partition out the effect of the MCD element on habitat availability from the effects of the MBF and diversion season elements." (Scientific Basis pg. 4- 13). A reanalysis of the specific proposed Policy, incorporating each of the Design Elements, needs to be conducted. (Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)

**Response:** In response to this comment and comments of a similar nature received from a peer reviewer (Dr. R. Woodward), the proposed Draft Policy regional criteria (DS3, MBF3, and MCD2) were explicitly evaluated for effects to habitat and found to be generally protective when compared against Flow Alternative Scenarios 1 through 5. The results of the extended habitat analysis suggest that the Draft Policy regional criteria (Flow Alternative Scenario 6) result in similar passage and spawning habitat opportunities as Flow Alternative Scenarios 1 (DS1, MBF1, MCD1) and 3 (DS1, MBF3, MCD1) in most of the validation sites, improved in a few validation sites, and reduced in a few other validation sites. Overall, the Draft Policy regional criteria does not appear to adversely affect spawning habitat opportunities (compared with unimpaired conditions) more frequently than the Flow Alternative Scenarios 1 (DS1, MBF1, MCD1), 2 (DS2, MBF2, MCD4) and 5 (DS1, MBF1, MCD3). Spawning habitat availability is reduced in one validation site for steelhead and coho (Carneros Creek), and three sites for Chinook (Carneros, Dunn and Franz creeks). In the cases where passage opportunities are reduced compared with conditions associated with Flow Alternative Scenarios 1 (DS1, MBF1, MCD1) and 2 (DS2, MBF2, MCD4), the cause appears to reflect the higher MCD rate used by the Draft Policy (MCD2) as indicated by the similarity in results at some sites for Flow Alternative Scenario 4 (DS3, MBF4, MCD2) which also uses MCD2. The details of this analysis are provided in Attachment 1 of the response to peer review document.

In addition, a sensitivity study (Stetson and R2, 2009) was performed that compared the potential water diversion volume for 9 different MBF alternatives and 5 MCD alternatives and calculated the number of days of spawning and passage opportunities for 5 of the MBF alternatives with an MCD of 5% of the 1.5 year peak flow (the Draft Policy regional criteria). This provided an incremental assessment of the relative protectiveness of potential MBF alternatives. The study concluded that an MBF criterion based on a 0.7 ft steelhead minimum spawning depth criterion in the validation sites would be similarly protective as one based on a 0.8 ft criterion and would provide a slightly higher potential diversion volume.

Both analyses used the June 2009 versions of MBF3 and MBF4.

**Comment 4.1.41:** Appendix I of the Scientific Basis does not evaluate the results of application of the Policy because: (1) small watersheds were not addressed; (2) there is no description of how the Policy, in its entirety, affects passage and spawning opportunities; and (3) there is inadequate discussion of how the change in the two design elements (MBF3 and MBF4) between alternatives would affect passage and spawning opportunities. (Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)

**Response:** Staff response to the comments on Appendix I are as follows: (1) Spawning habitat effects were evaluated for selected streams with watershed sizes down to approximately 1.2 sq.mi, and passage effects to 0.25 sq.mi; (2) In response to public and peer review comments, the proposed Draft Policy regional criteria (DS3, MBF3, and MCD2) were explicitly evaluated for effects to habitat in the validation sites. The results of this analysis are provided in the response



to peer reviewer document. In the context of effects to the region as a whole, the analysis of effects evaluates region-wide effects to the extent permitted by the data; (3) see Section 4 of the Scientific Basis Report (R2, 2008) which compares the effects of the MBF3 and MBF 4 elements on passage and spawning. Note however the difficulty in partitioning out the effects due solely to MBF3 and MBF4 because of the concomitant effects of the DS and MCD. In addition, a sensitivity study (Stetson and R2, 2009) was performed based on feedback in peer review and public comments. The study compared the potential water diversion volume for 9 different MBF alternatives and 5 MCD alternatives and calculated the number of days of spawning and passage opportunities for 5 of the MBF alternatives with an MCD of 5% of the 1.5 year peak flow (the Draft Policy regional criteria). The study concluded that an MBF criterion based on a 0.7 ft steelhead minimum spawning depth criterion in the validation sites would be similarly protective as one based on a 0.8 ft criterion and would provide a slightly higher potential diversion volume.

**Comment 4.1.42:** The level of protection resulting from policy application may not be appropriate for all streams in the policy area. Each step of the methodology, from the establishment of biological criteria to the development of the minimum bypass flows and the maximum cumulative diversion elements, employed a "risk-averse" approach. In combination, the Policy results in a very high, but not comprehensively defined level of protection, the application of which may be overly restrictive for many streams within the Policy area. Application of a maximum level of protection to each individual Policy element (e.g., biological criteria, field measurements, analytical assumptions, Protectiveness Analysis) results in a compounding of effects, which, while restricting opportunities for diversion of water, may not increase the actual protection of the instream resource. It is acknowledged that some level of resource protection is necessary to maintain aquatic resource conditions and prevent the degradation of public trust resources in the Policy area. However, it is uncertain whether this compounding of protectiveness is necessary to protect fisheries resources in the Policy area. The Scientific Basis undertook a well-intentioned attempt to apply a maximum level of protection. Because little was known about most of the streams within the Policy area, the Policy development process relied upon an exceedingly "conservative" approach by applying the most restrictive conditions as possible to each Policy element. However, the Policy and the Scientific Basis do not present evidence to suggest that resource impairment within the Policy area (or within a subset of the Policy area, as characterized by the validation site streams) is of a magnitude that warrants a Policy approach designed to compound protectiveness. The "maximum protectiveness" approach selected does not present a balanced assessment of (1) existing conditions and resource needs within the Policy area; and (2) the baseline level of protection required to sufficiently protect existing resources. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Because of the various levels of uncertainty indicated, adaptive management principles and the precautionary principle result in regional criteria that are of necessity conservative in the absence of more site specific data. If the regional criteria are in error and are too high, then the steelhead, Chinook and coho fisheries will be protected and have a chance to recover. If the regional criteria are in error and too low, then the fish populations may go extinct and never have the chance to recover. Section D.1 of Appendix D of the Scientific Basis Report (R2, 2008) discusses the burden of proof and consequences.

Only site specific study can determine where on the protectiveness spectrum a given site lies, as described in section D.5 of Appendix D of the Scientific Basis Report (R2, 2008). The Policy allows the optional use of results of a site-specific study instead of the regional criteria, to more accurately assess the fishery resource instream flow needs at a particular location (Policy,

Section 4.1.8).

**Comment 4.1.43:** It is not clear how the modeling results in Appendix H and I of the Scientific Basis support the conclusions presented in Tables 3 through 6 (pages xxiii through xxviii of the Executive Summary), or elsewhere in the Scientific Basis, that each design element would be regionally protective. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Appendices H and I present the detailed results of upstream passage and spawning habitat-flow relationship modeling and protectiveness analysis for the validation sites. Section 4 of the Scientific Basis Report (R2, 2008) describes how these data were used in developing the criteria.

**Comment 4.1.44:** The combination of the MBF, MCD and DS elements included in the Results of Validation Site Protectiveness Analysis (Scientific Basis, Appendix I) has not been shown to be applicable to watersheds with relatively small drainage areas, particularly due to concerns regarding the application of MBF requirements to watersheds less than 1.19 square miles. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** See response to 4.1.1.

**Comment 4.1.45:** The Policy acknowledges scientific uncertainty, but attempts to eliminate uncertainty regarding the level of protection. The SWRCB policy and supporting appendices repeatedly acknowledge uncertainty and the appropriate level of protection. Bypass flows lower than those prescribed by MBF3 may be protective. Long-term viability does not necessarily require optimal habitat conditions, which serve as the basis for the Policy elements. The maximum cumulative diversion threshold is established based on the assumption that greater rate of diversion is less protective than a smaller rate. The maximum cumulative diversion rate used a worst-case scenario. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** See response to 4.1.42.

**Comment 4.1.46:** The Policy's directive to implement a "one-size-fits-all" approach is not consistent with sections of the Scientific Basis that acknowledge the inherent variability in watershed and stream-specific conditions that can influence the recruitment of upstream resources (e.g., food, instream woody material, and energy). As described in Appendices D and G, the Scientific Basis applied results from 13 validation streams to a total of 3,402 streams in the Policy area. For these 3,402 streams, the Scientific Basis considered variation at a gross scale by addressing: (1) stream classification; (2) drainage area; and (3) geographic location. Appendix H (pg. H-1) of the Scientific Basis states "...In the analysis of protectiveness, the limiting upstream passage flow for the site is set equal to the transect requiring the highest initial passage flow." Fish passage ability varies by stream-specific conditions (e.g., channel depth, channel morphology), and a uniform application of one standard to over about 3,400 streams based on only 13 validation streams does not appear to be an adequate level of analysis to fully take into consideration different stream classes or streams with multiple reaches that contain varying degrees of habitat complexity. It also is likely that other parameters introduce additional

variability, which does not appear to have been considered or addressed in the Policy, including: (1) watershed location (e.g., elevation); (2) surrounding land use; (3) type of, and extent of both upland and riparian vegetative cover; (4) geology; and (5) other site-specific instream processes such as productivity, nutrient spiraling, water temperature and channel morphology. If a "one-size-fits-all" approach will not result in an equal level of anadromous salmonid protection, then applying a higher standard that uses the most stringent conditions to maximize protection (e.g., including ephemeral streams) is unlikely to result in a greater amount of improvement. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** See section D.5 in Appendix D of the Task 3 report for a discussion of how the Draft Policy does not constitute a one-size-fits all approach. The Draft Policy does not attempt to predict instream flow needs for each stream, and instead relies on a protective regional criterion to establish a suitable threshold flow below which uncertainty on site-specific instream flow needs can be addressed by site specific study.

It is because of such site-specific uncertainties that the Draft Policy regional criteria should be conservative. Staff is reevaluating the flow related regional criteria in the Draft Policy for small watersheds based on consideration of the comments and suggestions that have been received. Site specific studies are the best way to determine if a longer diversion season, lower MBF, and/or higher MCD rate compared with the draft Policy regional criteria would be protective. It is not possible to develop corresponding regional criteria because biologically based criteria of the type described may vary in the way they control populations from site to site and it is difficult to link production changes quantitatively to environmental covariates. For example, there are no clearly defined regional criteria in terms of number of days that are protective vs. not, which is in part why the Task 3 Report compared alternatives against each other rather than reporting conclusions in terms of number of days. Site specific study is therefore a necessary condition for identifying more accurately the fishery resource instream flow needs of a particular location.

The option for conducting site specific studies was included in the Policy as a means to allow the collection and evaluation of more information specific to a given stream, with the recognition that one-size does not fit all and that stream conditions can be highly variable between and even within a given watershed. However, the option to conduct such studies is up to the individual applicant.

**Comment 4.1.47:** Additional consideration should be given to evaluation of differences in flows due to various diversion rates, and resultant level of protectiveness. The Scientific Basis (pg. 4-12) states that "A consistent, quantitative, biologically meaningful basis could not be identified for selecting a specific threshold, in terms of a number difference or a percent reduction, that distinguished between protective and nonprotective flow conditions [for upstream passage]." A relative percentage change in flows does not necessarily mean that resultant flows are not protective. Rather, changes in flows that remain well above specific threshold criteria should be considered protective if the minimum thresholds (particularly those based on "risk averse" methodologies) are achieved. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Comment noted. Staff agree with the underlying principle as summarized in the last sentence of the comment, but absent clear definition of a minimum threshold measure, it is not possible to implement in practice.

**Comment 4.1.48:** As a water rights administration measure, the Draft Policy fails. The Draft Policy will not alleviate the tremendous backlog of applications and petitions currently facing the Water Board's Division of Water Rights; in fact, it is likely to exacerbate that workload. Because the Draft Policy's provisions will so dramatically reduce the anticipated yield of water projects currently proposed - rendering some completely infeasible - most applicants will seek refuge in the Draft Policy's "variance" provisions, a process that is discrete, ill-defined, and lacking in substantive criteria. In other words, the Draft Policy is nothing more than a screening tool and, like its predecessor, the Draft Guidelines, it screens almost everything. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** The Draft Policy regional criteria can be considered as a screening tool in order to rapidly process pending applications using available resources. Staff is reevaluating the flow related criteria in the Draft Policy for small watersheds based on consideration of the comments and suggestions that have been received. The Draft Policy allows applicants to perform a site-specific study to more accurately estimate the fishery resource instream flow needs for particular locations. Staff will add additional wording to more clearly define the site-specific study requirements.

**Comment 4.1.49:** The Policy will dramatically reduce the opportunities for diversion without any assurance of fishery or resource benefit. An analysis of the Policy's criteria for consecutive days needed for viable steelhead spawning habitat on Carneros creek reveals that there are zero spawning opportunities. The Carneros creek drainage area is 2.75 square miles (1,760 acres). The median drainage area size of projects being subjected to the Policy is about 50 acres (based on sample of 71 projects in Maacama Creek). Almost 90% of the projects impound less than 0.5 square miles (320 acres) of watershed. It is unlikely that limiting diversions of these small projects to the Policy's restrictive criteria will measurably improve streamflow; even if all of the water impounded by them was unregulated. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Figure I-4 in Appendix I of the Scientific Basis Report (R2, 2008) shows that estimated spawning opportunities range from between 2 and 8 days per year in Carneros Creek validation site. This result shows that there may be water available for diversion in Carneros Creek near the validation site, contrary to the results reported by the commenter.

While a single small diversion by itself may have negligible impact, the cumulative effects of many small diversions can be adverse, akin to "death by 1000 cuts". Providing an automatic exception to small projects overlooks cumulative effects potential.

Staff is reevaluating the flow related criteria in the Draft Policy for small watersheds based on consideration of the comments and suggestions that have been received.

**Comment 4.1.50:** The Draft Policy simply assumes, without any analysis of hydrologic impact, that allowing collection and storage of "first rain" flows in small reservoirs located high in the watershed (a practice commonly referred to as "fill and spill") would adversely affect anadromous fish passage, even in stream sections that cannot be reached by the fish. The Draft Policy would require owners of such reservoirs to construct expensive and environmentally damaging bypass channels to accommodate the high flows required to be bypassed. (Flow Policy, pp. 8-9 and 29.) (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner &*

*Bonsignore Consulting Civil Engineers)*

**Response:** While a single small diversion by itself may have negligible impact, the cumulative effects of many small diversions can be adverse, akin to "death by 1000 cuts". Providing an automatic exception to small projects overlooks the potential for cumulative effects. The reservoir owners have the opportunity to demonstrate in the water availability analysis required by the Policy as part of their water right application that their projects will not adversely affect fish habitat. There may be projects for which operation of a reservoir as a fill and spill might not result in more than a 5% change to the 1.5 year flood flow. If the project does not cause more than a 5% change to the 1.5 year flood flow, a maximum rate of diversion that controls inflow to the onstream reservoir would not be needed. The procedures outlined in Appendix 1 of the Draft Policy can be used to evaluate whether a maximum rate of diversion is required for an onstream dam. Staff is considering providing additional language to the Draft Policy for evaluating projects in small watersheds. Construction of bypass channels would need to be completed using construction methods designed to minimize environmental impacts. The bypass channels themselves should not be environmentally damaging.

**Comment 4.1.51:** DFG commented that the policy should not use the term "criteria" because no provision is provided in the Water Code for including "criteria" in water quality control plans or policy. The term "criteria" is not defined in the Water Code and could cause confusion when the policy provisions are used to develop permits and during enforcement. The use of "criteria" is further confused by the fact that U.S Environmental Protection Agency (USEPA) adopts "water quality criteria" for chemical constituents that are considered to be equivalent to water quality objectives as defined in the Water Code. DFG suggested four global changes to the policy to address this comment. *(Donald Koch, State of California Department of Fish and Game)*

**Response:** The DFG recommends that the terminology "water quality objectives" be used in place of "regional criteria". Water quality objectives are instream chemical constituent concentrations that have been scientifically determined to affect water quality. The MBF and MCD regional criteria proposed in the Draft Policy are not chemical constituent concentrations, but are scientifically derived methods for estimating stream flow thresholds that are protective of fish habitat. Use of the term "water quality objectives" to define them would be confusing.

**Comment 4.1.52:** As the SWRCB realizes, with the increasing demands (including increased recognition of the importance of fisheries), it is essential to manage water resources effectively and efficiently. This is mandated by State law, including the Constitution, but is also eminent common sense. Technical analyses of the Policy indicate that the proposed Policy will not manage water in this way. In fact, the Policy may overestimate the water to be re-allocated from off stream to instream use, in some instances, and does not take into account the real manner in which off stream use is or can be achieved, such that impacts to fisheries are reduced or avoided entirely. Timing and method of diversions are examples. *(Bill Kocher, City of Santa Cruz Water Department)*

**Response:** To develop an accurate site specific prediction tool based on subsampling and extrapolation (e.g., as done in the Snake River Basin Adjudication Idaho, where around 200 streams were sampled to represent 1000 streams) would require years of data collection and analysis and cost more than is available through AB 2121. To be regionally protective, the regional criteria are designed to limit water diversions so that adequate flows are available for spawning and passage at sites with the most restrictive instream flow needs. Only site specific study can determine where on the protectiveness spectrum a given site lies, as described in section D.5 of Appendix D of the Scientific Basis Report (R2, 2008). The Draft Policy allows the

optional use of results of a site-specific study instead of the regional criteria, to more accurately assess the fishery resource instream flow needs at a particular location (Policy, Section 4.1.8). Section 4.1.7 of the Draft Policy describes the Instream Flow Analysis which takes into consideration the cumulative effects of multiple diversions in a watershed and different methods of diversion.

**Comment 4.1.53:** The Task 3 Report does not sufficiently demonstrate the protectiveness of the chosen alternative. The information contained in section 4 of the Task 3 Report does not convincingly show that the 2 of 3 elements from Scenario 4 will provide adequate protection. Based on the information presented, Regional Board staff view Alternative 4 as inadequate to protect migration and spawning needs, and Alternative 5 as inadequate to protect migration passage needs. The evidence provided in Table 4-3 indicates that Scenario 3 provides the most protection to the resources of concern. *(Catherine Kuhlman, State of California Regional Water Quality Control Board, North Coast Region)*

**Response:** During the early development of the Draft Policy, it was not possible to conduct an all-possible-permutation sensitivity analysis mostly reflecting time and budget limitations. However, in response to public and peer review comments, the proposed Draft Policy regional criteria (DS3, MBF3, and MCD2) were explicitly evaluated for effects to habitat in the validation sites and were found to be protective. The detailed results of this analysis are provided in Attachment 1 of the response to peer reviewer document. The objective of the Draft Policy is not necessarily to recommend the most protective option, but the option that results in sufficient protection. Any option that is more protective than necessary would reduce water availability to other uses.

**Comment 4.1.54:** Margins of safety or mitigation measures should be included in the Policy to account for areas of uncertainty in the analysis. The technical analysis includes numerous areas of uncertainty for which underprotective assumptions were made. For example, streams with "few-to-no" permits listed in WRIMS were assumed to be unimpaired. This assumption ignores the possibility of unpermitted diversions of which there are many in the policy area. It further ignores the role of riparian diversions and groundwater extraction in the alteration of instream flows. We recognize the limitations of a regional analysis of this scale; however, where assumptions of this nature are required, they should err on the side of resource protection. In this case, the validation sites identified and the hydrologic data used are not likely to represent unimpaired conditions upon which to establish a baseline. *(Catherine Kuhlman, State of California Regional Water Quality Control Board, North Coast Region)*

**Response:** Because of the various levels of uncertainty indicated, the Draft Policy proposes regional criteria that are of necessity conservative and err on the side of resource protection following adaptive management principles and the precautionary principle which requires the protection against potential harm to the environment, in the absence of a scientific consensus that harm would not ensue. To be regionally protective, the regional criteria were designed to limit water diversions so that adequate flows would be available for spawning and passage at the validation sites with the most restrictive instream flow needs. At some sites, therefore, more than adequate flows will be provided by regionally protective criteria.

Regarding the example of the assumption of unimpaired flows at the validation sites, this provides a level of conservatism in the regression analysis if the unimpaired flows are underestimated due to diversions by unpermitted diversions. For the regression analysis, habitat-providing flow is divided by mean annual flow. If the unimpaired mean annual flow is slightly underestimated due to impairments, the instream flow need will be slightly overestimated

by the regression. The passage and spawning habitat analysis provided in the Scientific Basis and the water cost analysis in the Draft SED are both relative comparisons of the Policy element alternatives and would be unaffected by an underestimation of unimpaired flows.

**Comment 4.1.55:** Implementation of the proposed Policy may result in potentially significant direct impacts not considered in the SED. For example, Regional Board staff is concerned that the proposed Policy will result in under-protection in some streams in the policy area. Permits issued in those streams will not likely result in the kind of habitat and water quality conditions necessary to protect beneficial uses, including salmonids. Yet, the monitoring plan, adaptive management plan, and permit reopener clause insufficiently provide for swift correction to protect against the loss of whole year classes of salmonids. This problem should be corrected or mitigated. *(Catherine Kuhlman, State of California Regional Water Quality Control Board, North Coast Region)*

**Response:** Comment noted. Staff believes that the Draft Policy regional criteria are conservatively protective based on the available data and following the various conservative habitat criteria applied in developing the draft Policy MBF. Also see response to 4.1.54.

**Comment 4.1.56:** The SED does not analyze the effect on salmonid populations from the loss of refugia due to reduced stream flows and/or impaired water quality conditions resulting from diversions or dams in those streams. The appropriate mitigation is to prevent any further diversions or dams on streams identified by the Department of Fish and Game or the National Marine Fisheries Service as providing important refuge. *(Catherine Kuhlman, State of California Regional Water Quality Control Board, North Coast Region)*

**Response:** Comment noted. The Draft Policy was developed to be protective of instream flow needs in all streams, including refugia streams.

**Comment 4.1.57:** It is suggested in Section 4.3.5 of the Task 3 Report that Scenario 4 offers the best regionally protective criteria, the smaller diversion rates having the potential to be overly protective in some streams. No analysis estimating the relative under and over-protectiveness of the scenarios is provided. Thus, it is difficult for Regional Board staff to assess this statement. *(Catherine Kuhlman, State of California Regional Water Quality Control Board, North Coast Region)*

**Response:** It is not suggested in the report that the MCD element of Scenario 4 is the "best" regionally protective criteria. The Scientific Basis Report recommends MCD2 because it represents a reasonable compromise between resource protection and water demands, while still ensuring sufficient protection of channel morphology and stream size.

**Comment 4.1.58:** Do you still plan to use the formulas for Minimum Bypass Flow and Maximum Cumulative Diversion rates as written in sections 2.3.2 and 2.3.3 of the Draft Policy of December 2007? *(Rudolph Light)*

**Response:** The formulas for Minimum Bypass Flow and Maximum Cumulative Diversion rates that appeared in the Draft Policy were changed slightly in the March 2008 errata. Staff is reevaluating the flow related criteria in the Draft Policy based on consideration of the comments and suggestions that have been received.

**Comment 4.1.59:** Will you exempt small watersheds from the MBF and MCD requirements, and if so, below what Drainage Area size would the exemption apply? *(Rudolph Light)*

**Response:** Staff is reevaluating how the Draft Policy addresses diversions in small watersheds based on consideration of the comments and suggestions that have been received.

**Comment 4.1.60:** Supports the Maximum Protectiveness Alternative given in the Substitute Environmental Document. (*Chris Malan, Earth Defense for the Environment Now, Living Rivers Council*)

**Response:** Comment noted.

**Comment 4.1.61:** The policy does not specify different flow requirements for the different stream classes. Flow requirements should depend on the species present, respective biological needs of the species, and other measures of ecosystem health. If the variable dependence of species on stream is the basis for not establishing flow requirements for these streams, at least a short description of the general process that will be used to determine flow requirements on class II and III streams would be helpful. (*Elliott Matchett*)

**Response:** Staff is reevaluating how the Draft Policy addresses diversions in small watersheds based on consideration of the comments and suggestions that have been received.

**Comment 4.1.62:** The high bars set in the Draft Policy are not scientifically and economically justifiable. Again, there are many other comment letters that explain this point fully. It suffices to say that the formulae and conditions proposed in the Draft Policy will obliterate many of our members' farming without helping any fish, because these members don't have groundwater and are totally dependent on the collected surface water, and because there have been no salmonid ever found in their small watersheds. (*Mike Morris, North Bay Agriculture Alliance*)

**Response:** See response to 4.1.30.

**Comment 4.1.63:** The draft Policy actually enhances the present system, which allows diverters to easily obtain variances and endlessly challenge fines and other sanctions. Variance processes currently go on for many years, and over past decades have allowed illegal activities and operation of illegal water diversion structures to continue. The 2007-08 near-collapse of fish populations is largely due to the effects of flow impediments allowed by this lax system. To discourage non-compliance the Policy must cut back on the abundance and types of variances, and limit appeals, so that a diverter's expectation of sanction for noncompliance will be closer to that of a water-rights application process. (*Jane Nielson, Sonoma County Water Coalition*)

**Response:** Comment noted. The Draft Policy relies on a protective regional criterion to establish a suitable threshold flow below which uncertainty on site-specific instream flow needs can be addressed by site specific study. The site specific study element of the Draft Policy is provided as a means to more accurately determine the local fishery resources instream flow needs based on site specific data rather than using the regional criteria. The regional criteria are intended to be used when site specific information on instream flow needs is absent.

Staff recognizes that timely and appropriate enforcement is critical to successful implementation of the Policy, as described in Section 11.

**Comment 4.1.64:** Simplifying the permit process by decreasing the number of variances may be useful in saving enforcement costs. The myriad of variances and appeals through which a judgment may be delayed in cases of suspected abuse delay the payment of fines and increase



the cost of enforcement. (*Robert Pennington, Community Clean Water Institute*)

**Response:** Comment noted.

**Comment 4.1.65:** As part of this study, we [NCRCD] interviewed permitted agricultural water users in the Carneros Creek watershed to ascertain their actual diversion schedules (i.e. quantities, timing). We found that farmers pump almost exclusively on the receding limbs of storm events, once the water has sufficiently cleared. This is done primarily to prevent equipment damage and filling of reservoirs with suspended sediment. We incorporated this very site specific information into a hydraulic model (MIKE SHE) of the creek and found the peaks of any given storm hydrograph would be unaffected by this current pattern of diversion. Therefore, it appears that current diversion practices in Carneros Creek are consistent with the Policy's goal of maintaining natural high flow variability. If, however, the policy's proposed MBF requirements were imposed, water users would undoubtedly establish alternative diversion schedules that might be detrimental to the habitat. Our modeling efforts suggest that the new MBF might force diverters in this reach to pump during the peaks of storms to get sufficient water, thus muting the peaks that are desirable for maintaining habitat diversity. In addition, it seems certain that at least some of these diverters would not be able to pump the volume of water their operations currently consume, even if they were to pump right through all the winter storms. (*Clinton Pridmore, Napa County Resource Conservation District*)

**Response:** The potential impacts identified by the commenter regarding the potential change in diversion schedules and the resulting reduction of peak flow magnitudes as a response to the restrictions imposed by the MBF is a possible outcome of implementation of the Draft Policy. However, the Policy limits the cumulative instantaneous rate of diversion (MCD) to 5% of the 1.5 year peak flow. An analysis of predicted stage differences between the 1.5 year peak flow and 95% of the 1.5 year peak flow (flow corresponding to the maximum diversions allowed by the MCD) at the two spawning transects in the Carneros Creek validation site indicates the water level at 95% of the 1.5 year peak flow is approximately 0.07 ft lower than the water level at the 1.5 year peak flow at both locations. This 0.07 ft drop corresponds to a decreased peak dimensionless Shields shear stress of only about 0.3% and sediment transport rate increases roughly to the 1.5 power of dimensionless Shields shear stress. Thus, it does not appear that the Policy flow limitations would result in a significant reduction in peak flow and the sediment transport rate as suggested by the Commenter. Instead, the primary effect of the Policy would be a small reduction in flows over the entire hydrograph excluding periods when flows are below the MBF.

**Comment 4.1.66:** Commenter objects to the subjective fashion in which the criteria for the Draft Policy were created and are to be interpreted. (*Richard and Annette Rhodes, Rhodes Vineyards*)

**Response:** The regional criteria for the Draft Policy were developed carefully and objectively in consideration of salmonid habitat-flow needs, and the ways in which diversions are operated and affect those needs. Data and best available science and literature were relied on to the extent possible.

**Comment 4.1.67:** The draft policy used data and conclusions derived from a consulting company's studies in Washington state and other Pacific Northwest states. SWRCB personnel said the consulting firm believed the conclusions derived from their previous studies were equally applicable in our area. It is true the topography is similar, but because of the significant differences in the vegetation, rainfall amounts, and especially the annual rainfall distribution, use of the Washington state data is inappropriate. The commenter provided graphs showing

average monthly precipitation in inches from the commenter's selected sites in Washington and the policy area. One graph show that the policy area gets most of the annual rainfall in the winter months, and very little from June through September. The second graph shows that the policy area seldom gets more than two inches of rainfall per month from June through September, while Washington seldom gets less than four. (*Richard and Annette Rhodes, Rhodes Vineyards; Alec Rorabaugh*)

**Response:** The Washington State studies were conducted by the US Geological Survey. While it is true that geology, climate, and hydrology vary in their influence on channel morphology, for a given stream size, the data indicate that spawning habitat-flow relationships may be generalized across regions when compared with first order quantities such as mean annual discharge (e.g., see Hatfield and Bruce (2000) citation in Task 3 report). The various data reviewed in the Task 3 report support this generalization. The Washington data were used because they were developed using the most similar methods and habitat suitability criteria for steelhead as for the validation sites, to expand the dataset as much as reasonably possible. The two data sets appear to overlap along similar broad trend lines as depicted in Figure E-8, irrespective of climatic differences.

**Comment 4.1.68:** To better utilize scarce state resources, and to avoid inadvertently criminalizing many residents who have small ponds, the policy should contain a pond size limit. By ignoring ponds with insignificant (to fry survival) storage capacity, enormous compliance costs would be avoided with no impact on fish enhancement. It would also remove some discretion from enforcement personnel, thereby promoting more uniformity in policy application. Determining what constitutes an "insignificant" size could be calculated broadly by looking at such factors as the total annual rainfall and the topography (relief) of the major watersheds. It should not be done by individual property owners, but should be broadly published by the state, or by diverter coalitions within the watershed. Common sense tells me that anything under ten acre-feet would have no impact on fish populations, but regardless of what the final size is, it should be set based on demonstrably fair and logically defensible methods. If pond size was set according to surface area rather than storage volume, the determination could be done quickly and inexpensively by using satellite maps. Of course, an aggregate of storage on each parcel would be needed to preclude someone from skirting regulations by constructing a number of ponds below the minimum size. (*Alec Rorabaugh*)

**Response:** Onstream ponds of any size will create passage barriers for anadromous salmonids as discussed in Section 9.0 of the Scientific Basis (R2, 2009). In addition, the permitting of many ponds of any size, onstream or offstream, will eventually lead to cumulative impacts on instream flows and sediment transport which may endanger fish habitat. However, Staff is reevaluating the flow related criteria in the Draft Policy for small watersheds based on consideration of the comments and suggestions that have been received.

**Comment 4.1.69:** The policy is probably aimed at stock and irrigation storage ponds, but because there is no minimum size included in the legislation, even people with backyard fishponds as small as bathtub size technically fall under these regulations, and could therefore be subject to legal enforcement. (*Alec Rorabaugh*)

**Response:** The State Water Board already has authority to take enforcement action on water diversions that occur without a legal basis of right.

**Comment 4.1.70:** Alan Lufkin, in the book California's Salmon and Steelhead, provided facts about the three fish species. Chinook, "are typically "big river" fish, generally avoiding smaller

coastal streams." They "typically migrate to the ocean a few weeks after emergence from the gravel, while less than four inches long". Coho salmonid spend a year or more in fresh water before migrating to the ocean in the smolt phase. Since they must "summer over" in native streams, it is important that water temperatures not rise above seventy degrees." As for Steelhead, "Within two months they hatched and then reared for as long as two or three years in their native creeks and rivers before "smolting" into the Pacific Ocean." If these descriptions are accurate, it sounds like the proposed draft policy will have little or no impact on Chinook, because they are only in the larger streams, and have hatched and gone to sea before any effects of water diversion are felt. If Coho and Steelhead spend a year or more before going to sea, they are not going to survive in the small creeks in the inland watersheds because of the problems noted in the preceding paragraphs. *(Alec Rorabaugh)*

**Response:** Comment noted. Even larger streams may be impacted by the cumulative effects of upstream diversions. This comment highlights the importance of protecting habitat for steelhead and coho higher up in the watershed.

**Comment 4.1.71:** Page 16 of the Powerpoint presentation at the February 6, 2008 Staff Workshop contains the statement that "Flow (sic) that provide favorable spawning will also protect passage and rearing." This would only be true if the streams retained sufficient flow long enough to allow the fry to hatch and move to a stream with a year round flow. For the creeks I'm familiar with, this would not be the case. While isolated holes may contain water even throughout the summer, they are quickly cut off from the river as the water level drops below the level of gravel in the flat areas. These holes are then quickly emptied of fish by herons. *(Alec Rorabaugh)*

**Response:** Comment noted. In streams where flows disappear, the selective pressure would likely preclude anadromous salmonids from maintaining a spawning population in the first place. In such cases, site specific data should be used to support a water right application. In cases where the flow declines but the redd remains wetted such that fry may emerge, they may over-summer with some mortality expected in shallower pools, in which case the population is highly dependent on conditions in deeper pools where predation does not occur. In other cases, the fry may emigrate upstream or downstream, either remaining in the system or in another system during the summer. During the following winter diversion period, they may return to over-winter and grow in the early spring before outmigrating. For these and other reasons, the Draft Policy covers winter diversions in ephemeral streams as well.

**Comment 4.1.72:** "California's northern coast is a geologically unstable area. Its rivers, such as the Eel, are unique in that rates of sediment production from their watersheds are greater than those of any other region of comparable size in the country. Because of this, impacts due to diversion of water from this region may be significantly different from those associated with similar projects elsewhere." (Joel W. Hedgpeth and Nancy Reichard, <http://content.cdlib.org/view?docId=ft209nb0qn&chunk.id=d0e4227>) This statement seems to confirm the inappropriateness of relying on Washington data for California decisions. *(Alec Rorabaugh)*

**Response:** See response to 4.1.67. Fine sediment levels generally affect quality of spawning gravels, but not the channel form at spawning locations. The Washington data were used with California data to develop a general MBF relation based on the general influence of channel form and low flow on spawning habitat availability, irrespective of the level of fine sediment. Consequently, the MBF does not affect channel form in terms of spawning habitat morphology. It is the MCD element that can affect channel morphology in terms of high flows, which are

important for mobilizing both fine and coarse sediments present in anadromous salmonid habitat, regardless of region.

**Comment 4.1.73:** As the Policy is now written, future authorized diversions would occur only during a few high flow days each year. The diverted water is to be stored for use during the remainder of the year. Water stored over long periods of time is likely to degrade in quality as it becomes warm and stagnates. Water in that condition may be acceptable for irrigation and livestock, but without a sophisticated water treatment facility, it is unlikely to be desirable as a healthful water resource for domestic water supplies. (*Linda Ruffing, City of Fort Bragg*)

**Response:** Comment noted. Staff is considering revisions to the small domestic use and livestock registrations section of the Draft Policy.

**Comment 4.1.74:** State law prohibits the wasting or unreasonable use of water. For the most part, the wasting of water is typically associated with excessive water diversions by out-of-stream water users. However, the courts have also determined that certain instream activities, such as the use of stored water to transport gravel in support of instream gravel mining operations, can be construed as an unreasonable use of water. We believe that under certain circumstances, particularly in highly modified stream channels (flood control channels and other manmade drainage courses, or natural channels whose morphology has been significantly altered by anthropogenic activities), there are opportunities to maintain if not enhance salmonid habitat without relying on excessive stream flow appropriations. Stated in other words, the minimum instream flow requirements specified by the AB 2121 Policy may at times constitute an unreasonable use of water because the fish habitat benefits they provide could be achieved through a combination of physical habitat alterations coupled with a lesser stream flow. (*Roland Sanford, Mendocino County Water Agency*)

**Response:** The Draft Policy does not attempt to predict instream flow needs for each stream, and instead relies on a protective regional criterion to establish a suitable threshold flow below which uncertainty on site-specific instream flow needs can be addressed by site specific study. The option for conducting site specific studies was included in the Policy as a means to allow the collection and evaluation of more information specific to a given stream, with the recognition that one-size does not fit all and that stream conditions can be highly variable between and even within a given watershed. However, the option to conduct such studies is up to the individual applicant. Absent such, the Draft Policy allows applicants to use a set of criteria that are conservatively protective throughout the policy area that Staff believes will maintain instream flow conditions for anadromous fish.

The State Water Board has an affirmative duty to take the public trust into account in the planning and allocation of water resources. The purpose of the public trust is to protect navigation, fishing, recreation, environmental values, and fish and wildlife habitat. (*National Audubon Society v. Superior Court* (1983) 33 Cal.3d 419, 434-435 [189 Cal.Rptr. 346].) Under the public trust doctrine, the State retains supervisory control over the navigable waters of the state and the lands underlying those waters. (*Id.* at p. 445.) The State's public trust responsibilities also extend to protecting navigable waters from harm caused by a diversion of nonnavigable tributaries. Before the State Water Board approves an appropriative water right diversion, it must consider the effect of such diversions on public trust resources and avoid or minimize any harm to those resources where feasible.

**Comment 4.1.75:** The instream flow requirements imposed by the AB 2121 Policy are based on hydraulic/geomorphic/fish habitat relationships associated with natural stream channels and

therefore may not be applicable to all artificial or highly modified stream channels. Accordingly, we recommend that the AB 2121 Policy, or any succeeding policy, include provisions that would allow for physical habitat alterations in combination with a lesser stream flow, as opposed to relying on stream flow as the sole means of achieving suitable salmonid habitat conditions. *(Roland Sanford, Mendocino County Water Agency)*

**Response:** Physical habitat alterations in lieu of streamflow protection has not been generally proposed as a mitigation except possibly below large flow regulation dams. It is unclear whether similar potential exists in Policy area streams. Staff note that such proposals could be evaluated as part of optional site specific study. Staff is considering revisions to the Draft Policy that would provide incentives for authorized diverters to modify diversions to enhance conditions for fish and wildlife.

**Comment 4.1.76:** We understand, from discussions with water availability and threatened/endangered species experts, as well as from some of the State Board's peer review comments, that the scientific bases for the Draft Policy are flawed and incomplete. Many of the peer review commenters solicited by the State Board identified major (and often completely unquantified) scientific uncertainties in the assumptions, analyses and applications of the Draft Policy. Accordingly, before the State Board adopts any new instream flow policy, there should be appropriate studies and solicitation of further peer review comments to examine the key elements of the policy, including but not limited to the minimum bypass flow assumptions and calculations, maximum cumulative diversion assumptions and calculations, and the need for the proposed onstream dam provisions. It is imperative that any new restrictions on agricultural supply diversions have solid, accepted and completely defensible scientific bases. *(Paul "Skip" Spaulding, Farella Braun + Martel LLP/Golden Vineyards)*

**Response:** The comments received from the DFG and NMFS during the public comment period have not questioned the scientific basis behind the recommendations of the Draft Policy. In addition, external technical peer reviewers have indicated the scientific basis is sound. The scientific uncertainty noted by the peer reviewers was whether the proposed criteria might not have enough conservatism for the protection of instream flows. The peer reviewers comments are answered in a separate response document.

The Draft Policy was developed with full recognition that uncertainty exists relative to its applicability to all streams. This is why the Draft Policy includes the option for conducting site specific studies as a means to allow the collection and evaluation of information specific to a given stream, with the recognition that one-size does not fit all and that stream conditions can be highly variable between and even within a given watershed. Collection of site specific data should reduce the overall uncertainty regarding the applicability of specific Draft Policy elements on a given stream.

**Comment 4.1.77:** We understand, from discussions with water availability experts, such as Drew Aspegren of Napa Valley Vineyard Engineering, that the Draft Policy will dramatically reduce the amount of water available for small farmers such as Golden Vineyards. According to Drew, and as confirmed by State Board staff at the February 6, 2008 technical staff workshop, the Draft Policy's minimum bypass flows generally are expected to be two to ten times higher under the Draft Policy than they are under current Board practice based on the DFG/NMFS Guidelines. Moreover, the new maximum cumulative diversion limitation is expected to significantly restrict the ability to divert water during high flow events. The combined effect of these two measures will be to reduce the available diversion times to as few as only a few days a year, and the total volume of water collected will be greatly reduced from current practice.

*(Paul "Skip" Spaulding, Farella Braun + Martel LLP/Golden Vineyards)*

**Response:** The examples presented at the staff workshop on February 6, 2008 indicated that even with higher minimum bypass flows and implementation of the maximum cumulative diversion limitation, two out of the four projects would receive all, or almost all, of their requested water volume. However, due to concerns raised by commenters regarding applying the regional criteria to small watersheds, staff is reevaluating the flow related criteria for small drainage areas.

**Comment 4.1.78:** These stream classifications, when combined with the accompanying Draft Policy restrictions, also are not designed to rationally achieve their stated purpose because they apply to locations above the limit of anadromy (where salmon and steelhead indisputably cannot access). For example, Heart Arrow Ranch is located on a ridgetop, 1,000 feet in altitude above the nearby creeks, and the estimated average slope from the diversion points on the upland Ranch areas to the creek is 30%-50%. Yet, the Draft Policy apparently applies all of its limitations (including the radical onstream dam provisions) to these diversion points despite the fact these locations are completely inaccessible to anadromous salmonids. The Draft Policy is legally deficient for applying these limitations above the limit of anadromy in watercourses. *(Paul "Skip" Spaulding, Farella Braun + Martel LLP/Golden Vineyards)*

**Response:** Existing site specific data are too limited to be able to evaluate more specifically how much flow is needed above the limit of anadromy on a regional basis. As discussed in section E.3.2.1 in Appendix E of the Scientific Basis (R2, 2009), at a minimum, the amount of flow arriving at the point of anadromy must be sufficient to protect flow within the range of anadromy. To ensure that this flow is not threatened by new water right applications, the Draft Policy uses a basic hydrologic mass balance concept in establishing instream flow needs in upstream basins at a regional scale as represented by equation E.9 and its subsequent algebraic manipulation. Only a site specific study can indicate whether additional water can be diverted upstream of the limit of anadromy without adversely affecting instream flow needs downstream. Studies have shown the importance of headwater streams, even those that are fishless, to the ecology and productivity of downstream areas (See Naiman, R.J. and J.J. Latterell. 2005, Principles for linking fish habitat to fisheries management and conservation. *Journal of Fish Biology*, 67 (Supplement B), 166-186.) and the Policy has accordingly included elements in these upper watershed streams for their protection.

Staff is reevaluating the flow related criteria in the Draft Policy based on consideration of the comments and suggestions that have been received.

**Comment 4.1.79:** Broad brush applications of imprecise modifications to flow regimens, particularly in well-developed riverine systems, can cause significant and troubling uncertainties and significant monetary expenses with limited benefits. SWRCB needs to consider seriously the different and unique nature of the topography and hydro-geology of the tributaries of the Russian River in Mendocino County as compared to other areas of the watershed. Detailed and specifically applicable criteria to the circumstances and idiosyncrasies of our tributaries should be used as part of your process to maximize your restorative intent and to minimize economic damage to existing, lawful appropriators of water. The interests of our agency are unique. We are the largest water rights holder in Mendocino County. Our board asks that our unique Mendocino County issues, concerns, desires, and considerations for our specific needs, be individually and expressly addressed in detail by your Board should you decide to pursue changes in flow criteria. *(Barbara Spazek, Mendocino County Russian River Flood Control and Water Conservation Improvement District)*

**Response:** Staff agrees that a one-size-fits all approach can not be used to accurately determine the instream flow requirements for every stream in the Policy area. See section D.5 in Appendix D of the Task 3 report for a discussion of how the Draft Policy does not and cannot constitute a one-size-fits all approach. The Draft Policy does not attempt to predict instream flow needs for each stream, and instead relies on a protective regional criterion to establish a suitable threshold flow below which uncertainty on site-specific instream flow needs can only and must be addressed by site specific study. The option for conducting site specific studies was purposely included in the Policy as a means to allow the collection and evaluation of more information specific to a given stream, with the recognition that one-size does not fit all and that stream conditions can be highly variable between and even within a given watershed. However, the option to conduct such studies is up to the individual applicant. Absent such, the Draft Policy requires adherence to a set of regionally protective criteria that Staff believes will improve instream flow conditions for anadromous fish.

**Comment 4.1.80:** Policy must be based on scientifically-based criteria to limit diversions when stream flows drop below a certain level. (*TU Form Letter*)

**Response:** Comment noted. The Draft Policy contains minimum bypass flow provisions that were scientifically based.

**Comment 4.1.81:** The Water Board received substantial peer review comments from a respected and diverse scientific community, and can expect to receive additional comments and local examples from agriculture, resource professionals, environmentalists, and municipalities within Napa County. Central to the peer review comments and from those throughout our community is the high level of uncertainty inherent in the scientific assumptions upon which it is based. As a result, this calls into question the Policy's effectiveness in meeting its primary objectives and casts doubt on the proposed instream flow criteria. It is imperative that the State Board carefully consider the comments it receives and revisit both the scientific foundation for the Policy and the effectiveness of the regulatory tools and requirements being proposed. (*Brad Wagenknecht, Napa County Board of Supervisors*)

**Response:** The technical peer reviewers have indicated the scientific basis is sound. The scientific uncertainty noted by the peer reviewers was whether the proposed criteria might not have enough conservatism for the protection of instream flows. The comments received from the DFG and NMFS during the public comment period have not questioned the scientific basis behind the recommendations of the Draft Policy. Staff will reevaluate aspects of the Draft Policy after careful consideration of all comments that have been received.

**Comment 4.1.82:** A more detailed analysis of local watershed-level flow records, channel conditions, sediment transport and biological habitat integrity is warranted to provide a more complete and effective basis for developing the Policy's proposed regulatory mechanisms. A watershed-level analysis of the policy's impacts and benefits is also necessary. Additional information would obviate the need for the overly conservative restrictions proposed region-wide as a means of dealing with the Policy's high degree of scientific and environmental uncertainty. If implemented as currently proposed, the bypass requirements (or allowed rates of diversion) could significantly decrease the rate of downstream discharge (i.e., reduce "rising" and "peak" stream flows) per unit of drainage area. This type of hydrologic modification due to changes in water diversion patterns will impact the delivery and transport of coarse and medium size sediments, cause unexpected sedimentation, and possibly degrade the important fishery habitat values the policy strives to protect. (*Brad Wagenknecht, Napa County Board of Supervisors*)

**Response:** To develop an accurate site specific prediction tool based on subsampling and extrapolation (e.g., as done in the Snake River Basin Adjudication Idaho, where around 200 streams were sampled to represent 1000 streams) would require years of data collection and analysis and cost more than is available through AB 2121. The regional protective criteria developed for the Draft Policy should not be considered to have site specific accuracy, and are not intended to be used to predict the site specific needs accurately for every stream. To be regionally protective, the regional criteria are designed to limit water diversions so that adequate flows are available for spawning and passage at sites with the most restrictive instream flow needs. Only site specific study can determine where on the protectiveness spectrum a given site lies, as described in section D.5 of Appendix D of the Scientific Basis Report (R2, 2008). The Policy allows the optional use of results of a site-specific study instead of the regional criteria, to more accurately assess the fishery resource instream flow needs at a particular location (Policy, Section 4.1.8).

**Comment 4.1.83:** Many detailed watershed studies have been conducted in Napa County. The Water Board should consider these in depth surveys and seek advice from locally knowledgeable watershed experts (hydrologists, biologist, restoration-ecologists, and others) as to the policy's potential "real-world" effects on local watershed systems in Napa County. (*Brad Wagenknecht, Napa County Board of Supervisors*)

**Response:** Watershed studies addressing general conditions and limiting factors in the Napa basin were identified during the course of developing the draft Policy and are listed in the Task 3 report. None of the studies however reported habitat-flow data that could be used in the development and evaluation of draft Policy effects on salmonid habitat in the basin specifically, or comparable information for a detailed evaluation of effects on other species. However, the general principles described in the studies were considered. Locally knowledgeable experts are an important resource to rely on in the design and conduct of site specific studies.

**Comment 4.1.84:** The five-county area where the Draft Policy applies has varied geology and topography; however, the proposed methodology for evaluation of in-stream flows does not incorporate these varied conditions and therefore could result in no positive improvements for in-stream flows. For example in the Napa Valley many streams which originate in the mountains along both the east and west sides of the valley flow through alluvial fans in the valley before reaching the Napa River. These streams include Ritchie, Bear/Bale Slough, Dry, Selby, Rector, Soda Canyon, York, Mill, Sulphur, and Milliken Creeks. These alluvial fans are made up of boulders, cobble, and gravel and are very porous. Stream flows infiltrate into the fan, recharging groundwater in the fall and early winter. Connected stream flows between the mountains and the river do not occur until groundwater levels are high and flows in the main river channel rise. In the 2007/2008 winter season the first connected flows occurred in January on five streams that we monitor. The methodology proposed in the Draft Policy does not address geologic and topographic features. The Draft Policy uses an assumption that if bypass features are installed on small diversions and reservoirs, there will be connected flow downstream to allow salmonid in-migration and spawning. It is quite possible that there will be no actual difference in the timing of connected stream flows between mountain reaches of streams and the rivers in these valleys if bypasses are installed on upstream reservoirs, or if reservoirs operate as fill and spill facilities. A watershed based analysis is needed to evaluate the effects of pending rights on actual stream flows. (*Beverly Wasson, California Land Stewardship Institute*)

**Response:** It was not feasible to identify site specific features such as cases where flows go subsurface in alluvial fans. However, as part of the Water Supply Report, the Policy requires



applicants to prepare an Instream Flow Analysis consisting of a daily flow study performed at all points of interest. Water right applicants may perform a daily flow study (A.5.11) as part of the Instream Flow Analysis that compares unimpaired and impaired conditions to assess impacts of the proposed project. In the situation described, the selection of the location of points of interest and the calculation of unimpaired and impaired flow should take into consideration the interaction between surface and groundwater to accurately assess the impact of the proposed project.

The site specific study element of the draft Policy is provided as a means to determine local fishery resource instream flow needs on a site specific basis instead of using the regional criteria and may be particularly necessary in alluvium dominated watersheds which have highly site-specific hydrologic behavior. In these cases, it may be possible to make a case for a different diversion season, although it would need to be demonstrated that there is no fish use upstream of the fan during the spring and the following fall and early winter, where fish may residualize and be trapped once flows go subsurface near the outlet again.

**Comment 4.1.85:** The Maximum Cumulative Diversion (MCD) sets an upper limit to how fast a pond may fill. All water beyond a certain flow rate must be sent downstream. So the applicant is faced with first allowing most of the water to go downstream because of the MBF, taking a little of what is left, and then permitting all high flows to go downstream because of the MCD. This makes it very difficult to fill even an ordinary sized pond. *(Roland Sanford, Mendocino County Water Agency; Jim Wattenburger, Mendocino County Board of Supervisors)*

**Response:** Although the MCD sets a limit on the rate at which a pond can fill, the water cost analysis in the Draft SED demonstrated that on average in the validation sites, the Draft Policy allows diversion of a higher percentage of mean annual flow than the NMFS-DFG guidelines. However, as the commenter noted, the Policy is most restrictive in smaller watersheds where the MBF requires that a higher percentage of mean annual flow remain instream compared to watersheds with larger drainage areas. Staff is reevaluating the flow related criteria in the Draft Policy for projects with small watershed based on consideration of the comments and suggestions that have been received.

**Comment 4.1.86:** Adequate minimum bypass flows for adult and juvenile fish passage should be required at all times and fish migration must not be impeded by instream dams. Bypass flows must protect all natural stream functions. *(Thomas Weseloh, California Trout Keeper of the Streams)*

**Response:** Comment noted. The policy was designed to achieve these objectives and has specific language addressing these concerns.

**Comment 4.1.87:** Streamflow, habitat structure and dynamics, salmonid ecology, and land and water development vary substantially both within and between watersheds in the policy area. In order to protect anadromous salmonids, this diversity should be acknowledged, and, if possible, reflected in the approaches and conditions developed to protect instream flows. Within the policy area there are additional streamflow gaging sites on small streams that have long periods of record, and where complimentary data characterizing salmonid populations has been collected. It would be our pleasure to work with State Water Board staff to see that these sites are included within the analysis to further evaluate the protectiveness of the instream flow criteria proposed under the Draft Policy. *(Bruce Wolfe, State of California Regional Water Quality Control Board, San Francisco Bay Region)*

**Response:** State Water Board staff contacted RWQCB1 and RWQCB2 staff regarding data they had available. RWQCB2 staff provided contacts at other agencies that had performed biological surveys in the policy area. Staff received partial datasets from these sources; however, funding and schedule limitations prevented a complete analysis of additional field sites. Future periodic reviews of the policy can include evaluation of additional data and information.

#### **Topic 4.2 Regional Criteria - Diversion Season**

**Comment 4.2.1:** The DFG-NMFS Draft Guidelines recommend a season of diversion from December 15 through March 31. However, the Policy has stipulated a season beginning in October. The SWRCB asserts in the Policy that the earlier date is still protective of fishery resources (Page 3). However, evidence to the contrary exists. The DFG-NMFS Draft Guidelines notes that the SWRCB's own water rights proceedings for the Russian River, Navarro River, and Napa River watersheds confined diversions to the period from December 15 to March 31. This period is the time of highest winter flow and the time when water withdrawals would be least likely to adversely affect fisheries resources. Additional water withdrawals between September 1 and December 15 may unnecessarily and significantly affect salmonids, because that is a time when flows are relatively low, and high flows are infrequent and sporadic. (*Joshua Basofin, Defenders of Wildlife; Don McEnhill, Russian Riverkeeper; and Linda Sheehan, California Coastkeeper Alliance*)

**Response:** See response to 4.2.3.

**Comment 4.2.2:** With respect to the season of diversion, the increase in months of diversion must be rejected as risky. It is not reasonable to risk massive diversions in October when it has been documented that many years will remain very dry late into the fall and early winter. The Diversion season must be tied to rainfall sufficient to maintain adequate instream flows. The required choice is the shorter season of diversion as proposed in 2002 - December 15th thru March 31st if precipitation is adequate. (*Kimberly Burr*)

**Response:** See response to 4.2.3.

**Comment 4.2.3:** In anticipation of climate change and longer hotter summers, the predicted effect of allowing massive diversions to occur as early as October in most years is not based on the best interest of salmonid recovery, migration, or rearing. As the Berkeley team points out, it is critical to "evaluate whether streams are fully appropriated at a daily scale, which is more important for evaluating impacts relative to ecological processes" (p.16). "In the streams studied here, sufficient flows do not exist to meet human demands during spring and summer (p.18)." (see Merelender et al. 2007). Pumping and diversions during periods of low precipitation whether they are in September, October, November or December will have dire consequences and must be prohibited. Regulations, policies, and laws that give tacit approval or cover for practices that existing laws are intended to prevent like "take" of the last specimens necessary to perpetuate a species, are not properly promulgated. (*Kimberly Burr*)

**Response:** Recommendation and suggestion noted. Staff has received several comments regarding the proposed diversion season start date of October 1. In particular, NMFS, DFG, the Regional Boards, and the peer reviewers pointed out that Scientific Basis Report did not adequately evaluate some effects on habitat and water quality that could stem from implementation of the October 1 start date. Some commenters identified valid implementation issues with the October 1 start date. Many commenters suggested that the State Water Board utilize the diversion season start date recommended by the NMFS-DFG Draft Guidelines of

December 15. Since the December 15 start date is more protective than the October 1 start date, and commenters have noted that historically there is not much stream flow available between October 1 and December 15, staff proposes to revise the Draft Policy's proposed diversion season start date to December 15.

**Comment 4.2.4:** NMFS does not agree with the SWRCB's draft policy's proposition that new water rights should be permitted for a diversion season of October 1 through March 31. Instead, NMFS strongly recommends that the SWRCB adopt the same season (December 15 to March 31) that its staff proposed in SWRCB (1997) and SWRCB (2001) as previously referenced. The latter season was also supported by Moyle et al. (2000) and DFG and NMFS (2002). The new policy's justification for extending the diversion season for new permits to October 1 is that any diversions during October or November (typically dry low flow months) would be implemented with the protective minimum bypass flow. NMFS disagrees with this premise because (a) water will be infrequently available for diversion between October 1 and December 15, (b) additional permitting of diversions during October through early December will adversely affect groundwater and aquifer recharge, potentially delaying winter baseflows needed to support listed species and their food supply, and (c) there is potential for compliance issues regarding maintaining the minimum bypass flow. (*Dick Butler, US National Marine Fisheries Service*)

**Response:** See response to 4.2.3.

**Comment 4.2.5:** The season of diversion of October 1 through March 31 proposed in the SWRCB's Draft Policy (2008) conflicts with a previous NMFS letter (2001) and the SWRCB's 2001 staff report. (*Alan Levine, Coastal Action Group*)

**Response:** See response to 4.2.3.

**Comment 4.2.6:** Policy principle number 1 would be effective if the policy established the diversion season to January 1 through March 31. The intent is to mimic the natural hydrograph. (*Alan Levine, Coastal Action Group*)

**Response:** Delaying the diversion season to January 1 would be more protective, but based on hydrology analyses conducted by NMFS in developing the DFG-NMFS 2002 Draft Guidelines, would likely be over-protective given the protection provided by the MBF and MCD elements. The objective of the Draft Policy is not necessarily to recommend the most protective option, but the option that results in sufficient protection. Any option that is more protective than necessary would reduce water availability to other uses.

**Comment 4.2.7:** Policy principle no. 3 supports allowing diversion only during periods of high flow and constrained by time periods more stringent than noticed in the policy document. Diversion should probably only occur in December through March. (*Alan Levine, Coastal Action Group*)

**Response:** See response to 4.2.3.

**Comment 4.2.8:** An October start to the diversion season is way too early and late March diversions are questionable. Hydrologic event recording of the past ten years or so shows that rain events for the coastal streams do not justify moving the period of diversion from those recommended by the DFG-NMFS Draft Guidelines - December 15 through March 31. (*Alan Levine, Coastal Action Group*)

**Response:** See response to 4.2.3.

**Comment 4.2.9:** The work of Dr. Merenlender, UC Berkeley, is suggesting diversions can be done during peak flows in the winter when water is often in excess; thereby reducing summer pumping that can be detrimental to fish. *(Nick Frey, Sonoma County Winegrape Commission)*

**Response:** See response to 4.2.3.

**Comment 4.2.10:** An October 1 start date to the diversion season could potentially present the following problems for juvenile and adult anadromous salmonids: (1) the available juvenile salmonid rearing habitat would spatially be reduced and early emigrating steelhead smolts downstream passage may be limited (2) Breaching of estuary/lagoon sandbars may be delayed, affecting run timing of adult Chinook and coho salmon (3) Attractant flows, an important cue for adult migrating salmonids, could be affected causing additional delays to adult spawners (4) Reduced flows may impede and delay adults during their upstream migration. *(Joshua Fuller)*

**Response:** See response to 4.2.3.

**Comment 4.2.11:** The draft policy advanced the annual opening date of the season of diversion to October 1st through March 31. October, being the third driest month of the year in the policy area, should be included as in the dry season. Reliable rains do not typically come until late November or into December. The diversion season should start on December 15 in accordance with DFG and NMFS recommendations. *(Joshua Fuller)*

**Response:** See response to 4.2.3.

**Comment 4.2.12:** The Policy extends the season of diversion from December 15th back to October 1st. This allows two and a half more months of diverting early fall rains in contradiction of the Joint Guidelines, past Division practice and the purpose of this Policy. *(Jay Halcomb, Diane Beck, and Daniel Myers, Sierra Club Redwood Chapter)*

**Response:** See response to 4.2.3.

**Comment 4.2.13:** We believe that setting the start of the diversion season up 2.5 months earlier than recommended in the Joint Guidelines of CDF&G and NOAA to be without merit or reason. We have attached a report by fisheries biologist Patrick Higgins, (pages 3 and 4) that details the rationale for keeping the recommended December 15th date, but one does not need to be an expert to know that reducing instream flows during the months of October, November and half of December, as the Draft Policy proposes, decreases the critical first flows for our rivers and streams. The only possible rationale for this change would be an attempt to excuse many of those identified 1771 illegal dam owners filing applications from the necessity of constructing bypasses. The Joint Guidelines require these dams be retrofitted so that they do not stop the early rains from reestablishing flow to nearly dry creek beds. Nearly all of these dams will be found to have little or no capability of bypassing early flows. Most will not deliver any water to the watercourse until they have filled and spill over much later in the season. It would appear that the very early diversion date may be an end run in this Policy Draft to deal with those illegal dams needing bypass, as opposed to enforcing the requirements for bypass as set out in the Joint Guidelines. *(Jay Halcomb, Diane Beck, and Daniel Myers, Sierra Club Redwood Chapter)*

**Response:** See response to 4.2.3.

**Comment 4.2.14:** The Policy gives little or no scientific defense of its choice of October 1 versus December 15 as the start up of the winter water diversion. Two peer reviewers, Dr. Lawrence Band (2008) and Dr. Margaret Lang (2008) cautioned against the October 1 start date. (*Patrick Higgins, Consulting Fisheries Biologist/Sierra Club Redwood Chapter*)

**Response:** See response to 4.2.3.

**Comment 4.2.15:** DFG recommends a December 15 diversion season start date rather than the proposed October 1 start date because (1) the proposed season does not coincide with periods of high stream flow; (2) fall diversions could interfere with groundwater recharge; (3) the proposed season coupled with existing diversions that do not operate with a minimum bypass flow or maximum cumulative diversion may not adequately protect fall attraction flows; (4) No clear analysis of water temperature was provided; and (5) the supporting documents show minimal water available for diversion in the fall. (*Donald Koch, State of California Department of Fish and Game*)

**Response:** See response to 4.2.3.

**Comment 4.2.16:** The technical analysis does not support the proposed season of diversion beginning on October 1. An October 1 diversion season will not fully protect salmonids in the Policy area, nor will it protect water quality. The SED should include mitigation measures to prevent potentially significant impacts to salmonids and water quality posed by an October 1 diversion start date, or provide a statement of overriding considerations. Allowing the diversion season to begin on October 1 may result in: (1) significant reductions in flows from fall freshets thereby reducing the triggering response of attraction flows and subsequent opportunities for adult salmonids to access spawning grounds; (2) violations of the Basin Plan water quality objective for temperature, (3) delays in adequate surface flow for habitat connectivity. In addition, diversions beginning on October 1, even with a minimum bypass flow, probably will not protect spawning habitat. For these reasons, Regional Board staff recommend the DS1 diversion season alternative. (*Catherine Kuhlman, State of California Regional Water Quality Control Board, North Coast Region*)

**Response:** See response to 4.2.3.

**Comment 4.2.17:** If the October 1 - March 31 diversion season is adopted, then RWQCB recommends State Water Board require the following mitigation measures to protect individual streams from warm water temperatures resulting from fall diversions and spring diversions: 1) diversion season shall not begin until protective temperature conditions are achieved at key spawning and rearing areas as defined by CDFG using temperature criteria per USEPA Region 10 (2003); 2) diversion season shall not begin until there is full habitat connectivity between the point of diversion and the ocean; 3) diversion season shall end when temperatures rise above protective levels as defined by CDFG using temperature criteria per USEPA Region 10 (2003). (*Catherine Kuhlman, State of California Regional Water Quality Control Board, North Coast Region*)

**Response:** See response to 4.2.3.

**Comment 4.2.18:** In the case of available water for fish and aquatic life on California's north coast, diversion and off stream storage, during a limited diversion period (January through March) when water is taken during peak hydrologic events, (as per the way State Instream Flow Policy, AB 2121 should work) would provide sufficient flows to support fishery and aquatic life

needs while still supplying the needs of agriculture. *(Alan Levine, Coastal Action Group)*

**Response:** See response to 4.2.6.

**Comment 4.2.19:** Diversion season should be limited to December 15 - March 31, as recommended by the California Department of Fish and Game and the National Marine Fisheries Service. *(Patrick Higgins, Consulting Fisheries Biologist/Sierra Club Redwood Chapter; NA, Maacama Watershed Alliance)*

**Response:** See response to 4.2.3.

**Comment 4.2.20:** The NOAA/DFG Joint Guidelines for maintaining instream flows are more protective than the AB2121 Policy (Dec.15 - March 31) . Time of diversion should not be October 1 - March 31. Salmonids rely on hydrologic storm pulses that signal their migration up the streams. Allowing diversions during early fall and winter storms jeopardizes fall salmonid migration and juvenile fish struggling to survive in low flow conditions. *(Chris Malan, Earth Defense for the Environment Now, Living Rivers Council)*

**Response:** See response to 4.2.3.

**Comment 4.2.21:** Continued and prolonged diversion periods further exacerbates water quality. Most North coast streams are listed as impaired by the State Regional Water Quality Control Boards. Streams in this AB2121 Policy area are impaired for sediment, temperature, nutrients, mercury and pathogens. Additional time for diversion periods, (Oct. 1-March 31st proposed in the Policy Doc.) further deprives the aquatic resources of first flows and fresh water there- by increasing the likelihood that pollutants will continue to concentrate and kill aquatic life. *(Chris Malan, Earth Defense for the Environment Now, Living Rivers Council)*

**Response:** See response to 4.2.3.

**Comment 4.2.22:** We disagree with the Policy's proposal to allow diversions of river waters as early as October, when infiltration of early rains rarely produces soil saturation, and when both stream and groundwater levels generally remain low. Allowing early diversions would simply reduce the flows that smolts need for reaching the sea. We urge that the diversion season be limited to the interval from December 15 to March 30 as previously recommended by California Dept of Fish & Game and the National Marine Fisheries Service. *(Jane Nielson, Sonoma County Water Coalition)*

**Response:** See response to 4.2.3.

**Comment 4.2.23:** The policy states that water diversion may begin in October. October and November are critical months for fisheries migration. Even without diversions flows during the late fall are similar to summer base flow conditions. Stream flows generally do not respond significantly until 10 to 12 inches of rainfall have been received and the soil becomes saturated. Therefore, the fall is a critical time for flows and all available runoff must be allowed to flow into streams in order to provide the necessary water for fish passage. *(Robert Pennington, Community Clean Water Institute)*

**Response:** See response to 4.2.3.

**Comment 4.2.24:** Further rationale for using a later start date is that water diverted during the

wet season is not used immediately but stored until the following spring or summer. The bulk of rainfall and runoff occur in January and February; during these months enough water to fill tanks, reservoirs and other storage systems can easily be impounded. Thus limiting the diversion season to the time of greatest flow will not impede the ability to capture and store water for the following year, and it will allow the necessary flow to support fish migration in the fall. *(Robert Pennington, Community Clean Water Institute)*

**Response:** See response to 4.2.3.

**Comment 4.2.25:** We support the recommendation of DFG and NMFS who advised that the diversion season begin on December 15 and end on March 31. Alternatively, we would be supportive of a date specific to each watershed and year that defines the start date of the diversion season to be when 12 inches of rainfall has been recorded or another method tied to a measurable physical parameter. An ending date could also be tied to measurable parameters such as rainfall or discharge. diversion season; or use a date specific to each watershed to be when 12 inches of rainfall has been recorded, or another measurable physical parameter. *(Robert Pennington, Community Clean Water Institute)*

**Response:** Recommendation and suggestion noted. In regard to the diversion season start date, Staff proposes to revise the Draft Policy's proposed diversion season start date to December 15 as discussed in the response to 4.2.3. Regarding different diversion season start dates for individual watersheds, the Policy allows the use of results of a site-specific study instead of the conservatively protective regional criteria to more accurately assess the fishery resource instream flow needs and appropriate diversion season at a particular location (Policy, Section 4.1.8).

**Comment 4.2.26:** The draft policy limits new water diversions in the policy area to a diversion season beginning on October 1 and ending on March 31 of the succeeding year. Most water right applicants can readily accept a set season of diversion beginning December 15 and I might add the vast majority of landowners are not opposed to helping anadromous fish; many landowners are great stewards of the land. We all know that there is so little rainfall and runoff between October 1 and December 1 so this extension of the diversion season has no real benefit or meaning. Almost no one will be able to divert in October or November anyway. *(Roland Sanford, Mendocino County Water Agency; Jim Wattenburger, Mendocino County Board of Supervisors)*

**Response:** See response to 4.2.3.

**Comment 4.2.27:** The Draft Policy proposes a season of diversion of October 1 to March 31. This is an expansion of the current recommended DFG/NMFS Guideline season of December 15 to March 31. Golden Vineyards supports this expansion of the season of diversion, so long as water right applicants are given the opportunity to modify their pending applications to take advantage of this expansion of the diversion season without having to start the water rights process all over again. Water rights applicants should not be penalized for such after-the-fact policy changes. *(Paul "Skip" Spaulding, Farella Braun + Martel LLP/Golden Vineyards)*

**Response:** See response to 4.2.3.

**Comment 4.2.28:** The limited period of diversion will also put strain on our ability to protect our crop in some years. *(Edward Wallo, Yorkville Vineyards)*

**Response:** Section 4.1.8 of the Draft Policy allows site specific studies to assess what the fishery resource instream flow needs are in the watershed near the proposed diversion. The water right applicant may propose modification to the diversion season, minimum bypass flow, or maximum cumulative diversion based on the results of these studies. Appendix D of the Draft SED discusses the potential impacts of the policy on water use.

#### **Topic 4.3 Regional Criteria - Minimum Bypass Flow**

**Comment 4.3.1:** Within the Draft Policy itself, the claim that mature salmonids need water deeper than 9 inches to navigate a stream is simply mistaken. I've personally observed many fully grown salmonids navigate, upstream and downstream, court and "play" in water only 5 inches deep. I measured the depths with a ruler and I got my feet wet doing it. But then, these were Russian River fish, not Washington or Oregon fish (those originally theorized about by the consultants). Basing Instream Flow requirements on the formula chosen by Division is a needlessly harsh and arbitrary decision, and certainly doesn't reflect reality in this part of the Policy area. (*Tim Buckner*)

**Response:** Section G.3 of Appendix G of the Task 3 report discusses the passage depth criterion. The same phenomena of salmon and steelhead swimming in 5 inches of water has been observed in other states including Washington, Idaho, Oregon, Alaska, and in Canada. If the depth of water available to salmon and steelhead is below criteria in some cases, their presence does not indicate a biological preference and does not make that depth suitable. We can breathe smoggy air, but because we can does not make it healthy to do so. Indeed, there may be an increased risk of damage to eggs through repeated "belly dragging" that may reduce reproductive fitness. Moreover, the passage depth criterion was selected to be conservative in recognition of the likelihood that a more restrictive cross-section may exist that was not measured. By applying a conservative criterion at the locations sampled, the likelihood is increased that the actual limiting transect where actual passage depths may be shallower (not sampled) is also protected. This was confirmed with data for actual passage limitations on one stream on page E-6.

The Washington State studies were conducted by the US Geological Survey. While it is true that geology, climate, and hydrology vary in their influence on channel morphology, for a given stream size, the data indicate that spawning habitat-flow relationships may be generalized across regions when compared with first order quantities such as mean annual discharge (e.g., see Hatfield and Bruce (2000) citation in Task 3 report). The various data reviewed in the Task 3 report support this generalization. The Washington data were used because they were developed using the most similar methods and habitat suitability criteria for steelhead as for the validation sites, to expand the dataset as much as reasonably possible. The two data sets appear to overlap along similar broad trend lines as depicted in Figure E-8.

The Draft Policy regional criteria are not intended to predict instream flow needs for each stream but instead establish a suitable threshold flow below which uncertainty on site-specific instream flow needs can be addressed by site specific study. The option for conducting site specific studies was included in the Policy as a means to allow the collection and evaluation of more information specific to a given stream, with the recognition that one-size does not fit all and that stream conditions can be highly variable between and even within a given watershed. The commenter's example describes a situation where site-specific data could lead to less restrictive instream flow needs.

**Comment 4.3.2:** During the past six years, SWRCB has been supportive of the DFG-NMFS



2002 Draft Guidelines. NMFS is aware that there has been difficulty in the implementation of these guidelines because of resistance to the need to implement minimum bypass flows to protect fisheries and resistance to analyze cumulative impacts of multiple diversions on salmonid spawning and upstream passage of adult fish. Resistance from the regulated community is in part due to the costs associated with these activities, and partly due to the belief that some diversions do not contribute to cumulative impacts to aquatic resources. The proposed policy avoids the need to analyze cumulative effects to fish spawning and passage by increasing the minimum bypass flow in relatively small or modest sized watersheds, which are where most of the pending water right applications are located. If it is enforced, the proposed minimum bypass flow should effectively minimize impacts to salmonid spawning and fish passage in the watersheds, because it seeks to conserve all flows that are equal to or less than those needed to facilitate spawning and passage. This approach to the conservation of aquatic habitats does not consider the principal factors that may be limiting a salmonid population, but it seems likely that it would adequately protect all individuals and life stages of a population potentially affected by a new water right permit. The conservative nature of the proposed minimum bypass flow (i.e., generally protective of all individuals and life stages of salmonids) avoids complex analysis of spawning flows, passage flows, and population limiting factors. (*Dick Butler, US National Marine Fisheries Service*)

**Response:** Comment noted.

**Comment 4.3.3:** I am a prospective landowner in Sonoma County and the proposed policy will directly impact the vineyard operation of the property I am about to purchase. The land is currently in escrow and will close mid summer 2008.. I will own 52 acres of land, 20 acres planted to vineyard and the remaining in open grazing land. The existing reservoir impounds 15 acre feet of water and was constructed in the late forties or early fifties, verifiable by the girth of the oak trees growing on the face of the dam. The dam is on a class 3 stream in the Gird Creek drainage and is supported by pumped groundwater. The reservoir is maintained in the full condition year round, by a combination of rainwater and pumped groundwater. This full reservoir effectively creates a bypass situation that the draft Policy does not recognize. The installation of a simple level control would guarantee the desired water in, water out scenario the policy seeks to ensure. (a watering trough float valve would do it). (*Larry Cadd*)

**Response:** The comment does not contain enough details to respond to the situation described. The Draft Policy requires minimum bypass flows be met on an instantaneous basis, which is why it requires passive bypass systems unless physical site conditions prevent the construction of a passive bypass system. In those situations, the Draft Policy states automated computer-controlled bypass systems shall be used.

**Comment 4.3.4:** The formulae that you have established for determination of minimum bypass flow in the various size watershed are acceptable - though they may be difficult to actually apply. The minimum bypass flow based on the February median flow may be more functional. (*Alan Levine, Coastal Action Group*)

**Response:** Mean annual flow and drainage areas are generally more accurately estimated than a value based on flow time series, and thus may be more practical. In addition, the February median flow criterion is not as regionally protective as the MBF3 proposed in the Draft Policy.

**Comment 4.3.5:** NMFS (2001) suggests that a depth criterion for establishing minimum bypass flow needs may be necessary on some streams. This is not considered in the SWRCB Draft Policy (2008), exception assessment, or cumulative assessment process. NMFS (2001) also

suggested that both CDFG and NMFS be included in the depth criterion assessment process. *(Alan Levine, Coastal Action Group)*

**Response:** Depth criteria were applied in the Draft Policy for developing a regional criterion for assessing effects to passage and spawning habitat. In their comments on the Draft Policy, NMFS did not question the approach used to develop the regional criteria.

**Comment 4.3.6:** We were pleased with two particular developments in the new AB 2121 guidelines. The first is that the new equation for calculating Qmbf was derived using empirical data directly related to the ecosystem threshold it is intended to measure; and these data were from pertinent locations in the drainage network, incorporating small headwater streams and lower reaches alike. This marks an important improvement relative to the 1997 draft guidelines (even if some data used to derive the equation are from beyond the study region) and provides a suitable preliminary estimate for the flow magnitude required for salmonids to migrate upstream; the opportunity for water right applicants to determine that actual flow threshold (with an appropriate scientific representative) represents an important adaptive component of the new policy to reflect actual conditions as much as possible. *(Matthew Deitch and Adina Merenlender, University of California, Berkeley)*

**Response:** Comment noted.

**Comment 4.3.7:** It appears the bypass flow recommendations are excessive in order to insure adequate water for spawning. By increasing bypass flows, less water will be available for winter diversion and subsequent use during the summer months. The results will include increasing downstream flooding in the winter and increasing pumping from streams or nearby groundwater in the summer. The policy does not consider the impacts of increasing winter bypass flows on summer flows and therefore fish survival. *(Nick Frey, Sonoma County Winegrape Commission)*

**Response:** The regional protective criteria developed for the Draft Policy should not be considered to have site specific accuracy, and are not intended to be used to predict the site specific needs accurately for every stream. The regional criteria were designed to protect all streams in the absence of site specific data, and thus may just protect some streams and may over-protect others. Only site specific study can determine where on the protectiveness spectrum a given site lies, as described in section D.5 of Appendix D of the Task 3 report. Appendix D of the SED identifies the potential impact of shifting to groundwater pumping and its effects on summer flows.

**Comment 4.3.8:** The Sonoma County Winegrape Commission represents over 1800 vineyard owners in Sonoma and Marin Counties who farm over 60,000 acres of grapes. We feel those vineyard owners will be seriously affected by your Draft Policy for Maintaining Instream Flows. We question the scientific basis proposed bypass requirements. The Draft Policy has not considered recent modeling work done by Dr. Adina Merenlender, UC Berkeley, that addresses bypass flows high in the watershed. *(Nick Frey, Sonoma County Winegrape Commission)*

**Response:** Comment noted. Staff believe that models such as those developed by Dr. Merenlender could be used as part of optional site specific study or watershed-focused studies to evaluate cumulative effects of various operation scenarios, assuming they accurately represent the physics of precipitation-runoff, hydrologic routing, surface-groundwater interactions, and habitat-flow characteristics appropriate to the spatial and temporal scales in questions.

**Comment 4.3.9:** Peer reviewer Lang (2008) states that a minimum bypass flow of 0.68 Qm (rather than 0.60 Qm) is actually needed for protection of fisheries resources in watersheds greater than 290 square miles and also points out that there may be substantial error in calculation of mean annual unimpaired flow because there are very sparse gauge data, often with periods of record of less than 10 years. Lang (2008) cautions additionally that model generated mean flow estimates may have significant error: "Scaling by watershed area and mean annual precipitation works reasonably well for peak and major storm flows dominated by the rainfall generated runoff (assuming the storm influences at nearby gauged sites are consistently similar to the watershed of interest) but at lower flows, more subtle factors such as watershed geology, slopes, ground cover, soil thickness, etc. influence the stream flow. The mean annual flow is as much a function of storm flows as low flows that do not generally correlate as well to drainage area." (*Patrick Higgins, Consulting Fisheries Biologist/Sierra Club Redwood Chapter*)

**Response:** The Draft Policy proposes to apply the MBF criterion of 0.60Qm to large watersheds, such as rivers, for which the determination of instream flow needs is most difficult, and mechanistic analysis techniques such as PHABSIM become problematic in their application (for example, how does one simulate and relate velocity suitability in deep water to flow when fish can move up and down extensively in the water column?). The data in Appendix E suggest a continually decreasing trend with river size, but it was recognized that the MBF3 trend likely cannot be extrapolated to ever larger basins for which little data exist. Hence, the proposed MBF criterion consists of MBF3 and a cut-off value of 0.6Qm for larger watersheds. 0.60 Qm was proposed for large basin areas because general professional experience with instream flow studies indicated it was an the acceptable lower limit that would be protective of fish.

Responses to all of the peer reviewers comments are provided in a separate response document.

**Comment 4.3.10:** The draft Policy improperly developed and applied a bypass flow requirement that incorporates drainage area in its computation. The improperly derived relationship was then extended well beyond the range of data studied. Drainage area was not established to be an adequate predictor of optimum flow. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** It is not the intent of the regression to predict spawning flows accurately at every site, rather to help define an upper bound. Drainage area is a common predictor parameter used in geomorphology, hydraulic and hydrologic engineering, and fisheries for large scale applications. Also see response to 4.3.19.

**Comment 4.3.11:** The Draft Policy's Scientific Basis failed to include an adequate habitat evaluation and ignored the importance of consecutive days for spawning. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** The number of days taken by an individual fish to spawn is variable, and depends on flow availability. Therefore, no criterion could be developed that required a minimum of n days of spawning where  $n > 1$ . In streams where spawning habitat is available for only 1 day, fish still manage to spawn and the success of spawning is controlled by the hydrograph. The habitat effect analysis counted such days as providing spawning opportunities. In streams with consecutive days of flows providing spawning habitat, each day was counted as an opportunity

to provide a first order assessment of habitat availability. Performing an analysis of the effects of a variable number of consecutive days of spawning habitat availability would be extremely difficult because it would require parameterization of a highly variable and uncertain quantity. As discussed in response 6.2.1 to peer reviewer Dr. R. Woodward, a Bayesian type of analysis which could potentially model such variability was not generally feasible.

**Comment 4.3.12:** The analysis used to develop the MBF3 equation is flawed and is questionable for use as a predictor of flow requirements for fish passage. The analysis combined two inconsistent sets of data; used flow as an input to predict flow as an output of the analysis. Further, when adjusting the results to encompass more of the validation sites, only one of the two correlated outputs (intercept, but not slope) was adjusted. Finally, because the analysis cannot confidently predict flow-passage relationships outside of its range of data, even if MBF3 is valid there is no statistical basis for applying the MBF3 flows to approximately 66% of all drainages in the Policy area -- watersheds of less than 1 square mile. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Please see response to 4.3.37 (use of two data sets), response to 4.3.19 (use of flow as a nondimensionalizing term), response to 4.3.20 (adjusting intercept and not slope), and response to 4.3.21 (small watersheds) for more details.

**Comment 4.3.13:** Application of bypass flow requirements to drainage areas smaller than 1.19 square miles is not technically supported. The Scientific Basis acknowledges that flow duration of three to five consecutive days is required for successful spawning; spawning is not furthered by requiring bypass of flows in small streams that have too few consecutive days of sufficient flow to allow successful spawning activity. Further, based on the results from the validation site streams analyzed, streams located in drainage areas of less than 2.75 square miles (1760 acres)(Dunn and Carneros creeks) may provide no, or very limited, steelhead spawning opportunities. Finally, no consideration has been given to the flow characteristics needed for successful incubation of eggs in these small flashy streams. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** See response to 4.3.21 regarding extrapolation of the proposed minimum bypass flow relationship to streams less than one square mile.

In streams with relatively few spawning opportunities such as predicted for the Dunn Creek and Carneros Creek validation sites, it is even more critical for recovery to protect these opportunities than in streams with more opportunities. The MBF and MCD elements in the Draft Policy inherently address flow characteristics in small flashy streams and corresponding effects on incubation by preserving base flow and natural flow variability: Thus, the flashy flow regime that fish have adapted to is preserved.

**Comment 4.3.14:** One of the reasons most pending projects would fail under the Draft Policy is the minimum bypass flow criteria. Developed on larger streams to provide maximum spawning habitat, erroneously applied to small watersheds where salmonid habitat is not present, then inflated with the intent that the requirement exceed the optimum flow for spawning in 95 percent of sites studied, the minimum bypass requirement allows diversions during only a few days per year. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** After considering the collective review comments, setting an MBF criterion for streams draining less than 1 sq.mi. to be equal to the value for 1 sq.mi. appears reasonable from a protectiveness standpoint. See response to 4.3.21 for details.

See detailed response to 4.3.20 regarding misinterpretation of the purpose and intent of a regionally protective envelope curve. This curve would only apply if the applicant chose not to provide site-specific data demonstrating a lower flow would be protective.

As presented by staff in the February 6, 2008 technical staff workshop, the amount of yield available to water diversion projects using the proposed regional criteria is site specific. This is because the Draft Policy's methodology for assessing water availability requires the consideration of site-specific conditions, which include: (1) the drainage area at the point of diversion; (2) the unimpaired flow at the point of diversion; (3) the proximity of fish relative to the point of diversion; and (4) the existing level of impairment resulting from senior diversions in the watershed.

**Comment 4.3.15:** The analysis of habitat suitability for the 13 validation sites described in the Scientific Basis should have included an evaluation of the number of consecutive days with spawning opportunity. Wagner and Bonsignore evaluated consecutiveness using existing habitat information contained in spreadsheets provided by R2 Resources Inc. The study showed there is very limited opportunity for salmonid spawning in watersheds of 2.75 square miles or less. This important conclusion was omitted or ignored in the Scientific Basis and Draft Policy. Appendix I, Figure I-1 in the Scientific Basis should have more correctly stated that the field investigation for the EF Russian River tributary indicated an absence of spawning habitat. The Scientific Basis, on page G-26, states that "... it was assumed that a minimum of five days are needed for spawning in both large and small streams." This implies but does not explicitly state that the five days must be consecutive for successful spawning. The literature indicates that consecutive days are essential for salmonid spawning. Wagner and Bonsignore's evaluation showed zero opportunities for spawning in either the EF Russian River tributary or the Dry Creek tributary were found. The results for Dunn Creek and Carneros Creek were mixed, depending on the transect used. For Carneros Creek, using Transect 1, there were no opportunities for spawning. According to Transect 2, and if 5 consecutive days are required for spawning, there was only one opportunity in the four years investigated. Likewise for Dunn Creek, if 5 consecutive days are required for spawning, then according to Transect 1, there were no spawning opportunities and according to Transect 2 there was only one opportunity in the three years investigated. The conclusion that can be drawn from the habitat analysis, and that should have been stated in the Scientific Basis, is that there is very limited opportunity for salmonid spawning in watersheds of 2.75 square miles or less. The Draft Policy ignored this crucial point. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** See response to 4.3.11 regarding consecutive number of days, noting that no appropriate criterion exists and fish can spawn in one day if that is the only time flows are available. The study was not designed to show whether or not spawning opportunities are limited in smaller basins, thus no such conclusion should be derived. Similarly, the study was not designed to identify the lower limiting drainage area for spawning habitat, including in the E Fk Russian River tributary site. In streams with relatively few spawning opportunities such as predicted for the Dunn Creek and Carneros Creek validation sites, it is even more critical for recovery to protect these opportunities than in streams with more opportunities.

**Comment 4.3.16:** There were many steps involved in arriving at the estimated flow-habitat curves summarized in Appendix H of the Scientific Basis for the validation sites. Each of these steps had an opportunity for error. (1) The first step was to select a transect location in the field to represent that reach of the stream. Stream cross-section is highly variable in the North Coast area. The selection of the specific cross-section influenced the relationship developed between flow and depth of flow. (2) From transect information provided by Stetson Engineers, it is interesting to note that after field-surveying a channel slope of 8 percent for the EF Russian River tributary validation site, the authors decided to instead use a 2.5 percent slope based on photographs in subsequent calculations. (3) Another potential problem lay in application of Manning's equation to 2-foot widths (termed "cells" in the Scientific Basis) of the transect cross section. Since Manning's equation is not linear, this is a suspect procedure, which could bias the result. There was no evaluation of the bias resulting from, nor a reference to any peer-reviewed use of, Manning's equation in this manner. (4) Only one field trip was conducted to each validation site and this was done in the dry season. This eliminated the ability to calibrate and verify the estimated relationship between flow, velocity, and depth at each transect. Figure H-4 for Carneros Creek shows that the minimum flow providing maximum width for steelhead spawning (i.e., the optimum flow) is estimated at either 19 cfs or 29 cfs, depending on the transect. That is a large variation in estimate for what is supposed to be the same condition. While the passage transects were intentionally located differently than the spawning transects, the two spawning transects were intended to represent one validation site. Arriving at such widely divergent estimates of optimum flow for a given validation site should prompt caution in further application of this data. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** The various sources of error were recognized. It is because of this that the regional protective criteria developed for the Draft Policy should not be considered to have site specific accuracy, and are not intended to be used to predict the site specific needs accurately for every stream. To be regionally protective, the regional criteria are designed to limit water diversions so that adequate flows are available for spawning and passage at sites with the most restrictive instream flow needs. At some sites, therefore, more than adequate flows will be provided by regionally protective criteria. Only site specific study can determine where on the protectiveness spectrum a given site lies, as described in section D.5 of Appendix D of the Scientific Basis Report (R2, 2008). which is why the conservative regional MBF criterion apply in the absence of site specific data. The Draft Policy allows for site specific studies. Responses to the itemized list of concerns follow.

(1) This is one reason why it can not be assumed that the results for any one stream are the best and final estimate of flow needs of that stream. As discussed in greater detail in the response to comments 1307, 1323, and 1861, new data (additional hydraulics for existing transects, new and/or more transects, etc.) will result in a different value for that stream. The principle behind the development of the MBF relied essentially on the central limit theorem for the group of streams collectively, where the errors on average should converge to a general trend. (2) The 2.5% slope was judged to be more representative of upstream conditions; the 8% slope reflected artificial site and access limitations, between a private property fence and culvert. (3) Mannings n generally decreases with discharge. Additional field data would likely result in a more accurate estimate of the n value in the vicinity of the target flow. See response to point 1 above regarding the principle behind the development of the MBF. (4) see responses to points 1 and 3 above. The transects were not intended to be representative of the site in the traditional sense of an instream flow study, that would require more transects. Instead, the transects were

selected to add to the overall scatter of data across sites.

**Comment 4.3.17:** Drainage area is not an adequate predictor of optimum flow. Perhaps because of the expense involved in estimating the optimum flow for anadromous salmonids, the Scientific Basis attempted to find a way to predict optimum flow throughout the North Coast region from a readily available parameter. The choice of parameter was drainage area. In Figure E-4 (p. E-11), the recommended flow for spawning was divided by the mean annual flow for plotting on the vertical axis. Drainage areas ranged from 3.48 sq. mi. to 6,248 sq. mi. The median is 74 sq. mi. This is far larger than the drainage areas associated with most pending applications for storage in the Policy area. It is noted that several of these data points were incorrectly located. This plot shows a general trend of greater recommended flow to mean annual flow for smaller drainage areas. But this plot clearly shows that drainage area is insufficient to estimate recommended flow. At any given drainage area, the corresponding recommended flows range widely. For instance, at 70 - 80 sq. mi., the recommended flow ranges from 0.4 or 40 percent of mean annual flow to 5.0 or 500 percent of mean annual flow. It is also instructive to view this same data with linear axes as shown in Figure 6-1 of Wagner and Bonsignore's comment letter. No manner of statistical analysis is going to make drainage area a good predictor of recommended flow, as shown in Figure E-4. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Drainage area is a common predictor parameter used in geomorphology, hydraulic and hydrologic engineering, and fisheries for large scale applications involving physical morphologic characterizations of watercourses ranging from small stream channels to large rivers.

It is not the intent of the regression to predict spawning flows accurately at every site; rather to help define an upper bound. See section D.5 in Appendix D of the Task 3 report for a discussion of how the Draft Policy does not and cannot constitute a one-size-fits all approach. The draft Policy does not attempt to predict instream flow needs for each stream, and instead relies on a protective regional criterion to establish a suitable threshold flow below which uncertainty on site-specific instream flow needs can only and must be addressed by site specific study. The site specific study element of the draft Policy is provided as a means to determine instream flow needs on a site specific basis. This issue is discussed in greater detail in the response to 4.3.19. The regional protective criteria developed for the Draft Policy should not be considered to have site specific accuracy, and are not intended to be used to predict the site specific needs accurately for every stream. The regional criteria must of necessity be designed to protect all streams in the absence of site specific data, and thus may just protect some streams and may over-protect others. Only site specific study can determine where on the protectiveness spectrum a given site lies, as described in section D.5 of Appendix D of the Task 3 report.

Staff thanks the reviewer for pointing out the plotting position error in the draft, this has been fixed in the June 2009 revision of the MBF3 and MBF4 described in Attachment 1 of the Response to Peer Reviewers document.

**Comment 4.3.18:** The statistical analysis in the Scientific Basis discarded some of the data on minimum instream flow recommendations compiled in Figure E-4, but the justification was not entirely clear. Page E-14 indicated part of the reasoning was that some of the recommended flows were (a) derived in a manner different than that used for the validation sites and (b) did not follow the expected trend associated with drainage area. In statistical analysis, it is incorrect to discard data for the reason that it does not fit the hypothesis. (*Janet Goldsmith and Becky*

*Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** The MBF was based on steelhead needs, thus Chinook data were not used. Steelhead depth and velocity suitability criteria for the Idaho data were the same as for Chinook and were judged non-representative of fish in the Policy area and not used. This is not the same as saying they do not fit the hypothesis -- they were simply inconsistent with the hypothesis that steelhead and Chinook have different suitability criteria in the Policy area..

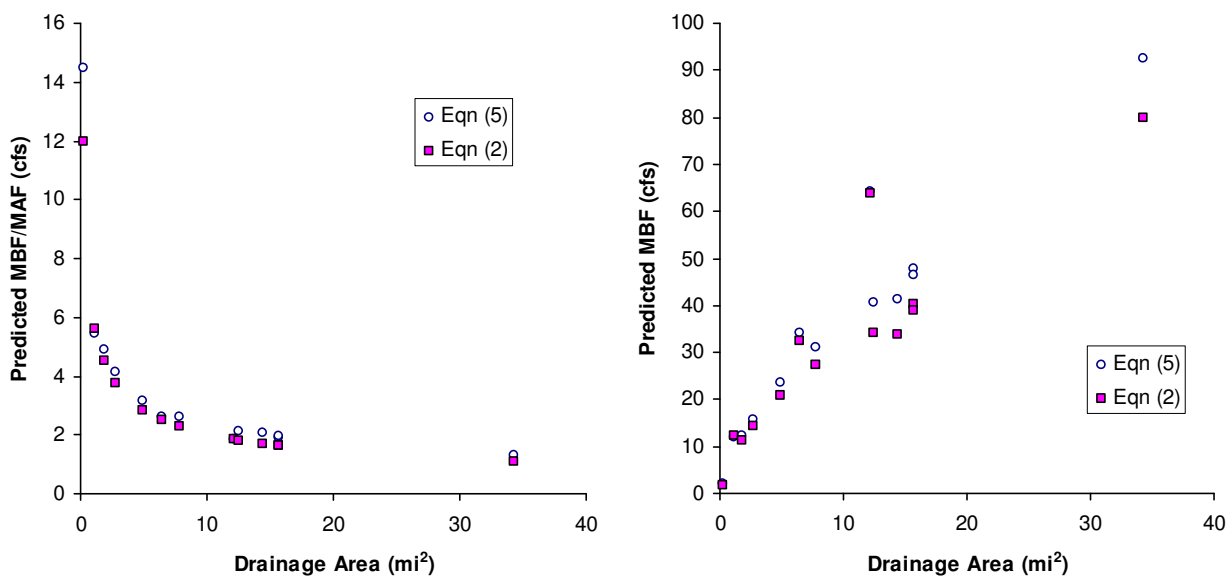
**Comment 4.3.19:** In the development of MBF 3 and MBF4, the Scientific Basis should have included Qmean as an explanatory variable rather than a response variable. In regression analysis, explanatory (aka independent) variables are used to mathematically explain a response (aka dependent) variable. Since the Scientific Basis included Qmean as a response variable, this had the effect of forcing the exponent on Qmean to be 1. There is no basis on which to make the presumption that the exponent on Qmean is 1. If Qmean had been modeled as an explanatory variable, the statistical model would have been able to estimate the exponent on Qmean. If correct modeling of the data shows that the exponent on Qmean is significantly different from 1, then the regression result in Appendix E is invalid. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** The HDR comments suggest that a “better” model would have involved the treatment of mean annual flow as an independent variable, rather than using it as a scaling factor as was done for the MBF3 relationship. The comment ignores, however, the common statistical concepts that (i) mean annual flow is correlated with drainage area (as acknowledged by HDR), and (ii) the use of correlated independent variables in multiple regression results in multicollinearity, which adversely affects predictive ability (not considered in the comment). In general, the use of negligibly correlated independent variables is a goal in developing multivariate statistical models. This was one of two driving reasons for using mean annual flow as a scaling variable.

A related logical problem in the HDR argument pertains to the magnitude of the regression coefficient for mean annual flow. HDR argues that because the magnitude of the coefficients for the two models are statistically significantly different, including the mean annual flow term as an independent variable is superior. However, this argument has problems because it is not possible to interpret any one set of regression coefficients as definitively representing the effects of the different independent variables (and especially in the case of collinear independent variables). Indeed, the coefficients for drainage area are different as well between the two models, as are the intercept terms, which begs the questions: which set should be considered superior and why? The differences reflect mathematical operations involved in least squares estimation, where the amount of variation is distributed among coefficients in such a way to minimize the objective function. Different combinations of variables will result in different mathematical minimization solutions of the coefficient magnitudes, without any knowledge of whether the numerically optimal solution makes physical sense. For example, HDR's equation (5) is counterintuitive because when the mean annual flow is the same for two basins, but one has a larger drainage area, the equation predicts that the stream with the larger drainage area should have a smaller minimum bypass flow. So, the fact that the terms are different does not mean that one model is statistically better than the other, and the overall argument based on comparing coefficient magnitudes that the HDR model is more appropriate or better is not convincing.



As illustrated in the graphs below, the HDR model (= equation (5) in HDR's comment letter) generally predicts a higher regression mean spawning flow than the MBF3 model (= equation (2) in HDR's comment letter) developed from the same dataset, and thus may be more conservative. A plausible speculation is that water conservation-oriented interests might prefer equation (5) whereas water users might prefer equation (2), because equation (5) appears to predict a greater regional instream flow criterion for the minimum bypass flow that would be applied when site specific study results are not available.



The second driving reason for normalizing with mean annual flow reflects physical dimensional analysis concepts in engineering and geomorphology. Normalizing spawning flow with mean annual flow is consistent with dimensional analysis procedures typically applied when variation across scales influences a quantity of interest. Fundamentally, while larger streams may support larger bodied fish, fish body size overall decreases relative to increasing stream size. The interaction between flow and habitat availability for a given species must therefore also vary with stream size. Scaling spawning flow by mean annual flow is one way to help account for this, and results in a dimensionless quantity. Non-dimensionalization is a common approach in engineering and geomorphology precisely because it facilitates including the effect of scale in analyses. Indeed, the utility of non-dimensionalization to analyzing data from a range of scales can be seen in the right graph above, where the scatter of data collapses about a trend line for both equations (2) and (5), irrespective of whether mean annual flow is a scaling or independent variable. There is considerable precedent in the engineering and geomorphic literature for using a variable such as mean annual flow to scale or normalize another flow metric to achieve such a similarity collapse.

**Comment 4.3.20:** After developing the regression line for the MBF3 alternative, the authors of the Scientific Basis shifted it upward while maintaining the line's slope. The intent was to draw a line that exceeded 95 percent of all site specific estimates. The Scientific Basis on page 6-6 states, "Because a regionally protective Policy inherently results in over-protecting some streams (e.g., see Figure D-5 in Appendix D), application of the MBF3 alternative criterion would likely result in many cases where additional study could indicate that lower bypass flows might still be protective." In other words, the MBF3 criterion was intended to exceed the optimum flow

needed for anadromous salmonids. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Adjusting the slope would tend to favor smaller streams over larger streams, or vice versa depending on whether the upper or lower confidence limits were to be applied. Preserving the trend slope in the data resulted in an envelope relation that appeared to distribute more evenly about the upper limits of the data scatter. Therefore, it was decided not to adjust the slope, but just shift the mean regression line upwards. The ultimate result appeared to be a reasonable approximation of a protective regional criterion below which the need for site specific study would be indicated.

The 95% data envelope, which could be derived via quantile regression, was one possibility discussed in section D.5 in Appendix D of the Task 3 report. Quantile regressions are useful for defining data envelopes because they do not require the same assumptions regarding the distribution of variance as standard linear regression. Quantile regressions are more robust in the presence of large outliers, although the slope and intercept can vary substantially depending on the scatter distribution of points along the line defining the regression and the percentile level evaluated. Depending on the error distribution, the level of confidence in the parameters may decrease (or increase) substantially as the quantile level assessed approaches the upper envelope limit of 100%. The quantile regression method is somewhat more complicated than a simple regression approach and not as widely available in accessible statistics and analysis software. Most importantly, there is no guidance as to what percentile should be used; specification of a particular quantile level is no more likely to yield a biologically meaningful model result than would be obtained through conventional linear regression. The linear regression approach used to develop the draft MBF3 relation was favored because of its simplicity.

None of this means that the MBF3 criterion was intended to over-predict site-specific flow needs. Specifying an upper envelope ensures protectiveness until site specific data are collected that demonstrate a lower flow is still protective.

**Comment 4.3.21:** The Scientific Basis should not have extrapolated the derived minimum bypass flow relationship outside its range of applicability. The analysis of bypass flow requirements was based on watersheds and stream sizes far larger than almost all pending applications for onstream reservoirs. The smallest watershed, for which an instream flow was recommended, as compiled in Figure E-4, was 3.5 sq mi. The smallest watershed among the validation sites for which habitat was clearly established was 4.9 sq. mi. At some small stream size, there can be no habitat. Figure D-5 recognizes this by showing that, at some small stream size; the "protective flow level" bends sharply to zero. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Figure D-5 in Appendix D of the draft Task 3 report is a conceptual drawing that should not be interpreted as real data describing an actual trend in the limits to habitat. Staff recognize that a large proportion of pending applications are for streams with drainage areas <1 mi<sup>2</sup>, whereas validation sites on which the MBF relation was based are in larger basins. Figure E-9 in Appendix E of the Scientific Basis Report indicates that NMFS critical habitat exists in streams smaller than 0.1 mi<sup>2</sup>. For those smaller streams that do occur in critical habitat, the MBF relation in the Draft Policy represents an extrapolation from the validation sites to smaller drainage areas. Comments that this may not be justified because there are no representative-

sized streams in the dataset used to develop the regression have technical validity, and this concern was recognized throughout the development of the MBF relation. The extrapolation was proposed in the absence of better data, in large part because the passage flow estimated for the E Fk Russian River site (drainage area 0.25 mi<sup>2</sup>) appeared to follow the same log-linear trend as for the larger sites. An alternative that was considered at the same time was to plateau the MBF relation for smaller streams, setting it equal to approximately the same value as that predicted for 1 mi<sup>2</sup>. In the absence of other data, and following the analog for fish passage flows, it was decided to propose the extrapolation and submit it for public review and input. If additional information became available through the public review process, then the case for streams draining less than 1 mi<sup>2</sup> could be reconsidered and potentially recast for the final Policy.

While commenters did not provide habitat-flow data for streams draining less than 1 mi<sup>2</sup>, enough comments focused on the potential hardship that the extrapolation might cause to water users to warrant reconsideration of the limit. As a result, Staff's technical experts are recommending setting a protective limit to the MBF equal to approximately nine times the mean annual flow for streams with anadromous salmonid habitat and draining 1 mi<sup>2</sup> or less, although this limit cannot be confirmed with certainty at this time. However, Staff's technical experts believe it is reasonably protective and do not anticipate it would lead to substantial adverse effects until monitoring data for assessing the effectiveness of the policy becomes available.

Given then that (1) there is equivocal scientific evidence presently to support extrapolation preferentially over a constant limit for streams draining less than 1 mi<sup>2</sup>, and (2) the resulting limit noted above in all probability will not result in substantial adverse habitat conditions regionally, Staff's technical experts believe it should be possible to modify the policy's MBF criterion to the recommendation described above for drainage areas equal to or less than 1 mi<sup>2</sup> that support anadromous salmonid habitat. However, it must be noted that this limit only applies to small watersheds containing anadromous salmonid habitat. For other watersheds, the draft Policy regional criterion for streams above anadromy remains necessary to protect downstream stream habitat in the absence of site specific data.

**Comment 4.3.22:** The Scientific Basis failed to include an adequate evaluation of the result of the habitat analysis. The Scientific Basis did not attempt to explain and discuss the modeled differences in passage and spawning and whether those differences would significantly affect salmonids. Appendix I included no discussion of the results contained therein. Additionally, Section 4 of the main body of the document includes charts depicting change in the average number of days per year and percent change in the average number of days per year. However, it did not provide (1) a discussion of the importance of consecutive days for evaluation of opportunity, or (2) an evaluation of whether unimpaired conditions exhibited sufficient or insufficient days for habitat. A complete evaluation would assess whether spawning opportunities are a limiting factor for the species at a given location. Of course, none of the Flow Alternatives modeled and presented in Appendix I actually represented the Draft Policy. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** The number of days taken by an individual fish to spawn is variable, and depends on flow availability. Therefore, no criterion could be developed that required a minimum of n days of spawning where n>1. In streams where spawning habitat is available for only 1 day, fish manage to spawn and the success of spawning is controlled by the hydrograph. The habitat effect analysis counted such days as providing spawning opportunities. In streams with consecutive days of flows providing spawning habitat, each day was counted as an opportunity to provide a first order assessment of habitat availability. Performing an analysis of the effects of

a variable number of consecutive days of spawning habitat availability would be extremely difficult because it would require parameterization of a highly variable and uncertain quantity. There is no commonly accepted threshold value for number of days defining the change from sufficient to insufficient.

**Comment 4.3.23:** The bypass requirement (MBF3) was incorrectly derived and applied. Great effort went into identifying optimum flows for salmonids, and then a good deal of effort went into an attempt to show that the optimum flows can be predicted from one variable alone (drainage area). That supposed relationship was then overridden by application of an envelope curve intended to exceed all optimum flow rates. Finally, the envelope curve (MBF3) was extended beyond the range of the data studied to apply to watersheds far smaller than those which support anadromous salmonids. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** See response to 4.3.20 and response to 4.3.21 regarding these points.

**Comment 4.3.24:** Figure E-7 of the Scientific Basis helps explain that the MBF3 alternative is the minimum flow that provides the maximum habitat. In terms of protection, it is not a minimum, it is a maximum. MBF4, on the other hand, was developed based on provision of only an estimated 2-foot suitable width. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Comment noted. In terms of protection, a true maximum would be the maximum flow that provides the maximum habitat. The minimum flow that provides the maximum habitat is at the brink of decline, where a small reduction in flow would result in reduction in habitat availability.

**Comment 4.3.25:** In the Scientific Basis, the optimum flows estimated for the validation site transects were combined with recommended flows from Swift, 1976 resulting in the data points shown in Figure E-8. Some of the validation site data points shown on Figure E-8 and used in the regression for minimum bypass flow do not belong there and some that do belong there are missing. These data discrepancies are detailed in the notes on Table 6-1 from Wagner and Bonsignore's comment letter, and involve data for Dry Creek tributary, Dunn Creek, and Carneros Creek. A request to State Water Board staff on April 9, 2008 for explanation of these apparent discrepancies has not been answered as of April 30, 2008. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Staff thanks the reviewer for pointing out these differences. They reflect in part changes made to selected habitat-flow curves that were not carried through in the draft Task 3 report during a major internal review draft rewrite, and in part a typographical spreadsheet error. The changes that were updated for the MBF regression were for Olema Cr Sp1, Huichica Cr Sp1, Carneros Cr Sp2, Dunn Cr Sp1, and Franz Cr Sp1. The typographical errors involved switching of cell values, where Carneros Cr Sp1 was omitted from the regression data and Dry Cr Sp1 was copied twice. These changes also affected the passage regression data. The net effect is a minor change in the regional MBF3, MBF4, and fish passage regression equations.

The June 2009 revised and March 2008 versions of the MBF3 and MBF4 equations are:

MBF3 (June 2009):  $Q_{\text{MBF}} = 9.8 Q_m (\text{DA})^{-0.49}$

MBF3 (Draft Policy, March 2008):  $Q_{\text{MBF}} = 9.4 Q_m (\text{DA})^{-0.48}$

MBF4 (June 2009):  $Q_{\text{MBF}} = 6.0 Q_m (\text{DA})^{-0.75}$

MBF4 (Task 3 Report, March 2008):  $Q_{\text{MBF}} = 5.4 Q_m (\text{DA})^{-0.73}$

These equations are described in more detail in section 2.1.1 of the sensitivity study (Stetson and R2, 2009), and Attachment 1 of the Response to Peer Review Document.

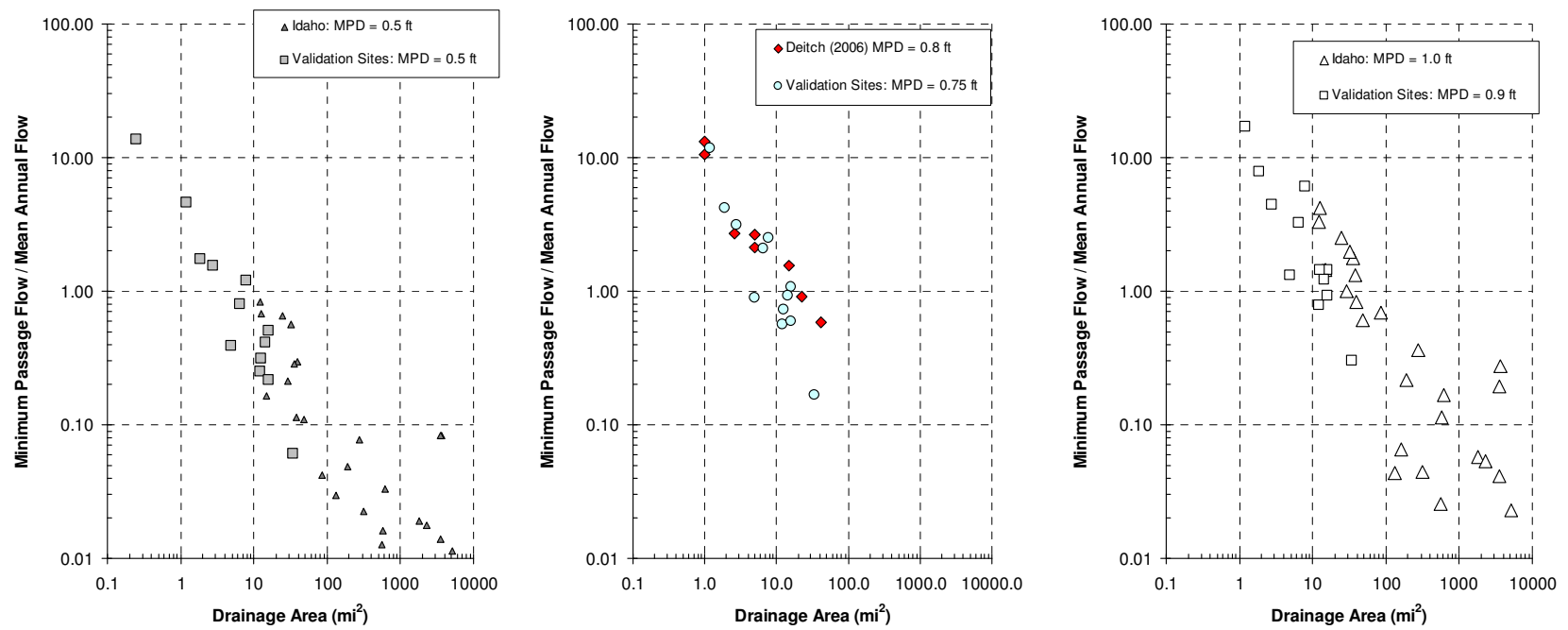
The June 2009 revised and March 2008 versions of the minimum fish passage relationship are:

Passage regression (June 2009):  $Q_{\text{fp}} = 18.6 Q_m (D_{\text{min}})^{2.2} (\text{DA})^{-0.71}$

Passage regression (Task 3 Report, March 2008)  $Q_{\text{fp}} = 19.3 Q_m (D_{\text{min}})^{2.1} (\text{DA})^{-0.72}$

The June 2009 fish passage relationship is discussed in more detail in section 2.1.3.1 of the sensitivity study (Stetson and R2, 2009).

Revised graphs showing the June 2009 regressions similar to those in Appendix E of the Task 3 Report are provided in figures E-1r, E-2r E-6r, E-8r and E-10r to E-12r.



**Figure E-1r.** Variation of estimated minimum upstream passage flow needs, scaled by mean annual flow, with drainage area for selected minimum passage depths (MPD) in riffles.

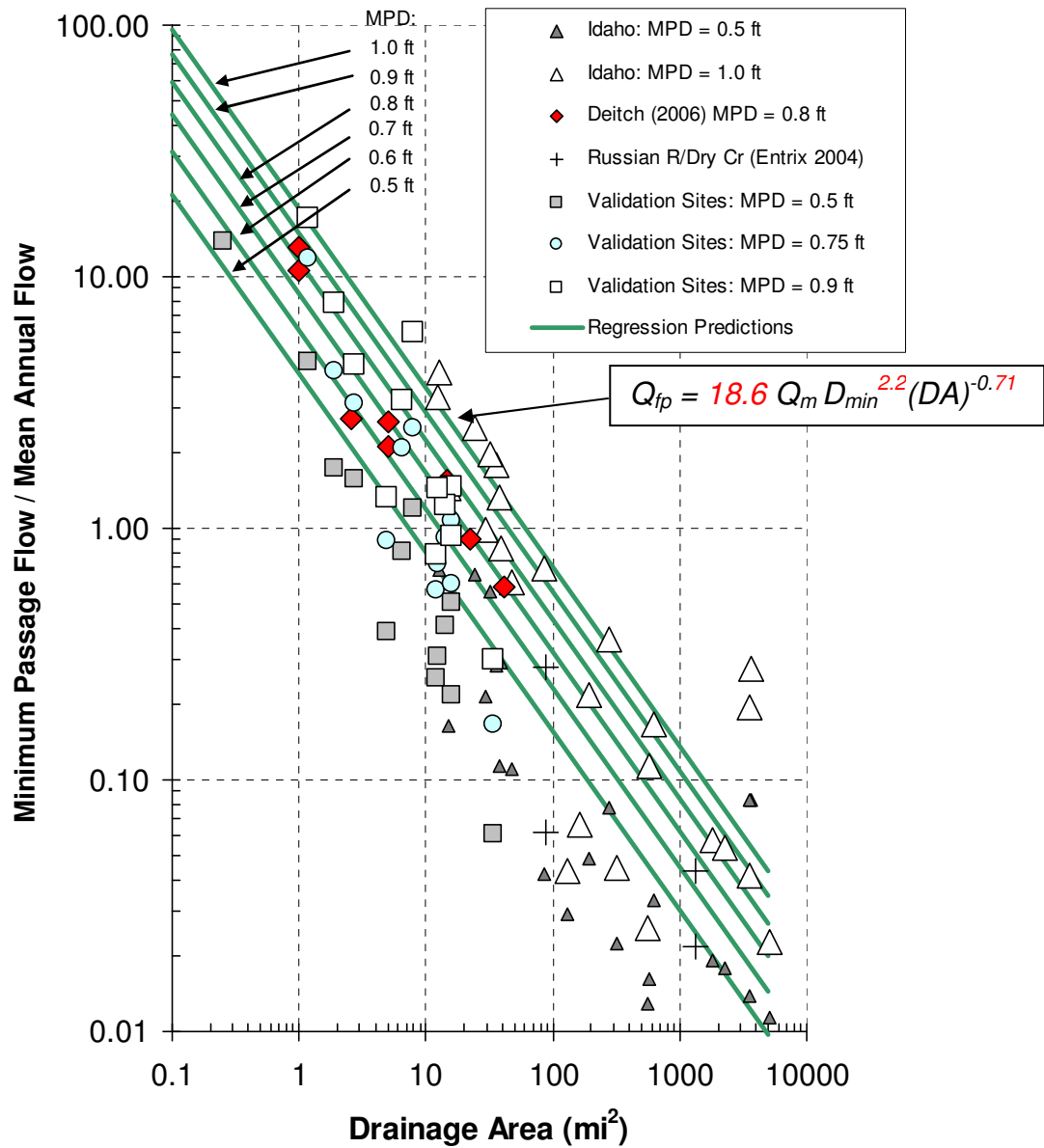
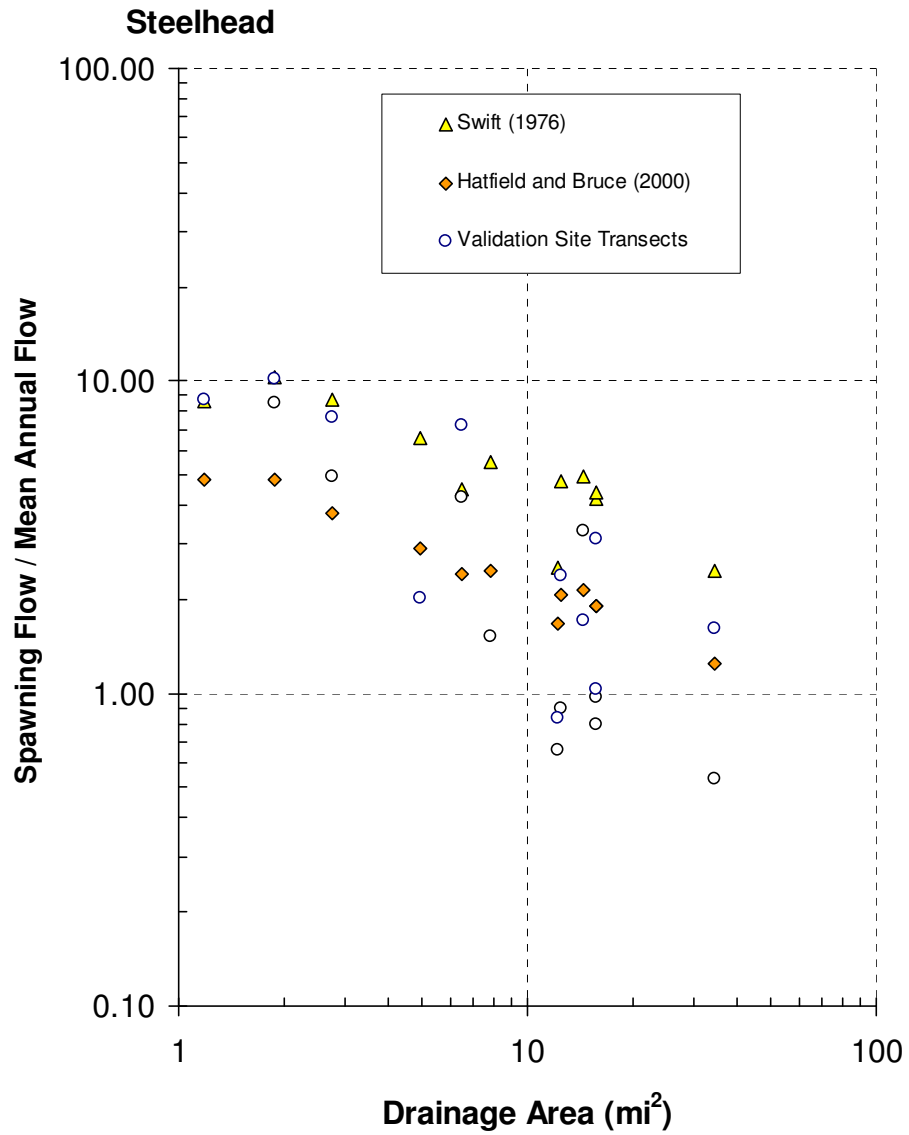
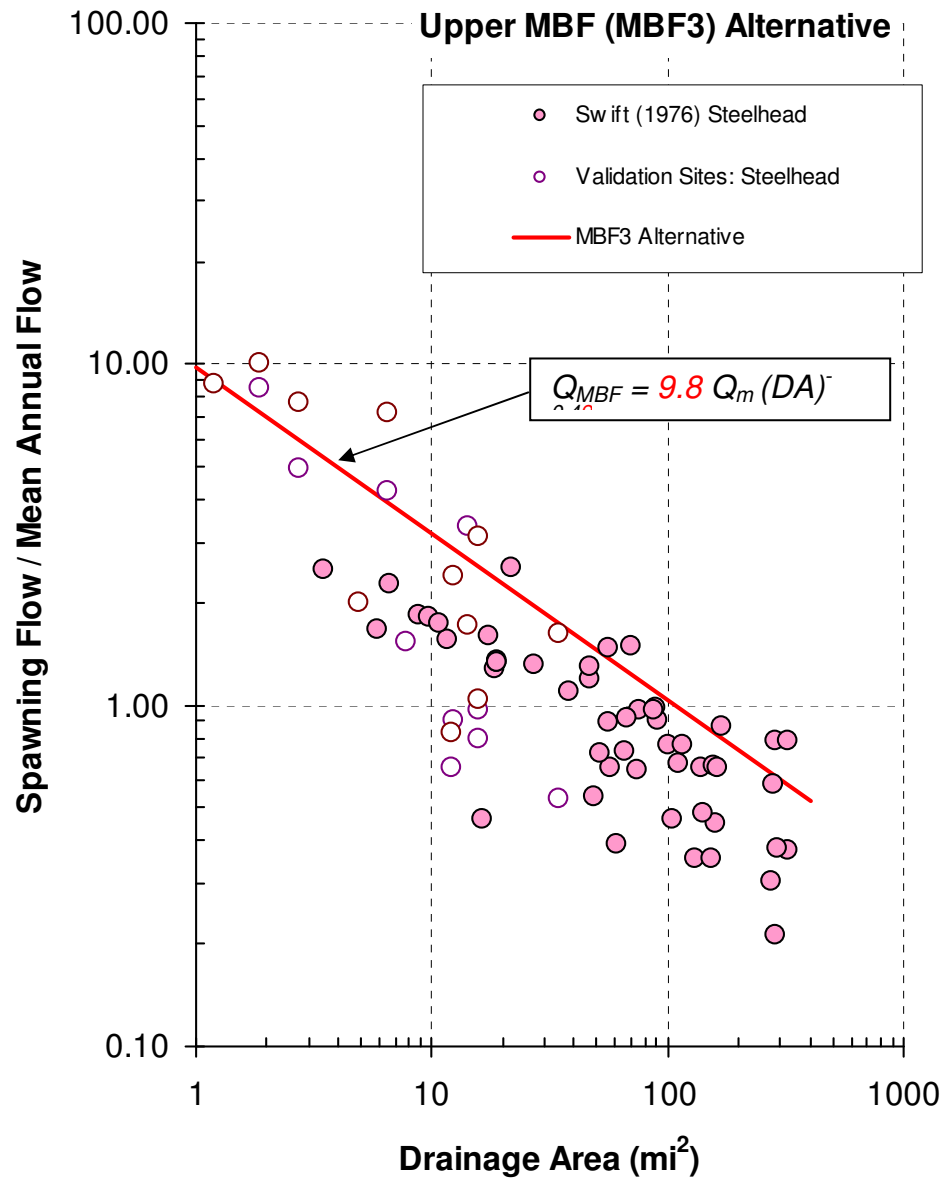


Figure E-2r. Comparison of regression predictions for minimum upstream passage flow based on the data presented in Figure E-1r, scaled by mean annual flow and plotted against drainage area. The prediction lines for selected minimum passage depth (MPD) criteria are indicated by arrows.

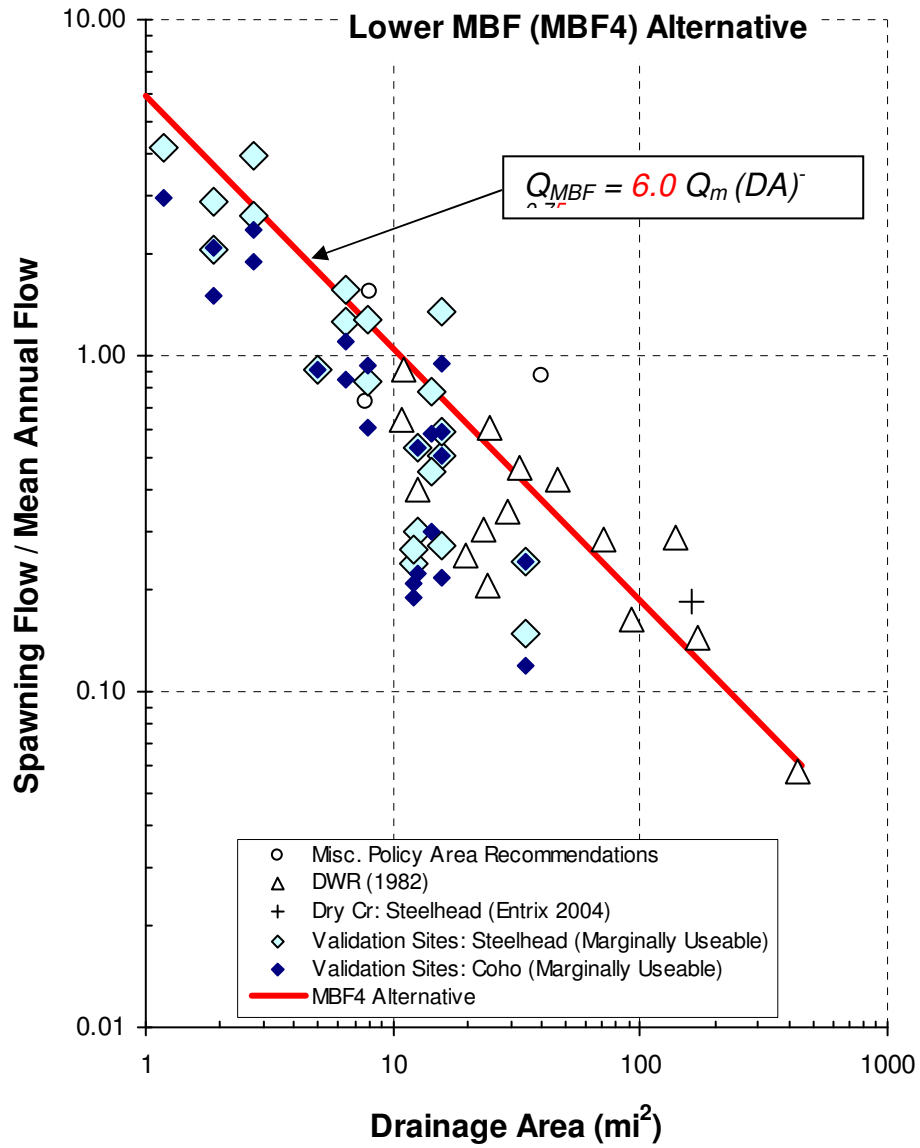


**Figure E-6r.** Comparison of minimum instream flow recommendations for steelhead spawning in Policy area streams sampled in 2006 with predictions based on other regional studies, distinguished by drainage area. The spawning flow is scaled by the approximate unimpaired mean annual flow.





**Figure E-8r.** Upper MBF (MBF3) alternative regression line plotted with the spawning habitat-flow regression data.



**Figure E-10r.** Lower MBF (MBF4) alternative regression line plotted with the spawning habitat-flow regression data.

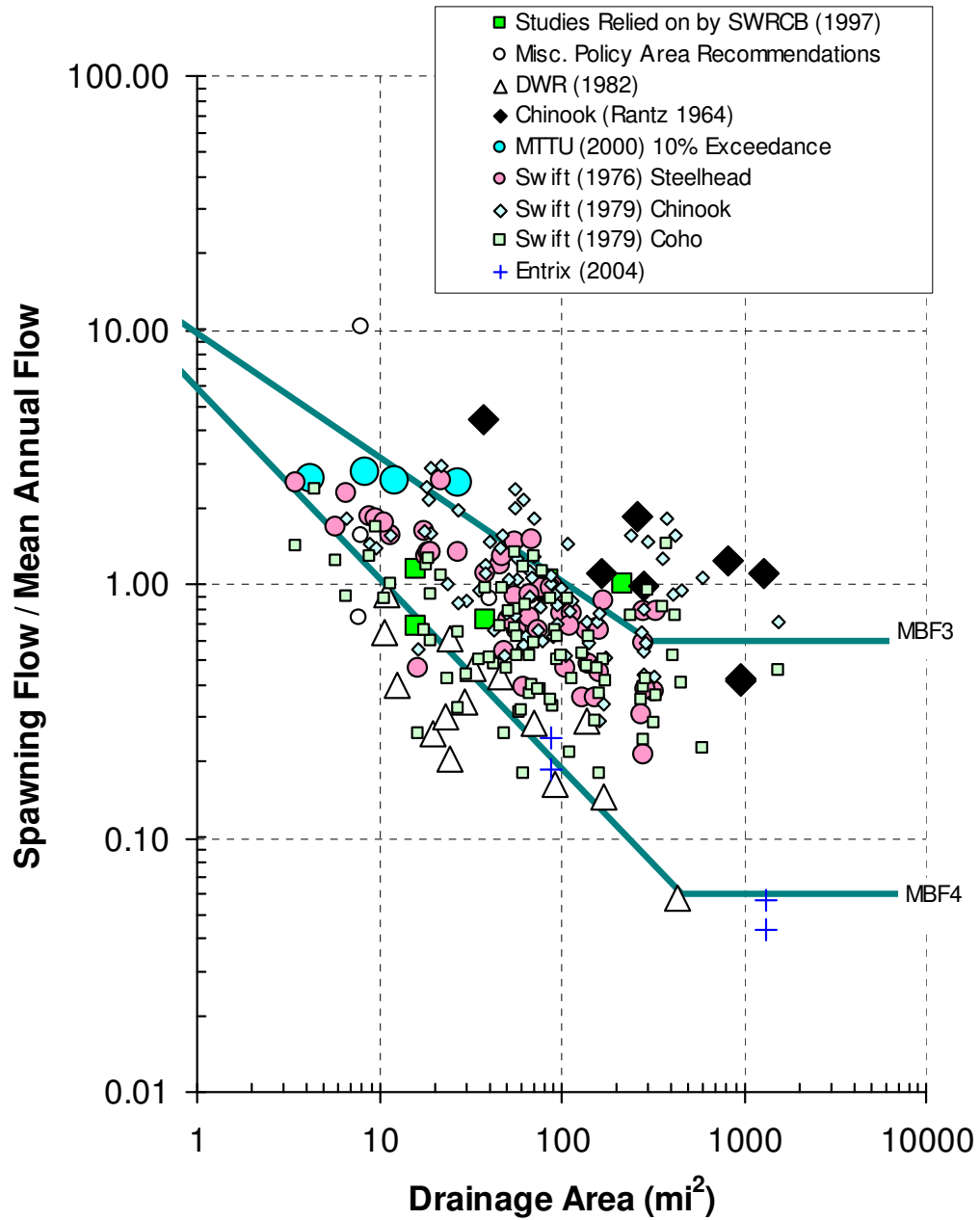
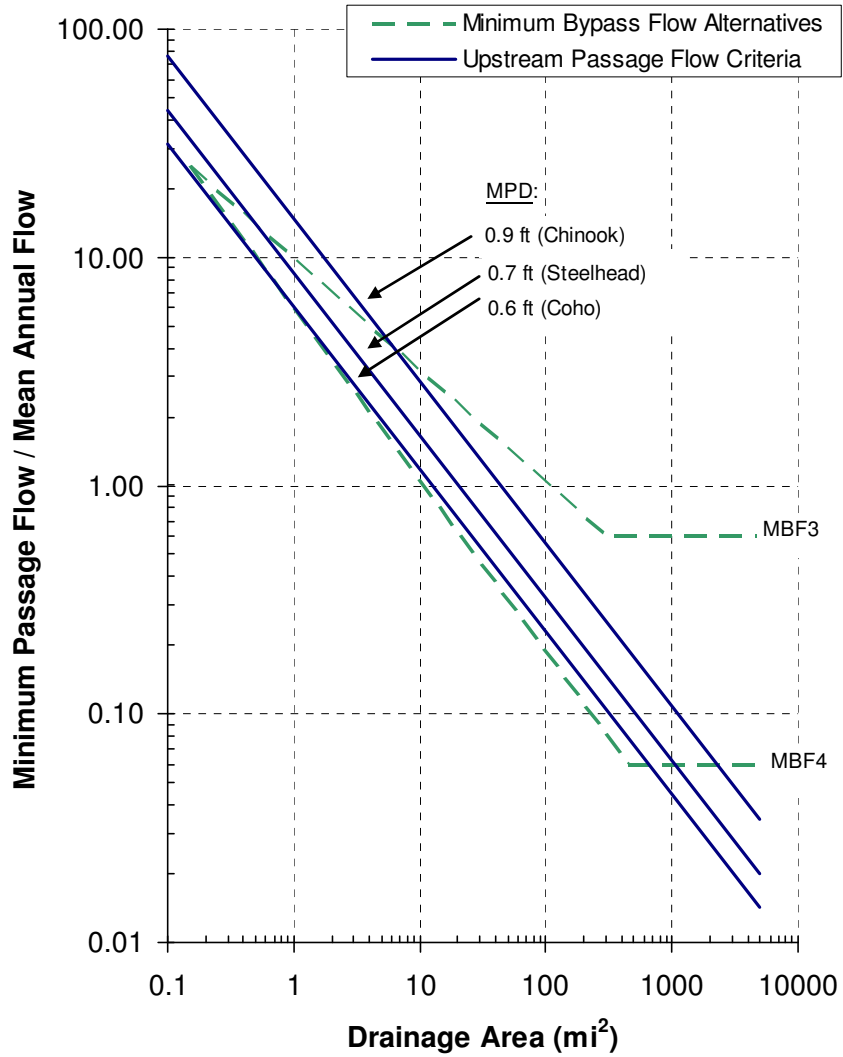


Figure E-11r. Upper MBF (MBF3) and Lower MBF (MBF4) alternatives plotted with existing regional and local spawning habitat-flow data.



**Figure E-12r.** Comparison of Upper MBF (MBF3; upper dashed line) and Lower MBF (MBF4; lower dashed line) alternatives with upstream passage flow criteria resulting from Equation (E.1) in streams where anadromous salmonids are present. Lines corresponding to specific minimum passage depth (MPD) criteria are indicated by arrows.

**Comment 4.3.26:** Data points from validation sites with no habitat should not have been included in the minimum bypass flow regression analysis. The Scientific Basis demonstrated a lack of habitat for anadromous salmonids in watersheds of less than about 2.75 square miles. There is not enough naturally occurring (aka unimpaired) flow in small watersheds to create spawning opportunities for steelhead. Taken to an extreme, water would have to be pumped miles uphill in a 24- or 30-inch pipe in order to create the requisite 0.8-foot depth, 2-foot width estimated necessary for habitat. It does not make sense to calculate an optimum flow for spawning at sites where there is insufficient natural flow for spawning. The data points for Dry Creek, Dunn Creek, and arguably Carneros Creek should not have been included as data points in the MBF3 regression. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** It is incorrect to assume there is no habitat for anadromous salmonids in small watersheds. In the absence of site specific data, it must be assumed that habitat is present. The sampled streams had channel and habitat morphologies capable of supporting anadromous salmonids regardless of flow regime, which is why they could be included in the development of the regional MBF equation. The observed channel and habitat morphologies were comparable to general conditions observed in streams currently supporting anadromous salmonids in the Policy area. This comment also ignores the importance of streams for other life stages.

**Comment 4.3.27:** The data underlying the minimum bypass flow regression are unreliable because of large variations in estimated optimum flow at any given validation site. Appendix H of the Scientific Basis and Table 6-1 of Wagner and Bonsignore's comment letter show that the estimated optimum flow for a given validation site varies dramatically between transects. With that much variation, i.e. error in estimate, it is not clear that any additional analysis should be based on those data. At the least, there should be consideration of using the average of the two estimates, or the lower estimate only. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Staff acknowledges that the optimal flow may vary from transect to transect at any given site. This is why the MBF criterion is set as a conservative upper regional limit based on multiple sites. To develop an accurate site specific prediction tool based on subsampling and extrapolation (e.g., as done in the Snake River Basin Adjudication Idaho, where around 200 streams were sampled to represent 1000 streams) would require years of data collection and analysis and cost more than is available through AB 2121. The regional protective criteria developed for the Draft Policy should not be considered to have site specific accuracy, and are not intended to be used to predict the site specific needs accurately for every stream. To be regionally protective, the regional criteria are designed to limit water diversions so that adequate flows are available for spawning and passage at sites with the most restrictive instream flow needs. Only site specific study can determine where on the protectiveness spectrum a given site lies, as described in section D.5 of Appendix D of the Scientific Basis Report (R2, 2008). The Draft Policy allows for site specific studies.

**Comment 4.3.28:** The estimates of mean annual flow are biased. In the development of MBF3 and MBF4, the Scientific Basis estimated Qmean using data sets with very short time periods. One validation site had only 2 years of data, two validation sites had only 3 years of data, two validation sites had only 4 years of data and two validation sites had only 5 years of

data. Review of precipitation records reveals these short time frames were not representative of long-term average hydrology; some were wetter, some were drier. Because the Qmean estimates are biased due to the short data record, the model estimation is unreliable. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Staff acknowledges that was limited streamflow data available at the validation sites. This is why the MBF criterion is a conservative upper regional limit, in view of the various sources of variation. To develop an accurate site specific prediction tool based on subsampling and extrapolation (e.g., as done in the Snake River Basin Adjudication Idaho, where around 200 streams were sampled to represent 1000 streams) would require years of data collection and analysis and cost more than is available through AB 2121. The regional protective criteria developed for the Draft Policy should not be considered to have site specific accuracy, and are not intended to be used to predict the site specific needs accurately for every stream. To be regionally protective, the regional criteria are designed to limit water diversions so that adequate flows are available for spawning and passage at sites with the most restrictive instream flow needs. Only site specific study can determine where on the protectiveness spectrum a given site lies, as described in section D.5 of Appendix D of the Scientific Basis Report (R2, 2008). The Draft Policy allows for site specific studies.

**Comment 4.3.29:** The Scientific Basis Report uses two types of data (i.e., from validation points, and sites in Swift (1976) steelhead research) to determine MBF3 for basin drainage areas that are less than 295 square miles, and for drainage areas of any size that are above the upper limit of anadromy. The presentation of these data does not allow for a comparison of the two types of data, or an assessment of the differences in the variation associated with each data set. The data from the validation sites is described in Appendices G and H of the Scientific Basis Report, providing information about the characteristics of the validation sites such as drainage area sizes, period of flow records used in the calculations of annual average flow (Qm) and number of transects per sites. No such information is provided for the Swift (1976) steelhead data. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** See detailed response to 4.3.37. The relevant hydrologic data are presented in the Swift (1976, 1979) and Collings (1972a, b, 1974) reports.

**Comment 4.3.30:** Only one linear model, the one relating QMBF/Qm as a response variable, and drainage area (DA) as an explanatory variable, was fitted and presented in all the supporting scatter plot figures in the Scientific Basis. Insufficient explanation is provided for the selection of this particular model, as opposed to other linear models using additional explanatory variables (e.g., elevation, reach gradient, longitude or latitude, bankfull width, geographic location, etc.) or a combination of them. The reason for the selection of Qm, the estimated mean annual flow for the site gage, to scale QMBF (i.e., the lowest flow at which maximum steelhead spawning habitat availability occurred at the particular transect/site) is not provided, as opposed to other more robust indicators of annual flow central tendency such as the median. In consideration of the range in the number of water years analyzed (2 - 37), evaluation of the appropriate measure of central tendency should be provided. This consideration is particularly important because Qm is used as a "scaler" to account for variable drainage area-flow differences. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner,*

**Response:** At the most fundamental level, the criticisms regarding the statistical methodology used or changes in data used simply reflect the competing model problem, where there are many approaches to developing a statistical model, and which one is considered the “best” depends on available data, experience, viewpoint, objective, judgment, and personal forcefulness in promoting one approach over another.

There are numerous ways in which the functional relationship represented by the MBF3 equation could be made to change. With respect to validation site data, they include but are not limited to:

1. Revise the hydraulic simulations for the existing validation site transects without new data.
2. Collect additional depth, velocity, and discharge data at the validation site transects and revise the hydraulics.
3. Collect data at new transects in the same general validation site.
4. Collect data at new sites on the same validation streams.
5. Collect new data on other streams.
6. Revise the depth and velocity suitability threshold criteria.
7. Use continuous suitability criteria instead of threshold criteria
8. Collect site-specific microhabitat-suitability criteria.
9. Use a different habitat modeling approach, such as a more formal PHABSIM style analysis, mapping habitat polygons at different flows, 2-dimensional hydrodynamic modeling, bioenergetics simulation, and more.

With respect to general statistical analyses, ways to result in a different functional MBF relationship include but are not limited to:

1. Using data from one source only (e.g., validation sites only vs. Swift only)
2. Using data from more than the two sources used.
3. Using subsets of data to cover different ranges of basin size, with match points.
4. Expressing the functional equation of the independent variables in the MBF regression differently.
5. Using other independent variables.
6. Using a different statistical fitting technique, with examples including but not limited to ridge regression, non-linear regression, quantile regression, and Bayesian analysis.
7. Confidence level interval definition, including but not limited to: 90<sup>th</sup> vs 95<sup>th</sup> vs 99<sup>th</sup> confidence limit, 90<sup>th</sup> vs. 95<sup>th</sup> percentile regression, 90<sup>th</sup> vs. 95<sup>th</sup> vs 99<sup>th</sup> credible Bayesian interval.

These lists are not exhaustive. The point is, any one of the above or other actions will lead to a different MBF equation. The types of criticisms that have been raised regarding statistical suitability and the exact equation of the MBF3 model reflect differences of opinion as to which of the above actions is “best”. Such criticisms will not lead to a scientific consensus-based resolution of which model is better because it is always possible to change the functional relationship in any of the ways identified

above, and then criticize it because it can be changed again with a subsequent action or because the approach favored by one analyst was not followed.

The approach used to develop a regional screening level MBF3 model, used in conjunction with the option to conduct a site specific study, was developed and selected because of its simplicity. Use of more sophisticated statistical techniques was considered, but ultimately the technique that was used generated an MBF relation that appeared protective and was simple to explain and apply. It was beyond the scope of AB2121 to identify a “best” model, which would require extensive additional data collection to test specific hypotheses evaluating alternative models. The scope of AB 2121 was effectively to develop an approach that would give a reasonable answer.

As examples of the ultimate intractability of the competing model problem, there are a number of ways identified in the comments in which alternate MBF models might be developed:

1. Not pooling the validation site data with the Swift data and developing two regression equations for different ranges of drainage area.
2. Developing an alternate model where mean annual flow is an independent variable.
3. Adjusting both the slope and intercept terms.
4. Using the upper bound of a 95% linear regression predictive interval.
5. Using a regression quantile approach.
6. Using alternative metrics such as riffle crest thalweg depth or active channel depth as proposed conceptually by McBain-Trush and Trout Unlimited.

Given the wide range of possible models that may be applied and the fact that the draft Policy criteria were not developed to predict site-specific flow needs accurately for every site, what matters the most is whether the selected relationship appears to be reasonably protective in the absence of site specific data. Different models will result in different predictions, but given the boundary condition of needing to protect anadromous salmonids and their habitat using a regional criterion, the bottom line is that the resulting flow magnitude will still plot high on the normalized habitat flow-drainage area scatter plot regardless of the exact statistical method used.

**Comment 4.3.31:** In the Scientific Basis, statistics are not presented to allow the evaluation of the goodness-of-fit and statistical significance of the regression (e.g., coefficients of determination, standard errors of estimated slope and intercept, F ratio statistic or level of significance [P value]) for the fitted regression equation that determines MBF3 for basin drainage areas less than 295 square miles, or for basin areas of any size that are above the limits of anadromy. Given the observable large variability present in the data, particularly for drainage areas larger than 10 square miles, the above-mentioned statistics are necessary to evaluate how much of the data variability was addressed by the fitted linear model, and whether a linear relationship with drainage area is statistically meaningful. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** It is not the intent of the regression to predict spawning flows accurately at every



site, rather to help define an upper bound. The F-test and coefficient p-values ( $\ll 0.001$ ) for the regressions indicated valid regressions in the statistical sense. Drainage area is a common predictor parameter used in geomorphology, hydraulic and hydrologic engineering, and fisheries for large scale applications. See response 6.2.1 to peer reviewer Dr. R. Woodward comment and the issue of biological significance. See also response to 4.3.19 and response to 4.3.37.

**Comment 4.3.32:** Reasons for the use of an enveloping-curve approach to set minimum bypass flows as part of a regional policy need to be further provided. Three potential enveloping-curve approaches are presented in Appendix D (pg. D-39) of the Scientific Basis: (1) the regression quantile approach used by Terrell et al. (1996) and developed by Koenker and D'Orey (1987); (2) the upper bound of a 95% linear regression predictive interval (Neter et al. 1983); and (3) the method that was applied in the calculations of both MBF3 and MBF4 that was described as "...generating regression-derived curves, then adjusting the intercept estimate upwards by three standard deviations". Reasons for the preference of method (3) to calculate MBF3 and MBF4 over method (1) or (2) are not found in either Appendix D or E of the Scientific Basis. The selected method (3) appears to ignore the fact that in most regression analyses, the estimated slope and intercept are correlated. The adjustment of only the intercept, but not the slope, is questionable because both slope and intercept estimates were derived from the same data set. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** See response to 4.3.30 regarding problem of identifying a "best" model and response 6.2.1 to comment by peer reviewer Dr. R. Woodward.

**Comment 4.3.33:** Appendix H of the Scientific Basis describes the methodology used to establish the limiting optimum spawning flow for a validation site. Some of the methodological steps are unclear, and additional clarification should be provided in the Scientific Basis. (A) For example, the dataset used in the regression to estimate MBF3 does not appear to be consistent with the methodology: (1) Carneros Creek and Pine Gulch Creek had two spawning transects but only one QMBF value was reported in the data; (2) In the Dry Creek Tributary, only one spawning transect was sampled, but the data subset provided by the State Water Board contained in the Excel file "Qopt-Qaa.xls" appears to contain two Qmbf values for this stream; (3) Figure E-8 in Appendix E of the Scientific Basis indicates 21 data points from the validation sites were used in the regression, even though only 12 should have been used, as indicated by the methodology; and (4) Nine of the 21 data points used were higher than those which should have been used, as indicated by the methodology. (B) In a different example, examination of the unimpaired flow data provided by the State Water Board for Dunn Creek and Carneros Creek indicate some methodologic inconsistencies: Information in Appendix H indicates the maximum spawning habitat availability in Dunn Creek would be provided by spawning transect 1, which is consistent with Appendix I; however, maximum spawning habitat availability in Carneros Creek would be provided by spawning transect 2, which does not appear to be consistent with Appendix I. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** See response to 4.3.25.

**Comment 4.3.34:** The methodology described in the Scientific Basis does not support application of MBF3 to drainage areas less than 1.19 square miles. The Scientific Basis states

the smallest drainage area sampled among the Validation Sites was 0.25 square miles (East Fork Russian River Tributary). However, no spawning habitat transects were available in the East Fork Russian River Tributary validation site. The next smallest validation site containing spawning habitat transects in the data base was for a drainage area of 1.19 square miles (Dry Creek Tributary). The MBF3 regression equation is applied to drainage areas smaller than those sampled, where it is unknown if the linear model of a decreasing relationship between the MBF3 and drainage area applies. The danger of predicting beyond the range of the data used in the regression analysis was clearly stated in Appendix E (pg. E-18) "...the confidence in regression-based predictions decreases when the relation is used to predict new observations using independent variable data that fall outside the range of the original data set". However, the Policy applies the MBF3 equation to basins with drainage areas that are considerably smaller than 1.19 sq. miles, for which it is uncertain whether the linear regression from which the MBF3 equation was derived is valid. First, the slope and intercept values are only potentially appropriate estimates given the variability present in the sampled data for drainage areas ranging between 1.19 sq. miles and 327 sq. miles (the range of drainage areas sampled). Second, the assumptions of normally distributed error terms and of constant variance for the regression line are only valid within the range of sampled data. Third, the assumption of the linearity of the regression function only applies within the range of sampled data. Outside the range of the original dataset, there is no statistical evidence or other reasoning provided to support the assumption that the linear model is valid. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** See response to 4.3.21.

**Comment 4.3.35:** The Protectiveness Analysis contained in Appendix I of the Scientific Basis does not support the application of MBF3 requirements to watersheds less than 1.19 square miles. The Protectiveness Analysis used the criterion that a minimum of 5 days are necessary for spawning. The Scientific Basis (pg. G-26) states "...it was assumed that a minimum of five days are needed for spawning in both large and small streams." Only one validation site was used where the drainage area was less than 1 square mile (East Fork Russian River Tributary = 0.25 square mile). Examination of the Protectiveness Analysis results (Appendix I) shows that under unimpaired conditions, no spawning habitat is available for any of the indicator fish species at this site. Less than an average of five days of spawning are provided at the validation sites associated with drainage areas of 1.19 square mile (Dry Creek Tributary) and 1.88 square mile (Dunn Creek). Under unimpaired flow conditions, a maximum of 5 days of spawning for any water year included in the analysis occurs at the 1.19 square mile validation site for steelhead and Coho salmon, and no spawning habitat occurs for Chinook salmon. At the 1.88 square mile validation site under unimpaired conditions, the maximum number of spawning days is 6 for steelhead and Coho salmon, and 2 for Chinook salmon for any water year included in the analysis. Therefore, results of the Protectiveness Analysis indicate that the Policy may not be applicable to streams within the region characterized by drainage areas less than 1.19 square miles, particularly in consideration of consecutive days required for spawning, rather than the total number of days (not necessarily consecutive). See also the associated comment that states the spawning opportunity evaluation in the protectiveness analysis does not support application of the policy to streams in small drainage areas. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** See response to 4.3.11.

**Comment 4.3.36:** In the Scientific Basis Report, the 21 validation data points represent values for transects at 12 sampled streams (e.g., the East Fork Russian River Tributary was not used in the analysis) based on one to two transects per stream. The number of water years analyzed to obtain the Qm of those 12 streams varied from 2 at the Dry Creek Tributary, to 37 at Lagunitas Creek. However, it cannot be determined whether the 51 data points from the Swift (1976) study represent QMBF results for individual transects or entire streams, or the number of water years used to determine Qm. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** The Swift (1976) data for steelhead reflect 4 transects per site. The number of water years evaluated varied with period of record; the discharges were as reported in Table 11 of Swift (1979).

**Comment 4.3.37:** The Scientific Basis Report pools data from Swift (1976) with data from validation sites to calculate the minimum bypass flow MBF3. A statistical analysis called the F-ratio test shows that statistically the two data sets are significantly different. Therefore the regression analysis performed in Appendix E of the Scientific Basis was inappropriate because it pooled together significantly different data sets. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** This is a case of competing models where one model extrapolates across two datasets and the other does not. HDR Inc. suggests that the validation site data follow a different trend line than the Swift data, and that therefore it was inappropriate to pool the data. However, in recommending specification of two regression equations, HDR Inc. is effectively extrapolating each relation to the domain of the other, and assuming based on the extrapolation that each line will not fall within the majority of the respective relations' data points. HDR Inc. has no information to indicate that each data set if extended would not overlap over the entire range of drainage areas. This competing extrapolation-based hypothesis therefore is itself essentially subject to the same criticism.

It should be noted that where the two data sets overlap, their vertical axis scatter are comparable. In addition, the upper envelopes generally overlap. Thus, it is also possible that if the Swift data set had included a sufficient number of basins with smaller drainage areas, and validation sites had been selected with larger drainage areas, that the two datasets would overlap. As depicted in various graphs in Appendix E of the draft Task 3 report, available data from other systems suggest that they would. There is insufficient information available to fully evaluate the null hypothesis that the two datasets belong to different distributions. Therefore, in the interest of maximizing available data for developing a screening level tool that Staff can use on a regional basis in the absence of site specific data it appears reasonable to combine both data sets to develop a regional envelope relation.

However, the comment does raise the issue of the consistency of using different

minimum depth criteria for spawning steelhead in developing the MBF3 regression, where the criterion applied to the validation sites was 0.8 ft and the value applied by Swift (1976) was 0.7 ft. The potential problem of consistency was identified in section E.3.2 of Appendix E of the Task 3 report. However, the primary reasons for using a 0.8 ft criterion in the overall regression were that it was conservative in the face of uncertainty, and that it may not be unreasonable to combine the two datasets given their similar data point scatter characteristics over smaller and larger drainage areas. After the publication of the draft Task 3 report, a sensitivity study (Stetson and R2, 2009) was conducted to evaluate the relative effects of different minimum bypass flow alternatives on passage and spawning habitat availability in the validation sites. The sensitivity study indicated that the minimum depth criterion could be reduced to 0.7 ft for the validation site data, and combined with the Swift (1976) data to develop a regional regression criterion that resulted in comparable habitat effects when the intercept estimate is adjusted upwards by three standard errors. Because this regression equation also allowed a slight increase in diversion to occur, there was no reason for remaining with the 0.8 ft depth criterion-based MBF3 regression equation.

Based on this, Staff's technical experts now recommend that the final MBF equation applied in the Policy reflect the optimal habitat flows in the validation sites as determined using a 0.7 ft minimum spawning depth for steelhead. The resulting recommended MBF equation as presented in the sensitivity study is:

$$Q_{MBF} = 8.8 Q_m DA^{-0.47}$$

**Comment 4.3.38:** The Scientific Basis adopts a linear model relating log<sub>10</sub> (Q<sub>mbf</sub>/Q<sub>m</sub>) as a function of log<sub>10</sub> (DA) for the development of MBF3. This probably was not the best model choice if the purpose was to develop a linear regression that explains as much of the variability present in log<sub>10</sub> Q<sub>mbf</sub> as a function of the available variables, log<sub>10</sub> Q<sub>m</sub> and log<sub>10</sub> (DA). In other words, the use of Q<sub>m</sub> to redefine the ratio log<sub>10</sub> (Q<sub>MBF</sub>/Q<sub>m</sub>) was inappropriate for two reasons: (1) Q<sub>m</sub> itself actually explains most of the variation in the response variable Q<sub>mbf</sub> (2) The selected model implicitly assumes a multiple regression model where the regression coefficient associated with log<sub>10</sub> Q<sub>m</sub> is 1.0. This assumption regarding the regression coefficient is not statistically supported. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** See response to 4.3.30.

**Comment 4.3.39:** The Scientific Basis does not seem to incorporate the consideration of consecutive days required for spawning. Five technical references provide evidence that steelhead spawning opportunity consists of flows that provide adequate habitat conditions over a period of 3 to 5 consecutive days. Using habitat time series data for the validation site streams provided by the State Water Board and the information presented in Appendix I, an analysis was conducted to investigate the number of time that flows in the smaller validation site streams provided aquatic habitat conditions that would constitute steelhead spawning opportunity. This analysis of Dunn Creek, Carneros Creek, and Dry Creek indicates that streams located in drainage areas of between 1.88 to 2.75 square miles appear to provide no, or very limited steelhead spawning opportunities. This evaluation indicates that application of

the policy to streams in small drainage areas is not supported. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** The number of days taken by an individual fish to spawn is variable, and depends on flow availability. Therefore, no criterion could be developed that required a minimum of  $n$  days of spawning where  $n > 1$ . In streams where spawning habitat is available for only 1 day, fish manage to spawn and the success of spawning is controlled by the hydrograph. The habitat effect analysis counted such days as providing spawning opportunities. In streams with consecutive days of flows providing spawning habitat, each day was counted as an opportunity to provide a first order assessment of habitat availability. Performing an analysis of the effects of a variable number of consecutive days of spawning habitat availability would be extremely difficult because it would require parameterization of a highly variable and uncertain quantity.

**Comment 4.3.40:** In addition to considering the consecutiveness of spawning days, the Scientific Basis should provide a more robust presentation of results regarding the potential effects of flow variability on embryo incubation in these smaller streams. Fish Bulletin 179, Contributions to the Biology of Central Valley Salmonids (State of California et al. 2001), reports that in California, peak steelhead spawning occurs from December through April in small streams and tributaries with cool, well-oxygenated water. The length of time it takes for eggs to hatch depends mostly on water temperature. Steelhead eggs hatch in about 30 days at 51 °F (Leitritz and Lewis 1980). Fry usually emerge from the gravel four to six weeks after hatching, but factors such as redd depth, gravel size, siltation, and temperature can speed or retard this time (Shapovalov and Taft, 1954). If steelhead did spawn during the 1-day or 2-day events that were identified in the Scientific Basis, it is uncertain whether stream conditions during subsequent days or weeks provided adequate flows to support steelhead embryo incubation. For example, at spawning Site sp-1 in Carneros Creek, the habitat time series data identified a 2-day spawning opportunity on December 1-2, 2001, when flows were 73.4 cfs and 36 cfs, respectively. Over the next 11 days, flows in Carneros Creek steadily decreased to 2 cfs (December 13, 2001). However, in the habitat time series data and in Appendix I of the Scientific Basis, results of the incubation analysis are not presented. Review of the time series data indicates that flows in Carneros Creek exhibit sharp declines during the weeks following peak storm events that also correspond to individual spawning days counted in Appendix I of the Scientific Basis. While juvenile fish and newly-emerged fry may be able to move into more suitable habitats if flows begin to decline rapidly, incubating embryos cannot do so and, thus, are subject to increased stress and possible mortality. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** The habitat effects analysis considered consecutive days of redd wetting. If water depth fell below 0.1 ft on any day, the day of spawning was not counted as being available. The incubation duration criteria were varied depending on broad temporal levels, at a level suitable for regional application. There was no attempt to accurately predict incubation duration in a specific stream.

To develop an accurate site specific prediction tool based on subsampling and extrapolation (e.g., as done in the Snake River Basin Adjudication Idaho, where around 200 streams were sampled to represent 1000 streams) would require years of data collection and analysis and cost more than is available through AB 2121. The regional protective criteria developed for the Draft Policy should not be considered to have site specific accuracy, and are not intended to be used to predict the site specific needs accurately for every stream. To be regionally

protective, the regional criteria are designed to limit water diversions so that adequate flows are available for spawning and passage at sites with the most restrictive instream flow needs. Only site specific study can determine where on the protectiveness spectrum a given site lies, as described in section D.5 of Appendix D of the Scientific Basis Report (R2, 2008). The Draft Policy allows for site specific studies.

**Comment 4.3.41:** The establishment of biological criteria and other Policy-related elements used in the development of the minimum bypass flows and the maximum cumulative diversion elements employed a "risk-averse" approach. This approach may result in a high level of protection, but it is based on hydrologic standards, the "protectiveness" of which was not comprehensively assessed as a whole, and which could be considered overly restrictive for many streams within the regional area. For instance, the Scientific Basis employed a "risk-averse" approach regarding passage depth criteria, spawning depth and velocity criteria, passage transect placements, spawning transect placements, and spawning habitat assumptions. In addition, the Scientific Basis was not clear regarding why maximum spawning flows are necessary to be protective. An alternative minimum bypass flow (MBF4) may indeed be protective. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** The regional protective criteria developed for the Draft Policy should not be considered to have site specific accuracy, and are not intended to be used to predict the site specific needs accurately for every stream. The regional criteria must of necessity be designed to protect all streams in the absence of site specific data, and thus may just protect some streams and may over-protect others. Only site specific study can determine where on the protectiveness spectrum a given site lies, as described in section D.5 of Appendix D of the Task 3 report. Because of the various levels of uncertainty indicated, the Draft Policy proposes regional criteria that are of necessity conservative following adaptive management principles and the precautionary principle which requires the protection against potential harm to the environment, in the absence of a scientific consensus that harm would not ensue. If the regional criteria are in error and are too high, then the steelhead, Chinook and coho fisheries will be protected and have a chance to recover. If the regional criteria are in error and too low, then the fish populations may go extinct and never have the chance to recover. Section D.1 of Appendix D of the Task 3 report discusses the burden of proof and consequences. MBF4 may be protective in some streams, but it was not found to be protective at a regional level.

**Comment 4.3.42:** Under the Draft Policy, diverters would be required to maintain prescribed streamflows for anadromous fish passage even within stream reaches physically unreachable by anadromous fish. In excluding reaches above natural barriers from the passage bypass flow requirement, the Draft Policy tacitly concedes that passage flows are pointless where anadromous fish cannot use them. Nevertheless, it would require such flows above man-made physical barriers, even though the bypassed flow would provide no fishery benefit. Many such artificial fish passage barriers exist, principally at road and highway culverts with precipitous slopes and outlet drops that prevent fish from ascending the stream, and at existing dams for which fish ladders were not required when the dam was constructed. The only man-made barriers to fish passage that would excuse upstream bypass flows under the Draft Policy would be dams for reservoirs used for municipal purposes (SED, p. 23) or barriers that could not possibly ever be removed. (SED, p. 13.) (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Chapter 1 of the Task 3 report explains the need for protecting flows in streams formerly supporting juvenile steelhead, including upstream of artificial barriers, and in ephemeral streams. Staff note that studies have shown the importance of headwater streams, even those that are fishless, to the ecology and productivity of downstream areas that are occupied by fish (See Naiman, R.J. and J.J. Latterell. 2005, Principles for linking fish habitat to fisheries management and conservation. Journal of Fish Biology, 67 (Supplement B), 166-186.).

**Comment 4.3.43:** DFG recommends that the minimum bypass flow formula be revised to account for Chinook salmon spawning criteria of 1.0 foot depth. (*Donald Koch, State of California Department of Fish and Game*)

**Response:** This criterion was assessed in the sensitivity study (Stetson and R2, 2009). A minimum bypass flow formula based on the Chinook salmon spawning criteria of 1.0 foot depth was determined to preserve natural flow conditions most of the time and allow very little diversion. As such, it appears overly-protective in the context of AB 2121 because it requires more water in streams that are not Chinook critical habitat. For the MBF criteria in the Draft Policy, flows that protect steelhead spawning habitat were based in part on validation site transects placed over intermediate depth portions of spawning habitat units and thus should also provide for Chinook spawning habitat in deeper portions of the channel.

**Comment 4.3.44:** DFG recommends that the minimum bypass flow formula be revised to account for the minimum upstream passage criteria of 1.0 foot depth for adult anadromous salmonids contained in the DFG Culvert Criteria for Fish Passage (DFG 2002).. (*Donald Koch, State of California Department of Fish and Game*)

**Response:** This criterion was assessed in the sensitivity study. A minimum bypass flow formula based on the minimum upstream passage criteria of 1.0 foot depth for adult anadromous salmonids was determined to preserve natural flow conditions most of the time and allow very little diversion. As such, it appears overly-protective in the context of AB 2121. Figure E-12 of the Task 3 report suggests that the MBF criterion of the draft Policy is protective of Chinook passage in the larger streams where they typically occur. The 1 ft criterion appears overly-protective for steelhead in smaller streams. The objective of the Draft Policy is not necessarily to recommend the most protective option, but the option that results in sufficient protection. Any option that is more protective than necessary would reduce water availability to other uses.

**Comment 4.3.45:** DFG recommends that the minimum bypass flow needs for aquatic resources upstream of an upper limit of anadromy be correctly evaluated, not scaled above the upper limit of anadromy by drainage area. The State Water Board should either (1) provide a discussion that supports the assumption that the relationship between minimum bypass flow and mean annual flow is a constant at, and above, an upper limit of anadromy; (2) study and develop specific minimum bypass flow requirements for aquatic resources upstream of an upper limit of anadromy; or (3) remove them from the regional criteria relationship and require a minimum bypass flow assessment on a case-by-case basis. (*Donald Koch, State of California Department of Fish and Game*)

**Response:** Comment and recommendation noted. (1) As discussed in section E.3.2.1 in Appendix E of the Task 3 report, the assumption that changes in mean annual flow and MBF in small basins occur in proportion to drainage area appears reasonable based on available data. (2) This type of study would require more resources than available under AB 2121; if DFG has

conducted such studies, that information could be useful instead. (3) Because of the characteristics of flow accretion, requiring a flow to provide habitat in channels above the limit of anadromy will generally result in more flow than is needed at the upstream limit of anadromy.

**Comment 4.3.46:** DFG recommends the regional criteria for the minimum bypass flow consist of three equations rather than two, to provide salmonid spawning and passage protection in smaller watersheds. They recommended for watersheds with drainage areas less than or equal to 20 square miles that the policy use equation E.1 from Appendix E of the Task 3 Report, which uses a minimum passage depth criteria of 1.0 foot. The other two equations would remain the same; however, the middle equation would apply to drainage areas between 20 and 295 square miles rather than the draft policy's proposed criteria which applies to drainage areas between 0 and 295 square miles. (*Donald Koch, State of California Department of Fish and Game*)

**Response:** This combination was assessed in the sensitivity study. The suggested minimum bypass flow formula was determined to preserve natural flow conditions most of the time and allow very little diversion. As such, it appears overly-protective in the context of AB 2121, particularly because it imposes Chinook passage requirements on smaller streams where they usually do not occur and does not result in substantial differences in level of protection of spawning habitat for steelhead and coho salmon, whose historic distributions were more ubiquitous in the Policy area.

**Comment 4.3.47:** DFG generally agrees with the premise that within the policy area where anadromous salmonids are, or have historically been present, the protective flows to support anadromous salmonids will also be protective of other smaller native species. However, in systems supporting larger native fish this may not be the case. DFG recommends that the Policy address this issue by clarifying that if a watershed supports native fish larger than salmonids, then adjustments to the MBF will be required based on consultation with DFG. (*Donald Koch, State of California Department of Fish and Game*)

**Response:** Comment and recommendation noted.

**Comment 4.3.48:** Section 2.3 of the Task 3 Report assumes that "flows that meet spawning habitat criteria will also provide sufficient water to protect juvenile rearing habitats (p. 2.5)." This assumption ignores the needs of over wintering juveniles for off-channel habitat with lower velocities, food availability, and hiding cover. Regional Board staff concur with the concerns expressed by Dr. Margaret Lang in her peer review comments regarding the flow needs of salmonids. An adequate assessment of winter flow requirements for salmonids should include an analysis of the amount of water necessary to provide such off-channel habitat. Where the analytical methods are insufficient to assess the effects of flow on winter rearing habitat, the Policy should include mitigations sufficient to protect against potentially significant impacts related to the uncertainty. (*Catherine Kuhlman, State of California Regional Water Quality Control Board, North Coast Region*)

**Response:** See responses 4.1.2 to peer reviewer Dr. Lang and 5.2.3 to peer reviewer Dr. T. McMahon.

**Comment 4.3.49:** The allowable diversion becomes greater for the Policy and the Lower MBF method compared to the February Median Flow method only when the Drainage Area is quite large, say 10 square miles or more. As the Drainage Area decreases, there is an increasingly



declining percentage of allowable water diversion and storage, and this is clearly reflected in the number of days one would be allowed to divert. In other words, the smaller the watershed is, the fewer permissible days there are in which one may divert water. The MBF is too restrictive in smaller watersheds, as I demonstrate below. These calculations use the revised formula  $Q_{mbf} = 9.4 Q_m (DA)^{-0.48}$ . (*Rudolph Light*)

**Response:** See response to 1.14.1.

**Comment 4.3.50:** The Commenter provided an analysis in which he concludes that the assertion that implementing the Draft Guidelines would restrict water diversion when compared to the Draft Policy is proved wrong. The Commenter states that (1) the Drainage Area must be around 20 square miles or more before there is greater allowable storage under the Draft Policy than under the Draft Guidelines, (2) very few ponds are constructed in watersheds approaching 10 square miles, let alone 20 square miles, (3) the majority of ponds are in watersheds of under one square mile, and many are in watersheds of half that size or less, and (4) under the Draft Policy there won't be any allowable diversion in these drainage areas. The Commenter further states that these small watersheds do not in general support rearing habitat simply because they are too small and there is little if any summer or fall water present. Coho salmon must spend their first year in fresh water and streams in these tiny watersheds invariably dry up or the pools are too warm for coho survival unless they are close to the Pacific Ocean. Chinook salmon and most steelhead trout migrate downstream their first season within 4 to 12 weeks of hatching. Some steelhead will remain in their natal streams for one or two seasons if the water is available and if the temperature and oxygen levels are tolerable. The water that would be diverted in the winter for summer agricultural or wildlife use will instead have to go downstream in the winter and spring. The cities will benefit, and wildlife habitat will be harmed. (*Rudolph Light*)

**Response:** The MBF regional criteria are based on data for streams that appear to be representative of streams larger than 1 sq.mi. The Scientific Basis Report (R2, 2008) demonstrates that the data used to develop and evaluate the draft Policy MBF regional equation reflect habitat-flow needs that have the same general data scatter across regions, reflecting fundamental, first order relationships between flows and fluvial geomorphology and fish habitat. After considering the collective peer review and public comments, Staff's experts' concluded that an MBF criterion for streams drainage less than 1 sq.mi. set equal to the criterion at 1 sq.mi. appears reasonable from a protectiveness standpoint. Following the companion recommendation to base the MBF regression on a 0.7 ft depth criterion, this equates to nearly nine times the mean annual flow, and it is likely that spawning habitat will be found at such flow levels in channel segments with residual depth (i.e., non-zero depth at zero flow). The extrapolated MBF becomes increasingly greater with decreasing drainage area. Chapter 1 of the Task 3 report explains the need for protecting flows in streams formerly supporting juvenile steelhead, including upstream of artificial barriers, and in ephemeral streams.

The regional criteria are provided for use when site specific data are not available. The Scientific Basis Report, Appendix E (R2, 2007) describes how the percentage of instream flow needed for fish increases with decreasing drainage area. This discussion was reflected in the formulation of the regional minimum bypass flow equation as a function of drainage area. However, if site specific data are available, the Draft Policy allows water right applicants the option of performing a site-specific study to more accurately determine the fishery resource instream flow needs for a particular location.

**Comment 4.3.51:** Draft Policy, Page 4, section 2.3.2 Minimum Bypass Flow - the minimum flow criteria equations exactly duplicate Appendix 1, so the appendix can be removed. I believe that a brief statement should be included explaining the equations and the basis for coefficient 9.4 and exponent -0.48. (*Elliott Matchett*)

**Response:** Comment noted. Appendix 1 was intended to be able to stand on its own as an independent document from the policy. Section 2.3 of the Draft Policy contains a reference to the technical reports that provide the Scientific Basis for the regionally protective criteria.

**Comment 4.3.52:** The substantial changes to the minimum bypass flow in the Errata Memo dated March 14, 2008 put the basis for the Policy and Technical Evaluations in question. The premise for this change is not clear. The change in the minimum bypass flow effectively increases the limitations of the policy, but the effect of these changes to the examples presented at the February 6, 2008 State Water Board staff workshop were not provided. (*Don Neubacher, US National Park Service, Point Reyes National Seashore*)

**Response:** See response to 4.3.30. In addition, staff will consider revising the examples presented at the February 6, 2008 workshop.

**Comment 4.3.53:** The Principal Investigators for the test project at 12 pilot watersheds did not contact the National Park Service to compare the proposed flow requirements with observed salmonid response and upstream migration flows in these watersheds. For Lagunitas Creek, the proposed minimum bypass flow is 124 cfs. State Water Board Decision 95-17 mandated releases of 25 cfs, which has shown fish access into spawning habitat. The existing DFG/NMFS policy requires a bypass of 83 cfs. In this example, the proposed policy is more protective than the DFG/NMFS guidelines, however, it does not actually increase salmonid access within the watershed. (*Don Neubacher, US National Park Service, Point Reyes National Seashore*)

**Response:** The Principal Investigators did contact National Park Service and received from them data for Olema Creek, Pine Gulch Creek and Redwood Creek. In addition to flow and peak flow data, each validation site had to be surveyed to obtain consistent transect data.

State Water Board Decision 95-17 mandated release of 25 cfs is a negotiated instream flow level which serves to balance instream flow needs of fish with other uses. As such it may have shown fish access into spawning habitat however it likely represents the lowest flow below which additional diversion would substantially reduce spawning habitat availability (similar to the other negotiated instream flows used in the MBF4 regression) as opposed to the lowest flow at which maximum spawning habitat availability occurred (data points used for MBF3 regression and Draft Policy regional MBF criterion).

Other comments have been received that indicated the flow-related criteria of the policy should not apply to streams that have prior Decisions or Orders regulating flow for wildlife protection. Staff will consider these comments when making revisions to the Policy.

**Comment 4.3.54:** The NCRCD supports the intent of the policy, but we are concerned that in its present form it may be counterproductive. Our comments are motivated by the preliminary results of a current NCRCD study, funded by the CALFED Bay-Delta Watershed Program and entitled Water for Fish and Farms. The validation site on Carneros Creek (coded CAS) is one where our agency has collected discharge information under a recent State grant and it happens also to be the approximate location of an existing point of diversion from the creek.

Using the values of mean annual unimpaired flow and watershed drainage area in Appendix F and the corrected formula in your March 14, 2008 memorandum, we calculate a minimum bypass flow at this location of approximately 22 cfs. The current bypass flow for this diverter (and generally for diverters in this reach of the creek) is 10 cfs, measured at a location considerably further downstream (site CAO). A flow of 22 cfs at site CAS would correspond to a considerably greater flow, perhaps 50 cfs, at downstream site CAO. On the basis of this example, we believe that the new MBF would, if applied to existing water rights in this reach of Carneros Creek, drastically affect the ability of water right holders to continue to obtain the water they use for agricultural benefits. In our opinion, this difficulty in obtaining water will encourage water right holders to alter their water diversion practices in ways which might well have serious negative consequences for the fish, in effect doing more harm than good. (*Clinton Pridmore, Napa County Resource Conservation District*)

**Response:** The Draft Policy applies to pending and new water right applications, and petitions involving reductions of stream flow. In general, existing permits and licenses would not be affected by the adopted policy.

**Comment 4.3.55:** In the Water for Fish and Farms study we [NCRCD] looked at fish passage in this reach. To examine upstream passage at three existing riffle transects in Carneros Creek, we compared the minimum passage criteria provided in Appendix G (at least 0.7 feet deep for 25% of the transect length with at least 10% being contiguous) with the MBF for each location. We found that all three cross sections were passable at a much lower flow of approximately 14 cfs than the proposed MBF of 22 cfs, indicating that the proposed MBF would be unnecessarily high for this stream. (*Clinton Pridmore, Napa County Resource Conservation District*)

**Response:** The regional protective criteria developed for the Draft Policy should not be considered to have site specific accuracy, and are not intended to be used to predict the site specific needs accurately for every stream. To be regionally protective, the regional criteria are designed to limit water diversions so that adequate flows are available for spawning and passage at sites with the most restrictive instream flow needs. At some sites, therefore, more than adequate flows will be provided by regionally protective criteria. Only site specific study can determine where on the protectiveness spectrum a given site lies, as described in section D.5 of Appendix D of the Task 3 report. The Draft Policy allows for site specific studies.

**Comment 4.3.56:** New flow policies should consider the fact that 'minimum flows' are no longer enough if we take into consideration pollution, climate change, and changes in upwelling in the Pacific Ocean. (*Matt Richardson*)

**Response:** The Draft Policy protects fish habitat by utilizing minimum bypass flow and maximum cumulative diversion provisions, establishing a winter diversion season and precluding new water diversions during the summer thereby protecting from additional reductions in summer flows, and providing onstream dam permitting requirements. Staff acknowledge that factors other than flow elements addressed in the Draft Policy can influence anadromous salmonid populations. However, the Draft Policy was not designed to provide a comprehensive evaluation of all such factors.

**Comment 4.3.57:** In the policy area the ground dries significantly during the hot summer months, and nearly all of the rain that falls in October and November gets absorbed, with little or no runoff. On the other hand, Washington appears to get enough summer rainfall, which, combined with dense vegetation and lower temperatures, may keep the ground saturated. If

this is the case, then the smaller streams in Washington may receive enough runoff to keep salmonid fry alive. In the policy area, most small, and many medium sized, creeks dry up entirely, or contain isolated holes, which are quickly cleaned of fry by herons and raccoons. Trapping water in storage ponds will have no effect on this problem, as the problem is the lack of runoff during the summer months. The bypass policy is aimed at preserving the spawning habitat, but will do nothing to increase the survival of Steelhead, Coho and Chinook, because these fry are destined to die when the creeks dry up in summer. A case may be made that storage ponds actually increase fry survival by capturing excess runoff and, through leakage, will help maintain ground water levels and delay the drying of the creeks. *(Alec Rorabaugh)*

**Response:** Comment noted. See response to 1.1.19 regarding importance of protecting ephemeral streams. Even in Washington, there are many streams that dry up lower down, but fry and juveniles survive the summer in isolated pools upstream of the intermittent segment, including in the case of alluvial fans.

**Comment 4.3.58:** Drop the policy's bypass requirement at ponds until its effectiveness is assured and measurable. *(Alec Rorabaugh)*

**Response:** See response to 4.1.9.

**Comment 4.3.59:** The proposed AB 2121 policy and more specifically, the policy's "Minimum Bypass Flow" criterion, effectively precludes water development in small drainages - drainage areas of one square mile or less - by restricting the "window of opportunity to divert water" to extremely wet but comparatively infrequent rainfall events. For example, in the case of a 0.156 square-mile drainage (i.e., 100 acres) and assuming a mean annual flow of 0.28 cubic feet per second, the resulting Minimum Bypass Flow (Qmbf), as computed by the AB 2121 Qmbf criterion, would be 6.4 cubic feet per second. In order to produce a mean daily flow of 6.4 cubic feet per second from a 100-acre drainage it would need to rain at least 1.53 inches during that 24-hour period, and more realistically, since only a fraction of the rain that falls on the ground becomes surface runoff, something on the order of 3.00 inches of rain in a 24-hour period. 24-hour rainfall events equaling or exceeding 3.00 inches are infrequent even by North Coast standards, and when they do occur they typically result in widespread flooding in low lying areas. Frankly, it is hard to imagine a situation where one could reasonably argue that all of the runoff occurring as a result of 24-hour storm event of this magnitude is needed to maintain salmonid fisheries in any drainage in the North Coast. (Other examples are included in Table 1 of Roland Sanford's comment letter.) *(Roland Sanford, Mendocino County Water Agency)*

**Response:** See response to 4.3.34.

**Comment 4.3.60:** We believe there are instances when the seasonal release of stored water can and should be used as mitigation, perhaps in conjunction with physical habitat alterations, to compensate for the implementation of a lesser minimum stream flow requirement - a minimum stream flow requirement that is less than would otherwise be required pursuant to the AB 2121 Policy. For example, the augmentation of stream flows in a Class I ephemeral stream during the spring, as mitigation for stream flow diversions during the winter. *(Roland Sanford, Mendocino County Water Agency)*

**Response:** Comment noted. Staff is considering revisions to the Draft Policy that would provide incentives for authorized diverters to modify diversions to enhance conditions for fish and wildlife.

**Comment 4.3.61:** The comment letter includes a table taken from a February 2008 Power Point presentation by the Division of Water Rights Technical Workshop in Santa Rosa depicting bypass flows in four watersheds; A Dry Creek Tributary (1.2 square miles), Huichica Creek (4.9 sq. mi.), Pine Gulch (7.8 sq. mi), and Franz Creek (15.7 sq. mi.) Upper MBF, Lower MBF, February Median, and 10% Exceedance are calculated for each of these four watersheds. Referencing the table, the commenter asserts that (1) for smaller watersheds, the calculated February median bypass flow requirement is smaller than that for the Lower MBF method; (2) the Lower MBF requirement is twice as restrictive as the February median flow method; (3) the Lower MBF method allows for more diversion in large watersheds, but not in small watersheds, which is where a lot of ponds in Mendocino County are located; (4) the number of days in each diversion season the minimum bypass flow is exceeded will be very small using the Lower MBF method. SWRCB staff should provide a calculation of the number of permissible diversion days in smaller watersheds for the MBF scenarios. *(Roland Sanford, Mendocino County Water Agency; Jim Wattenburger, Mendocino County Board of Supervisors)*

**Response:** Comment noted. See response to 4.3.21. In addition, Staff will consider revising the examples that were presented at the February 2008 workshop.

**Comment 4.3.62:** We understand, from both endangered species biologists and water availability consultants, that the scientific analysis in the Draft Policy supposedly supporting these greatly increased minimum bypass flows is scientifically suspect and unsupported. Since this new policy will greatly reduce the water available for diversion, it is essential that the State Board conduct appropriate studies and peer review to analyze appropriate minimum bypass flows. No policy should be adopted unless and until such studies and review are done. *(Paul "Skip" Spaulding, Farella Braun + Martel LLP/Golden Vineyards)*

**Response:** The comments received from the DFG and NMFS during the public comment period have not questioned the scientific basis behind the recommendations of the Draft Policy. In addition, external technical peer reviewers have indicated the scientific basis is sound.

**Comment 4.3.63:** A truly effective instream flows policy should also, at a minimum...consistent with the research of professionals such as Dr. Adina Merenlender, recognize that the actual, biological impact on fish and their habitat during peak flow seasons depends, to a large part, on the location of a given proposed point of diversion in the watershed, with diversions higher in the watershed above any realistic point of anadromy having substantially less overall impact and, thus, obviating the need for minimum bypass flow requirements for such diversions. *(Leonard Stein, Jackson Family Investments, LLC)*

**Response:** See response to 4.3.8 regarding the use of models such as that developed by Dr. Merenlender. In addition, while a single small diversion by itself may have negligible impact, the cumulative effects of many small diversions can be adverse, akin to "death by 1000 cuts". Providing an automatic minimum bypass exception to small projects overlooks cumulative effects potential.

**Comment 4.3.64:** Channel entrenchment of the main river channel is prevalent on the other alluvial reaches of the Russian River in the Alexander and Russian River valleys, and in the Napa River. This condition likely also affects the timing of connected stream flow in the fall/early winter period and thus the effectiveness of requiring bypass facilities on small

reservoirs and diversions in tributary watersheds. *(Beverly Wasson, California Land Stewardship Institute)*

**Response:** Comment noted. The meaning or relevance of this comment is not fully understood..

**Comment 4.3.65:** Given the actual conditions prevalent in the Russian and Napa River watersheds, it is questionable whether there will be any benefit to salmonids from bypass channels constructed on small reservoirs in tributary watersheds. The policy needs to incorporate actual conditions in these drainages, not assume a set of physical conditions. We would recommend that the requirement for constructed bypasses on all existing fill and spill reservoirs be revised to a requirement only when existing physical geologic, topographic and river channel conditions and operations demonstrate that a bypass will create flows for in-migration and spawning. There are many other types of improvements which can be done on creeks in these watersheds to benefit fish that will be precluded by a requirement for expensive bypass facilities. *(Beverly Wasson, California Land Stewardship Institute)*

**Response:** See response to 1.5.4 regarding the need to ensure sufficient flow downstream.

**Comment 4.3.66:** For the streams flowing from the mountains on the east and west sides of the Ukiah Valley, stream flows will infiltrate into the alluvium until the river flows come up from reservoir releases and/or rainfall. Bypassing flows around small reservoirs and diversions in tributary watersheds is not likely to create connected stream flow and allow in-migration of salmonids unless the river flows are also managed to for this purpose. Currently, the Coyote Dam is not managed for the benefit of salmonid migration or spawning but instead during the October-April period is managed as a flood control reservoir. During the 2007/2008 year it was not until January that connected stream flows occurred in most streams in the Ukiah Valley. This was largely due to the low level of Lake Mendocino following the dry 2006/2007 water year and management of the reservoir to impound all stream flows until the lake has refilled. This large reservoir is not subject to bypass requirements and is not managed for downstream fishery benefits, yet its operations has enormous effect on the flows in downstream tributary streams. Unless the operation of Coyote Dam is changed, imposing bypasses on small reservoirs and diversions will not likely create improved flow conditions for fish immigration and spawning. The policy needs to recognize this limitation on the Russian River and define variances to address different bypass conditions consistent with actual stream flow conditions in the river and its tributaries. *(Beverly Wasson, California Land Stewardship Institute)*

**Response:** Comment noted. The situation noted is best addressed through a site-specific study. Staff is considering providing additional details on the requirements of a site-specific study in the Policy.

**Comment 4.3.67:** The Minimum Bypass Flow (MBF) is an applicant's project killer because it is so restrictive, and allows little water to be diverted. The MBF is based on an equation that relates bypass flow to watershed area. As the watershed area gets smaller, there is a decreasing percentage of water available for storage. For example, in a 30 square mile watershed, one can divert water for approximately 50 days, but for a 1/2 square mile watershed, there may be no allowable storage at all during the winter because the bypass flow requirement can't be met (see table at the end of this document which is from the SWRCB Power Point Presentation). *(Roland Sanford, Mendocino County Water Agency; Jim Wattenburger, Mendocino County Board of Supervisors)*

**Response:** See response to 4.3.21.

#### **Topic 4.4 Regional Criteria - Maximum Cumulative Diversion**

**Comment 4.4.1:** Given that the minimum bypass flow provides for the conservation of flows for salmonid spawning and migrations, NMFS supports the draft policy's recommendation for a maximum cumulative diversion equal to 5 percent of the 1.5-year instantaneous peak flow. (*Dick Butler, US National Marine Fisheries Service*)

**Response:** Comment noted.

**Comment 4.4.2:** We support the use of 5% of the 1.5 year flood as an effective measure to maintain variability of discharge (*Alan Levine, Coastal Action Group*)

**Response:** Comment noted.

**Comment 4.4.3:** I run pumps for months on end during the winter to keep our Sonoma home above the rising torrents of our neighborhood creek. There is seldom, if ever, a shortage of winter flows in our creek. (*Robert Cohen*)

**Response:** Comment noted. The Draft Policy allows new diversions during the winter period (10/1 - 12/15) because it is the high flow period.

**Comment 4.4.4:** A shortcoming of the Draft Policy is that it does not recognize changes in stream channels and watershed hydrology due to land use nor the implications for salmonid suitability or surface water supply. (*Patrick Higgins, Consulting Fisheries Biologist/Sierra Club Redwood Chapter*)

**Response:** Regional changes in stream channels in response to land use in the Policy area tend to be manifest most prominently in terms of channel incision, loss of riparian vegetation, and increases in water temperature and fine sediments. Regional changes in watershed hydrology are reflected in lower base streamflows and modified peak flow hydrographs that affect fish habitat in a myriad ways. At the regional scale, the policy addresses these impacts through the use of MBF and MCD elements such that natural flow variability is preserved, and the diversion season so that water temperature is not additionally adversely affected. The importance of flow variability to channel form is discussed at length in Appendix D of the Task 3 report.

**Comment 4.4.5:** Peer reviewer Lang (2008) recommended against the use of a volume-based maximum cumulative diversion in the Policy: "The analysis by R2 Resources (2007) and Stetson Engineers, Inc (2007) clearly shows that maximum cumulative diversion limits set as volumes failed to meet the stated criteria of providing for channel maintenance flows. Stating the criteria as a volume would not meet objectives of the policy." Lang (2008) is joined by most other peer reviewers (Band, 2008; Gearheart, 2008; McMahon, 2008) in calling for additional data collection to better establish flow regime targets. (*Patrick Higgins, Consulting Fisheries Biologist/Sierra Club Redwood Chapter*)

**Response:** Comment noted. The Draft Policy does not propose a volume-based maximum cumulative diversion. Additional habitat-flow data could be useful; however, the Draft Policy allows for site-specific studies to refine the criteria that would be applied for any particular diversion in a watershed.

**Comment 4.4.6:** The fifth policy principle in Section 2.2 of the Draft Policy states "The cumulative effects of water diversions on instream flows needed for the protection of fish and their habitat shall be considered and minimized." The Policy does not properly deal with cumulative effects of diversions (Gearheart, 2008; Band, 2008) nor those associated with long term changes to streams and watershed hydrology due to land use that effect surface and ground water availability. Gearheart expressed the following concern: "It appears to me as one evaluates the cumulative effect of scalping 5% of the peak as the storm hydrograph precedes down stream the reduction in the total flow reduces and the delay time (1/2 day recession -flow restricted) increases." Band (2008) suggests that flow depletion below stream convergence points will magnify fluctuations. This in turn will cause depositions of fine sediment and other undesirable channel changes that could affect spawning salmon and steelhead downstream. *(Patrick Higgins, Consulting Fisheries Biologist/Sierra Club Redwood Chapter)*

**Response:** These concerns regarding the cumulative effects of diversions are addressed by the Policy's maximum cumulative diversion (MCD) restriction. The comment attributed to Dr. Gearhart would only apply if the MCD was based on the impaired 1.5 year peak flow. However, the Draft Policy's proposed MCD is 5% of the unimpaired 1.5-year peak flow. The comment attributed to Dr. Band would only apply if the MCD considered only the water applicant's diversion however the MCD limits the total diversions by all diverters upstream of a point of interest. Responses to all peer review comments are provided in a separate document.

**Comment 4.4.7:** The Policy applies a concept of channel forming flows improperly. The channel forming flow concept is not universally applicable. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** As discussed in section D.3 of Appendix D of the Task 3 report, channel forming flows represent a fundamental process affecting morphology and fish habitat in the Policy area and elsewhere. Also see Locke, A., and nine others. 2008. Integrated approaches to riverine resource stewardship: Case studies, science, law, people, and policy. Instream Flow Council, Cheyenne WY.

**Comment 4.4.8:** One of the reasons most pending projects would fail under the Draft Policy is the criterion proposed for the maximum cumulative diversion (MCD) rate restriction. The maximum cumulative diversion criteria was developed from a simplistic conceptual model that ignore geography and scale differences and includes an arbitrary 5% threshold without basis or sensitivity analysis. In addition, the maximum cumulative diversion requirement would not allow small reservoirs to be filled when flows are high, negating the very reason for storage. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** The development of the MCD criterion was based on a dimensionless analysis that inherently addresses scale effects, irrespective of geography. As discussed in Section D.3.1.1 of Appendix D of the Task 3 report, the range of flows defining a channel maintenance flow need is variable and reflects site specific conditions. In lieu of developing an accurate site specific prediction tool, which would require years of data collection and analysis and cost more than is available through AB 2121, it was necessary to develop a criterion based on fundamental principles. The regional protective criterion developed for the Draft Policy should



not be considered to have site specific accuracy, and is not intended to be used to predict the site specific needs accurately for every stream. Rather, the criterion is an approximation describing general channel processes, and for which, based on experience, was set at a value of 5% of the 1.5 year flood .

Staff notes that although projects with pending applications are subject to the Policy, the State Water Board will consider processing water right applications submitted prior to January 1, 2008 using the DFG-NMFS guidelines, which attempts to protect channel forming flows using a volume-based approach.

**Comment 4.4.9:** Channel width is not a simple function of flow. Knighton (1998), points out that in Williams and Wolman's (1984) comprehensive study titled "Downstream Effects of Dams on Alluvial Rivers" they found there was an increase in channel width below dams in 46 percent of the cases they studied. Williams and Wolman conjectured that could be the result of less sediment in the flow below the dam resulting in greater capacity to entrain sediment from the bed and banks. Even if channel width is decreased due to upstream impoundment of streamflow, that narrowed channel may result in increased depth of flow and thus greater passage and spawning opportunities (as noted on page 7-5 of the Scientific Basis). The Navarro Watershed Restoration Plan (1998) prepared by Entrix, Inc. and others found that streams are undergoing a slow process of narrowing as they recover from historical logging practices. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Comment noted. This is discussed in section D.3 of Appendix D of the Task 3 report. As Williams and Wolman noted, width decreased, increased, or remained the same depending on the site. The dams they reviewed were for silt and gravel bedded rivers in the Plains states and semiarid west, and were generally below large dams such as found on the Missouri River. The 46% statistic refers to the number of cross sections (105) surveyed below 21 dams, and not necessarily the 46% of dams implied in the comment. The Navarro example underlines the difficulty in separating out other factors that influence channel width. Hence the reliance of the MCD element criterion on the fundamental principle that for any given stream, a reduction in channel forming flow will generally result in a reduction channel size.

**Comment 4.4.10:** An evaluation of fill-and-spill operation was not conducted. Appendix J of the Scientific Basis includes some discussion of diversion to storage without a diversion rate limit, sometimes referred to as fill-and-spill operation. It notes that "diversion could result in a flat-lining of the hydrograph, whereby essentially the only flow allowed downstream would be the [bypass]. Predicting the physical effects of flat-lining of the peak hydrograph is difficult and generally not possible without doing a site-specific analysis of flows, sediment transport, and channel stability (page J-5)." It continued to say that "studies have not been conducted to determine the allowable frequency or duration of such flat-lining events before adverse effects at a regional scale." Indeed, the Scientific Basis did not analyze the possible impacts of fill-and-spill operation. While it may be elementary to say that hydrographs based on the 5 percent of 1.5-year flow rate restriction (MCD2) more closely resemble the unimpaired hydrograph than hydrographs based on fill-and-spill operation, that is not the same as identifying impacts attributable to fill-and-spill operation. That analysis was not done. Streamflows in the Policy area are naturally sporadic and flashy. Changing the occurrence of flow peaks due to fill-and-spill operation does not necessarily translate into reduced channel width or a reduction in suitable gravel substrate. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and*

*Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** As discussed on page J-5 of Appendix J of the Scientific Basis, predicting the effects on channel form caused by fill and spill reservoirs requires a site-specific analysis of flows, sediment transport, and channel stability. During the development of the Scientific Basis, there was insufficient site specific data available to evaluate the effect of fill and spill reservoirs on channel form at a regional scale. It was therefore necessary to rely on general fluvial geomorphic principles to develop a MCD criterion that would be assured to be protective of channel form throughout the policy area regardless of the type of reservoir operation.

There may be projects for which operation of a reservoir as a fill and spill might not result in more than a 5% change to the 1.5 year flood flow. If the project does not cause more than a 5% change to the 1.5 year flood flow, a maximum rate of diversion that controls inflow to the onstream reservoir would not be needed. The procedures outlined in Appendix 1 of the Draft Policy can be used to evaluate whether a maximum rate of diversion is required for an onstream dam. Staff is reevaluating how the Draft Policy addresses diversions that are located above anadromy.

In addition, section 4.1.8 of the Draft Policy allows the use of results of a site-specific study instead of the conservatively protective regional criteria to more accurately assess the fishery resource instream flow needs at a particular location.

**Comment 4.4.11:** A threshold of significance was not established. Even setting aside the above described problems and adopting the assumed simple relationship (shown in Appendix D, Figure D-4 of the Scientific Basis) where a change in flow translates directly into a change in desired channel morphological characteristics, there remains the failure of the Scientific Basis to identify a threshold of significance. The Scientific Basis admits ". . . there is no readily discernable flow reduction limit suggested for identifying a protective channel and riparian maintenance flow" (page 2-7). "[T]he level of change in channel morphological response that would adversely affect salmonid habitat and production potential could not be determined with certainty" (page xxv). Indeed, there was no attempt in the Scientific Basis to evaluate the level of morphological response that would represent the threshold between protectiveness and non-protectiveness. While the Scientific Basis was willing to state that a 5 percent reduction would be protective, there was no opinion ventured that 6 percent would be non-protective. Even if the arbitrary 5 percent impact was assumed to be the proper threshold for protectiveness (and the simplified relationships between flow and morphological characteristics shown in Figure D-4 were assumed to be applicable), it is still not clear the Policy made the proper conclusion for regional criteria. Note that, according to Figure D-4, a 5 percent reduction in flow is linked to a 2 percent reduction in channel morphological characteristics. If the intent is to limit physical impacts to 5 percent, then the simplistic model would call for a 12 percent limit on flow reduction, since that translates to a 5 percent reduction in stream morphological characteristics. Still, there is no reason to conclude that a 12 percent limit would be necessary or that a higher limit would result in loss of spawning habitat. As the Scientific Basis admits, because of the many factors affecting suitable stream morphology, it was not possible to identify a percentage change in flow that represents a threshold between protectiveness and nonprotectiveness. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** The fact that a threshold cannot be defined precisely does not mean that no threshold should be proposed. Staff require a value for processing water right applications. In

the absence of a clearly defined, regionally applicable threshold above which impacts to channel maintenance can be defined explicitly, one must be derived based on professional experience and judgment. The Policy allows the use of results of a site-specific study instead of the conservatively protective regional criteria to more accurately assess the fishery resource instream flow needs at a particular location (Policy, Section 4.1.8). In addition, effectiveness monitoring may be implemented as a means for revising the proposed threshold either up or down. Note also that (1) DFG considers this level acceptable only if it is associated with effectiveness monitoring (the implication being that without monitoring the level should be closer to the DFG-NMFS 2002 Draft Guidelines), and that any stream with this level of diversion be classified as a fully appropriated stream, and (2) see comment 1535 where the RWQCB North Coast Region recommends the DFG-NMFS 2002 draft guideline for MCD which is approximately equivalent to a 1% level. Thus the 5% level appears to be a reasonable compromise between opposing perspectives.

**Comment 4.4.12:** Channel maintenance flows may be justified in areas of anadromy to maintain channel width suitable for spawning and to maintain gravels without fine sediment suitable for redd construction. Flow recommendations to accomplish these objectives can conflict. High flows to eliminate encroaching vegetation will also scour out beneficial gravels. Moderate flows suitable for removing fines at one location will remove gravels at another location in the channel where velocities are greater. Because of the inherent conflict in prescribing a beneficial flow for channel maintenance, the Scientific Basis defaulted to the concept that natural flows are best and any deviation could be harmful, and thus must be disallowed. Appendix D of the Scientific Basis puts forth a simplistic view of sediment transport in streams and the Draft Policy builds upon this simplified conceptual model. However, this simplification is inadequate to the task. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Comment noted. See response to 4.4.7 and response to 4.4.8 regarding level of sophistication possible when developing a regionally protective criterion.

**Comment 4.4.13:** Flushing flow recommendations are complicated, site-specific and a compromise among objectives. The Scientific Basis for the Draft Policy basically rests on the idea that whatever flows occur naturally are, without question, somehow optimal for achieving suitable channel width and substrate. However, when the burden of analysis is not simply to say, "leave it essentially untouched" but rather to affirmatively propose beneficial flushing flows below an impoundment, the complexity is revealed. Reiser, Ramey and Wesche (1989), in "Flushing Flows" state "No standard method or approach has been developed for [determination of a flushing flow recommendation] and it is unlikely one will ever be developed. There are simply too many variables and interactive parameters to allow the formulation of a single method applicable for all stream systems for all purposes." Ligon, Dietrich and Trush (1995), in "Downstream Ecological Effects of Dams" state ". . . Derivation of a flow regime is essential, but we believe that it is unlikely that a general method can be found that is applicable to all or even most streams, because the necessary flow regime depends critically on the geomorphic conditions and processes of the river . . .". They also caution that "Fluvial geomorphology is not at the point where one can conceptually take apart a river and understand how all of its morphological and process variables interrelate and then put it all back together in a predictive model." Wilcock, Kondolf, Matthews and Barta (1996), in "Specification of sediment maintenance flows for a large gravel-bed river" state, ". . . a discharge cannot both minimize gravel transport and maximize sand transport . . ." and "[s]pecification of a flushing flow necessarily represents a compromise among gravel loss,

sand removal, and water volume." Flow rates that remove fine sediment from gravels will wash out gravels at another location in the stream. Bankfull flows that eliminate encroaching vegetation also deposit sands and gravels in new locations. The simplistic view that more flow is better and less flow is worse is not true. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Because the problem is complicated does not mean that an interim criterion should not be developed based on fundamental principles. In any such assessment, it is important at a minimum to get the first order magnitude of the required flow correct. The proposed MCD element is consistent with the weight of scientific evidence that a variable flow regime is necessary for proper channel function and form, and is a reasonable approximation of a protective diversion rate. Also see Locke, A., and nine others. 2008. Integrated approaches to riverine resource stewardship: Case studies, science, law, people, and policy. Instream flow Council, Cheyenne WY.

The commenter is noting there are many variables that affect flushing flows, and that authors have stated that it is impossible to develop standards for flushing flows. Besides the fact that the MCD element is intended to protect all channel functions, not just flushing flows which are mostly pertinent to below dams, the general concerns expressed by the commenter are examples of why a conservative MCD criterion is needed. Staff does not want to recommend a policy for which the adequacy of the protection of the species is questioned. DFG and the Regional Boards are concerned that the proposed MCD does not provide adequate protection of habitat, and would prefer staff utilize a MCD criterion closer to 1% of the unimpaired 1.5-year peak flow. In addition, DFG is asking that effectiveness monitoring be established to monitor the effectiveness of the Draft Policy's recommended MCD criteria. Staff understands that once a policy is adopted, it will be difficult to go back and revise the policy to make requirements more restrictive for diversion, and is choosing to recommend an MCD criteria that balances both the commenter's and aquatic resource protection concerns.

**Comment 4.4.14:** The simplistic approach used in Appendix D of the Scientific Basis is unsupported. In Appendix D of the Scientific Basis, the authors assert that stream width, depth and grain size can be determined as a simple function of discharge. However, the study upon which this claim is based, Parker, et al (2003), is inapplicable to onstream reservoirs. The article clarifies that "[i]t is assumed that diversion is accomplished by, e.g., a low sill, such that sediment supply to the reach immediately downstream of diversion is unaffected by water diversion. The case for which diversion is accomplished by, e.g., a high dam, for which some of the water and all of the sediment are prevented from reaching the reach immediately downstream, is not analyzed here." This draws into question the applicability of these equations for evaluation of onstream reservoirs. Note also that the streams studied in Parker et al (2003) averaged 18.3 meters, or 60 feet, in width. This is a far larger stream than those streams where most water right applications are pending. At least 90 percent of pending applications for onstream reservoirs are located on watersheds of less than 1 square mile. Studies of fluvial geomorphology have not been conducted in watersheds of that size. There is no reason to believe that the dynamic relationships of sediment transport studied in alluvial rivers would be found to behave similarly at a much smaller scale where the proposed projects are located. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** The qualifications indicated have merit. As recognized in the comment,

quantitative assessments of channel maintenance flow needs in headwater channels are not available to the level needed for defining the MCD criterion. However, the fact a threshold cannot be defined precisely does not mean that no threshold should be proposed. Staff require a value for processing water right applications. In the absence of a clearly defined, regionally applicable threshold above which impacts to channel maintenance can be defined explicitly, one must be derived based on professional experience and judgment. The Policy allows the use of results of a site-specific study instead of the conservatively protective regional criteria to more accurately assess the fishery resource instream flow needs at a particular location (Policy, Section 4.1.8). In addition, effectiveness monitoring may be implemented as a means for revising the proposed threshold either up or down.

Channel maintenance flows for steep headwater streams are not well quantified, but may be greater than for alluvial streams for which relationships are more explicit. In the absence of better information, the conservative approach is to recognize that channel maintenance flows in downstream reaches are affected by diversions in upstream reaches and that it is more protective at this stage to specify a flow rate that protects the lower reaches. Optional site specific studies could be performed to assess whether a higher diversion rate would be permissible, and/or adaptive management monitoring can be implemented to evaluate whether the proposed MCD2 element may be relaxed.

Existing site specific data are too limited to be able to evaluate more specifically how much flow is needed above the limit of anadromy on a regional basis. As discussed in section E.3.2.1 in Appendix E of the Scientific Basis (R2, 2009), at a minimum, the amount of flow arriving at the point of anadromy must be sufficient to protect flow within the range of anadromy. To ensure that this flow is not threatened by new water right applications, the Draft Policy uses a basic hydrologic mass balance concept in establishing instream flow needs in upstream basins at a regional scale as represented by equation E.9 and its subsequent algebraic manipulation. Only a site specific study can indicate whether additional water can be diverted upstream of the limit of anadromy without adversely affecting instream flow needs downstream. Staff note that studies have shown the importance of headwater streams, even those that are fishless, to the ecology and productivity of downstream areas that are occupied by fish (See Naiman, R.J. and J.J. Latterell. 2005, Principles for linking fish habitat to fisheries management and conservation. *Journal of Fish Biology*, 67 (Supplement B), 166-186.).

**Comment 4.4.15:** The channel forming flow concept is not universally applicable. The Draft Policy calls for use of the 1.5-year recurrence interval of peak annual flow for a measure of channel-forming flow. However, there is no single "channel-forming flow." Sediment is transported at all rates for which the velocity exceeds the threshold for entrainment of particles. Higher flow rates have a greater capacity to transport sediment and a capacity to move larger particles. Therefore, they may be particularly influential in adjusting the channel form. However, larger flows occur less frequently than smaller flows. Wolman and Miller (1960) introduced the idea that a medium magnitude flow rate moves the most sediment over the long-term. This has been termed the effective flow rate. Wolman and Miller (1960) also noted that the effective flow rate roughly corresponds to the bankfull flow. Many other papers have extended this concept, identified some of its limitations and argued whether the bankfull flow rate can be reliably estimated by the 1.5-year recurrence interval (Biedenharn et al., 2000). Nash (1994) concludes "it is misleading to speak of a universally or even widely applicable recurrence interval for effective discharge." Knighton (1998) points out that "it is bed load which is the most relevant from the standpoint of channel form adjustment, and [because greater velocities are required to move bed load] its effectiveness peak is displaced towards less frequent discharges." In summary: a) the channel form is not shaped by a single flow rate,

b) the flow rate that moves the most sediment in the long-term (the effective flow rate) is not necessarily responsible for the channel form, c) the effective flow rate does not necessarily correspond to the bankfull flow rate, and d) the bank full flow rate has a recurrence interval that varies far beyond the central tendency of 1.5 to 2 years. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** These issues are addressed at length in section D.3.1 of Appendix D of the Task 3 report. The proposed MCD reflects the various sources of uncertainty identified here, and was therefore based on data sets from numerous regions to define a general approximation of flows affecting channel form and habitat.

**Comment 4.4.16:** Further, the rough equivalence that has been discussed between effective discharge, bankfull flow, and the 1.5-year recurrence flow has not been established or even examined for ephemeral streams with steep slopes draining small watersheds, such as are subject to the Draft Policy. Trush (1991) distinguishes between "alluvial channels" and "boulder-bedrock" channels and notes "boulder-bedrock stream channels have a morphology substantially different than alluvial channels. Relatively little research has been focused on the description and dynamics of boulder-bedrock channel morphology." *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Comment noted. Note that the recurrence interval for channel forming and maintenance flows in streams with harder banks may be longer than for alluvial streams, and thus there is the risk that the draft Policy MCD rate may be too big for such channels. Nonetheless, boulder-bedrock streams are upstream of alluvial streams generally, and thus instream flow requirements in the upper sections will still need to meet downstream channel maintenance flow needs, which is ensured by applying the same criterion upstream. Allowing substantially greater diversion rates upstream will not guarantee delivery of sufficient flow downstream.

**Comment 4.4.17:** The Draft Policy is unclear about how the maximum cumulative diversion constraint (MCD2) should be applied to projects. First it states that the MCD2 constraint is an instantaneous rate constraint on diversion. Later it states that diversions need not be limited to that rate, instead the MCD2 constraint could be a test of comparison between that it allows no more diversion than the first definition of MCD2. As stated on page 5 of the Policy, "The maximum cumulative diversion is the largest value that the sum of the rates of diversion of all diversions upstream of a specific location in the watershed can be in order to maintain adequate peak stream flows. The maximum cumulative diversion criterion is equal to five percent of the 1.5-year instantaneous peak flow." This definition is repeated in the Policy Appendix in paragraphs A.5.2.3 and A.5.9. Then in paragraphs A.5.10 and A.5.11, the document appears to lift the maximum cumulative diversion rate constraint and replace it with a test of difference in estimated 1.5-year flow rates corresponding to unimpaired and with project conditions. It seems that 5 percent is the factor to multiply the estimated 1.5-year flow to arrive at a diversion rate constraint, unless your project is not suited for that, in which case, 5 percent is the allowable difference in two different estimates of 1.5-year flow rate (unimpaired vs. with-project). If this is correct, the Policy should state that somewhere before page A1-27. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** The commenter is correct in stating that "It seems that 5 percent is the factor to multiply the estimated 1.5-year flow to arrive at a diversion rate constraint, unless your project is not suited for that, in which case, 5 percent is the allowable difference in two different estimates of 1.5-year flow rate (unimpaired vs. with-project)."

The regional criteria for the maximum cumulative diversion (MCD) is an instantaneous rate constraint on the sum of the diversion rates within a watershed. As stated in Policy Section A.5.10, if the sum of the diversion rates is smaller than the MCD at every point of interest then there is enough water available for the water right applicant's project. However, if the sum of the diversion rates is larger than the MCD, a more detailed analysis that uses historical daily flow data is used to assess whether the proposed project would cause a reduction in instream flows needed for channel maintenance.

Staff will consider the suggestion to add language in the Policy to clarify the use of the MCD in the water availability analysis.

**Comment 4.4.18:** Because most tributary streams are located upstream of the point of anadromy, the Scientific Basis should include greater focus and additional discussion of the potential effects of "spill and fill" associated with upstream reservoir operations on downstream fisheries resources. High flow events could create temporary upstream passage opportunities if spill occurs, thereby allowing adult fish to move into ephemeral streams during adult immigration and holding, and spawning. Mortalities may occur if fish use these temporary habitats and are not able to voluntarily or non-volitionally exit these areas prior to when instream conditions become unsuitable, generally during low flow periods. Reservoir filling could temporarily result in reduced downstream flow volumes and velocities when the upstream reservoir is filling. Diverting from upstream tributaries during the October 1 - March 31 diversion season could result in the following: (1) Diversions during high flow periods may reduce the peak flows; (2) The reservoir filling period may extend slightly longer if upstream diversions are occurring concurrently; however, diversions and filling occur during the winter when there are generally higher flows in the channel and cooler water temperatures. Based on hydrologic flow regimes that occur during the winter months, coupled with cooler ambient air temperatures, it is unlikely that potential flow and water temperature changes occurring during the winter diversion season would result in direct impacts to fish downstream. Also, rather than constraining early season filling opportunities, it may be more biologically beneficial to allow upstream reservoirs to fill early in the diversion season, which could provide spill later in the season during periods when habitat could be more consistently sustained. More thorough analysis of the potential effects of "spill and fill" associated with upstream reservoir operations is needed to conclude that the practice is detrimental to instream resources during the October 1 - March 31 diversion season. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** See response to 4.4.20. In addition, staff is reevaluating how the Draft Policy addresses diversions located above anadromy.

**Comment 4.4.19:** Additional consideration should be given to the frequency and magnitude of specific flow considerations being realized, and the resultant level of protection. For example, the Policy includes a maximum cumulative diversion (MCD2) that is based upon percentage reduction of a specified flow recurrence interval (Q1.5). During wetter years, a specific flow recurrence interval could be realized in an individual watershed on numerous occasions. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter*

*Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Comment noted. Unless the statistic is the probable maximum flood, any statistic for a given recurrence interval will likely be exceeded in wetter years and potentially not be exceeded in drier years. The 1.5 year flood magnitude has been determined to be a reasonable surrogate for the integration over time of the effects of high flows on channel form.

**Comment 4.4.20:** Rather than constraining early season filling opportunities, it may be more biologically beneficial to allow upstream reservoirs to fill early in the diversion season, which could provide spill later in the season during periods when habitat could be more consistently sustained. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** The procedures outlined in Appendix 1 of the Draft Policy can be used to evaluate whether a maximum rate of diversion is required for an onstream dam, i.e., whether fill and spill operation affects instream flows needed for fish. A 1.5 year flood flow is calculated for two sets of stream flow data: (1) daily unimpaired flow; and (2) daily impaired flow, taking into account existing senior diversions and the proposed project. For this analysis, the onstream reservoir can be assumed to operate as a fill and spill without a maximum rate of diversion. If the difference between the value calculated in (1) and the value calculated in (2) is 5% or less, the proposed reservoir can be operated as a fill and spill, and the inflow to the reservoir would not need to be controlled by a maximum rate of diversion. The project would only require a minimum bypass flow. Sections A.5.2.3 and A.5.11.5 in Appendix 1 of the Draft Policy outline these procedures in more detail. Staff will consider clarifying this aspect earlier in the policy.

**Comment 4.4.21:** While the Policy recognizes and describes the maximum cumulative diversion criteria recommended in the Technical Report, it does not specifically require new applications in watersheds to conform to that criteria (see the discussion in Policy Appendix Section 5.11 regarding site specific studies). Allowing additional diversions in excess of the maximum cumulative diversion criteria without further analysis of long term impacts does not protect either variability of flows or the stream habitat required to support public trust resources. *(Donald Koch, State of California Department of Fish and Game)*

**Response:** The Policy requires the water right applicant to perform a water availability analysis to show that either the sum of the diversion rates, including the applicant's diversion rate, is smaller than the MCD at every point of interest; that the change in the impaired 1.5 year peak-flow from the unimpaired 1.5 year peak-flow is less than the 5% based on a daily flow study; or that there is no change in the impaired 1.5 year peak-flow with and without the project based on a daily flow study. If an applicant conducts site specific studies in support of a site specific MCD, they would still need to do a daily flow study to determine whether water is available for the project using the site specific MCD.

**Comment 4.4.22:** DFG cannot support allowing any diversions that exceed the cumulative diversion rate limitations recommended in the Task 3 Report until long term effectiveness monitoring provides support that there would be no significant impacts resulting from this higher recommended rate. DFG recommends that the Policy include an appropriate funding source to provide monitoring assurance that the higher maximum cumulative diversion rate proposed by the draft policy is protective. *(Donald Koch, State of California Department of Fish and Game)*



**Response:** The State Water Board currently does not have the funding or staffing to implement an effectiveness monitoring program.

**Comment 4.4.23:** DFG recommends that paragraph 1 of Policy section 2.3.4 be reworded to be consistent with their concern regarding preventing the continuing loss of instream values resulting from allowing incremental modifications to the protective recommendations in the Task 3 Report. They suggest that the first sentence of the paragraph be reworded to read "The cumulative effects of water diversions on instream flows needed for the protection of fishery resources shall also be addressed." (*Donald Koch, State of California Department of Fish and Game*)

**Response:** Comment noted.

**Comment 4.4.24:** RWQCB1 prefers the MCD1 alternative because the maximum cumulative diversion criteria proposed in the draft policy will not be fully protective of salmonids and water quality, and the criteria should include a factor of safety to account for uncertainty in analysis of cumulative impacts and estimation of the 1.5-yr peak return flow. (*Catherine Kuhlman, State of California Regional Water Quality Control Board, North Coast Region*)

**Response:** The 5% of 1.5 year flood MCD criterion reflects these uncertainties and is intended to be a conservative approximation of a protective diversion rate. Establishing full protection in this case may equate to over-protecting. All the type of safety factor implied in the comment achieves is to move the point of interest up the curve in Figure 2-1 of the Task 3 report toward the vertical axis. Thus the question becomes: is a roughly 0.4% reduction in channel size over the long term (result of MCD = 1% of 1.5 yr flood) protective and a 2% reduction in size (result of MCD = 5% of 1.5 yr flood) not? There is no clear answer to this, but in developing the draft Policy, the 2% reduction in size was judged to be minor in nature. Note also that other commenters believe the 5% criterion is too restrictive, thus it appears to represent a compromise level.

**Comment 4.4.25:** The Policy and many supporting documents and reports say they want to see a "natural hydrograph" be re-established or preserved. In most upper tributaries, i.e., the 1st and 2nd order streams of the Russian River, the hydrograph is pretty much natural. That's because most tributaries don't have dams on them. DFG and NMFS want to recreate natural hydrographs, but they already exist in lots of places. Yet, there are few fish in the Russian River system, and the mainstem Russian River will never again see a "natural hydrograph". The concept that restoring or preserving the natural hydrograph in smaller watersheds will increase salmonid numbers is insufficient to explain declining fish populations. For example, when you look at coho surveys in streams that flow directly into the Pacific Ocean, fish numbers are down but many of these streams are relatively unimpaired and still have relatively natural hydrographs. (*Rudolph Light*)

**Response:** Comment noted. See response to 1.11.3 regarding the other factors limiting populations. The Draft Policy protects against further habitat degradation caused by diversions. It has never been maintained that this alone will lead to complete recovery, however, recovery cannot occur without protecting instream habitat. Tributaries that do not have dams on them will continue to be protected, and those that already have water diversions will be protected to the extent possible.

**Comment 4.4.26:** Draft Policy, Page 5, section 2.3.3 Maximum Cumulative Diversion -

Citations and references should be provided for the statements in the third paragraph explaining bankfull flow and the 1.5 year return peak flow because these are important concepts to the policy criteria and should be based on research. (*Elliott Matchett*)

**Response:** A definition of the 1.5 year return peak flow is provided in Glossary of Terms, Appendix 2 of the Draft Policy. It also contains a definition of bankfull width, from which the definition of bankfull flow can be derived.

**Comment 4.4.27:** Limiting the maximum cumulative diversion will not remedy a narrow deep channel. The river needs to be slowed to encourage gravel deposits to raise the bed and to allow flooding. More water will not address this issue. (*Richard and Annette Rhodes, Rhodes Vineyards*)

**Response:** Comment noted. Section D.3.1 of Appendix D of the Task 3 report provides a discussion of flow variability and channel maintenance flow needs related to fish habitat. It is not the intent of the Policy nor is it possible to return an incised channel to an unconfined state using flow alone, and the supply of gravel from upstream typically is not enough to fill a channel in the manner implied. Note that finer sediments are also deposited when the river is slowed.

**Comment 4.4.28:** The chart on page 29 of the Powerpoint presentation from the February 6, 2008 Staff Workshop shows predicted channel change as a function of reduction in bankfull flow. The SWRCB's consultants admitted they did not know what quantity of water diversion causes a detrimental impact on the fish, but they were confident that a reduction of 5% did not have a detrimental impact. The implication from the graph is that a change in the channel *ipso facto* results in a deleterious effect on fish spawning. While there may be some effect on spawning, there may be no effect on fry survival; a much more important parameter. Rather than attempt to quantify the actual effect of larger diversions, the draft policy is set at the most stringent level, based on this dubious logic. (*Alec Rorabaugh*)

**Response:** See response to 4.4.11. Also, the Draft Policy involves a less stringent alternative for the MCD than several other alternatives (e.g., the MTTU hydrograph-based and the DFG-NMFS 15% of 20% winter exceedance flow) which involve greater restrictions on diversion. The logic implied in the comment is thus unclear.

**Comment 4.4.29:** The chart on page 29 of the Powerpoint presentation from the February 6, 2008 Staff Workshop shows predicted channel change as a function of reduction in bankfull flow. Because the consultants can't quantify the deleterious effects of greater diversion, they take the tact of allowing a paltry amount, presumably on the premise that no one can fault them for not protecting the fish. The fact that far more water might be made available to the people of the region without necessarily harming the fish doesn't seem to have been considered. Choosing a point on a graph (5%) because the significance of other points on the graph (10%, 15%, etc) have not been evaluated is unconscionable, when the result could cause taxpayers in the affected region literally millions, perhaps hundreds of millions of dollars. (*Alec Rorabaugh*)

**Response:** The selected value of the MCD, 5% of the 1.5 year flood reflects professional experience of levels impacting channel form. The 5% level was not chosen lightly and reflects a perceived balance between over- and under-protecting and professional experience with sediment transport processes in rivers and streams. Note that (1) DFG considers this level acceptable only if it is associated with effectiveness monitoring (the implication being that

without monitoring the level should be closer to the DFG-NMFS 2002 Draft Guidelines), and that any stream with this level of diversion be classified as a fully appropriated stream, and (2) see comment 1535 where the RWQCB North Coast Region recommends the DFG-NMFS 2002 draft guideline for MCD which is approximately equivalent to a 1% level. Thus the 5% level appears to be a reasonable compromise between opposing perspectives.

**Comment 4.4.30:** The SWRCB should also consider that by diverting peak flows to new water rights, flood flows may perform less morphological channel maintenance work that has in the past scoured away accumulated alluvial deposits. The lack of scouring flows may actually reduce instream flows by encouraging the smothering of channels with accumulated alluvial gravels such that instream flows go sub-surface. *(Linda Ruffing, City of Fort Bragg)*

**Response:** What the commenter is saying is unlikely to be observed through changes in hydrograph caused by implementation of the MCD. Typically, such areas of gravel accumulation (the commenter is assumed to be talking about alluvial fans) are highly site specific and reflect larger scale geomorphic influences of slope change as opposed to the influence of flow.

**Comment 4.4.31:** The Policy carries a range of hazards not found in day-to-day diversions. For example, new areas would need to be located to store the water for domestic, industrial or agricultural uses. Additionally, those diversions would come at a time when the force and cutting power of water is at its most intense level, raising risks for property damage, severe erosion, loss of riparian habitat or other negative effects. Further, the Policy neglects to address what happens in those years when very high flows do not occur. *(Linda Ruffing, City of Fort Bragg)*

**Response:** The SED addresses the potential environmental impacts of the Draft Policy. In particular, Appendix D of the Draft SED discusses the potential impacts of the policy on municipal, industrial and agricultural water use and related indirect impacts on other environmental resources.

**Comment 4.4.32:** As the Draft Policy concedes, the maximum cumulative diversion is the single most restrictive limitation on the diversion of water. As currently proposed, this limitation would greatly reduce a diverter's ability to fill reservoirs during high flow periods. It will also add significantly to the expected cost of bypass facilities because of the need to divert these flows. This maximum cumulative diversion concept may be innovative, well-intentioned and academically interesting, but it is an unproven, uncertain and unfair limitation that will radically diminish water supplies to the most robust sector of the Mendocino, Sonoma and Napa County economies. There has not been any scientific demonstration that agricultural diversions during high flow events have had adverse impacts on stream geometry or habitat. This limitation also fundamentally undercuts a very important opportunity for small agricultural diverters to replenish their reservoirs during high winter flow events. Accordingly, this flow limitation should not be utilized in any policy until it is studied more carefully and it has established a successful track record. *(Paul "Skip" Spaulding, Farella Braun + Martel LLP/Golden Vineyards)*

**Response:** Comment noted, but Staff also note that conversely, there have not been any scientific demonstrations that agricultural diversions during high flow events have not had adverse impacts on stream geometry or habitat. Because of various levels of uncertainty associated with the MCD, the regional criteria were of necessity conservative in the absence of more site specific data. Thus, if the regional criteria are in error and are too high, then the steelhead, Chinook and coho fisheries will still be protected and have a chance to recover. If

the regional criteria are in error and too low, then the fish populations could go extinct and never have the chance to recover. Importantly, the Draft Policy allows for the conduct of optional site specific studies to determine whether the MCD could be reasonably modified for a specific stream. See also discussion on the burden of proof and consequences in section D.1 of Appendix D of the Task 3 report

## 5.0 Site Specific Studies

**Comment 5.0.1:** Policy Section 4.1.8: Site-Specific Study to Obtain Variances from the Regional Criteria for Diversion Season, Minimum Bypass Flow and/or Maximum Cumulative Diversion. The Policy opens up a potentially serious loophole by not clarifying the circumstances that would merit a variance. The Policy is structured to provide general guidelines for maintaining instream flows to protect salmonids. Thus, the Policy should, by default, specifically reflect the needs of any salmonids occurring in watersheds within its geographic scope, and flesh out the circumstances under which such a variance would be appropriate. It is to be expected that, due to the growing scarcity of water, many applicants will request variances, and each will argue that their request is insignificant. The variance provision should be clarified to ensure that variances remain the rare exception, rather than the rule. (*Joshua Basofin, Defenders of Wildlife; Don McEnhill, Russian Riverkeeper; and Linda Sheehan, California Coastkeeper Alliance*)

**Response:** To be regionally protective, the regional criteria are designed to limit water diversions so that adequate flows are available for spawning and passage at sites with the most restrictive instream flow needs. At some sites, therefore, more than adequate flows will be provided by regionally protective criteria. Only site specific study can determine where on the protectiveness spectrum a given site lies, as described in section D.5 of Appendix D of the Scientific Basis Report (R2, 2008) which is why the conservative regional MBF criterion apply in the absence of site specific data.

The Draft Policy contains guidelines on site specific studies in section 4.1.8. It also states that after the applicant develops proposed site specific criteria, the applicant would need to perform a daily flow analysis to demonstrate that the proposed diversion, using the proposed site specific criteria, will not adversely affect instream flow needs. A proposed site specific criteria would be considered appropriate if the daily flow analysis shows there is no adverse affect on instream flow needs.

**Comment 5.0.2:** Implementation of the Policy will result in further delays in water right processing because the majority of applicants will need to seek a variance due to the stringent bypass and diversion rate limitations in the Policy. The variance criteria are not clearly defined in the Policy; therefore I believe that processing of numerous variance requests will exacerbate the already back-logged workload of the State Water Board staff and further delay approval of our pending action(s). (*Corrin Amaral; Vincent Bartolomei, Bartolomei Brothers Vineyard; Edward T. Bennett; Carrie Brown; Jeffery Carlton, Dutton Ranch Corporation; Thomas Carpenter; Jon-Mark Chappellet; Ned Coe, Bill Coe & Sons; Annette Cooley, Cooley Logging; Casey Cooley; Jack L. Cox, Cox Vineyards; Greg and Karen Crouse; Christopher Dohring; Mark D. Edwards, North Coast Resource Management; Sandy Elles, Napa County Farm Bureau; Brian Fedora; Nicholas Ferrari; Karen Fontanella, Fontanella Family Winery; Jonathan Frey, Frey Vineyards; Tom Gamble, Gamble Ranch; Dominic Grossi, Marin County Farm Bureau; Katherine Harnden, Harnden Ranches; Frank and Phyllis Hooper; Joseph Hurlbut; Leo Hurley, Wrath Cellars and Vineyard; Kenneth L. Kahn, Blue Rock; Tom Klein, Rodney Strong Vineyards; Douglas Lumgair, Windsor Oaks Vineyards & Winery; JJ McCarthy, Cain*)

*Vineyard & Winery; Dennis Meisner; Harry Merlo, Lago di Merlo Vineyards and Winery; Dwight Monson; Robert Mueller, McKenzie-Mueller Vineyards and Winery; Tim Nall, Brown-Forman Corporation; Wendel Nicolaus, Middleridge Vineyard; Peter Nissen, Napa County Farm Bureau; Jack Olsen, San Mateo County Farm Bureau; Frost Pauli; Loren Poncia; Steve Pride, Pride Mountain Vineyards; George Rau; Steve Reese, Denner Ranches Inc.; Annette Rhodes, Rhodes Vineyards; Richard Rhodes, Rhodes Vineyards; Erin Russell; Gary Sack, California Farm Bureau; Tito Sasaki, Sasaki Vineyards; Janet Sclar, Amity Heritage Roses; William Smith; Michael Vellutini, TriValley Vineyard Management; Al Wagner, Clos Du Val Wine Company; Edward Wallo, Yorkville Vineyards; Brian and Helen White; Gary Wilsey, Wilsey Vineyard, LLC; Silvie Wilson; Terrence Wilson, Rancho Chimiles; Windy Wilson; James Young, Robert Young Family Limited Partnership)*

**Response:** Comment noted. Staff will consider the comments regarding the proposed regional criteria and the level of detail of the site specific study provisions when recommending changes to the proposed Policy.

**Comment 5.0.3:** We are concerned that the Policy, as written, rewards previously unauthorized diverters with opportunity to get a permit through a variance. While any award of a variance from the State Water Board would be accompanied by a mandate for the diverter to find other ways to ensure that diversions are limited to periods of relatively high flow and to mitigate for cumulative effects, special studies might be needed to measure the potential impacts of the existing and continuing withdrawals before any final decision is made. This could lead to an open-ended process that resembles the status-quo, and moves us no closer towards recovering imperiled anadromous fisheries or toward providing increased certainty to water users. *(Ashley Boren, Sustainable Conservation)*

**Response:** The Draft Policy allows water right applicants the option of performing a site-specific study to more accurately determine the fishery resource instream flow needs for a particular location. The applicant would still be required to demonstrate that the project will not adversely affect these instream flow needs.

**Comment 5.0.4:** The operative provisions of the Draft Policy appear to assume that the regional criteria should be the starting point for any development of instream flow requirements, and that the alternative, site-specific criteria should be allowed only if the applicant can convince the SWRCB that the alternative, site-specific criteria may replace the regional criteria. We believe that this proposed approach is logically backwards. Because the Draft Policy's regional criteria were developed through a general analysis of a few creeks in five counties, the SWRCB should not presume that these regional criteria are more protective of the native fish populations in a particular stream than site-specific criteria that are developed for the particular stream through a site-specific study. *(Mary Burns, Sonoma County Regional Parks)*

**Response:** Staff does not believe the regional protective criteria developed for the Draft Policy have site specific accuracy, nor were the proposed criteria intended to be used to predict the site specific needs accurately for every stream. To be regionally protective, the regional criteria are designed to limit water diversions so that adequate flows are available for spawning and passage at sites with the most restrictive instream flow needs. At some sites, therefore, more than adequate flows will be provided by regionally protective criteria. Only site specific study can determine where on the protectiveness spectrum a given site lies, as described in section D.5 of Appendix D of the Scientific Basis Report (R2, 2008).which is why the conservative regional MBF criterion apply in the absence of site specific data. The Draft

Policy allows for site specific studies.

Staff will consider this comment when developing additional details on the requirements of a site specific study in the Policy and when revising the language to clarify the role of the regional criteria and site specific study in determining fishery resource instream flow needs.

**Comment 5.0.5:** The Draft Policy's provisions for obtaining variances from the regional criteria (Section 4.1.8) presumably allows applicants to examine the issue of whether salmon spawning or passage flows are population limiting and allows them to potentially justify lower bypass flows. For example, an applicant might promote a project that has some minor effect on the duration of flows conducive to spawning in a tributary, while simultaneously enhancing salmonid populations by increasing limited summer rearing habitat through reduction of summer time diversions. Another project might reduce the duration of time that flows are conducive to upstream migration, but it might facilitate reduction in authorized diversions during April and May thereby enhancing survival of newly emerged salmonid fry and out-migrating juveniles (i.e., reduce impacts from diversions for frost protection). Analyses of population limiting factors and trade-offs associated with diversion timing can be useful in decision making related to water allocation and resource protection. NMFS agrees that fisheries analyses related to variances from the regional criteria should be performed by qualified fisheries biologists. However, analysis of instream flow needs for fisheries can often be technically complex and involve consideration of groundwater and surface water interactions. Therefore, NMFS believes that the policy section on obtaining variances should also require a qualified hydrologist with a Bachelor's degree or higher (e.g., in the field of geology, hydrology, hydraulic engineering or other equivalent course of study) and five years of experience with hydrologic analysis. NMFS also recommends that such analyses be reviewed and approved by the responsible state fisheries resource agency, DFG. NMFS could assist in that review, if needed. (*Dick Butler, US National Marine Fisheries Service*)

**Response:** Comments and suggestions noted. Staff will consider this comment when developing additional details on the requirements of a site specific study in the Policy.

**Comment 5.0.6:** Criteria for the decision making process that would allow for variances from the regional criteria needs to be developed. The process must be based on cumulative diversion and fish migration impediments in a planning watershed. Does such a process need to meet responsible agency, public review, and CEQA standards? (*Alan Levine, Coastal Action Group*)

**Response:** Comment and suggestion noted. Staff will consider this comment when developing additional details on the requirements of a site specific study in the Policy.

**Comment 5.0.7:** We believe there will be a large number of applications for variance. Such analysis shall be made available to the public and managing agencies for review and comment under CEQA. Approval of variances from the regional criteria is subject to public and responsible agency noticing and participation requirements. (*Alan Levine, Coastal Action Group*)

**Response:** Comment noted. All water right applications and supporting documentation undergo environmental review as part of the water right permitting process.

**Comment 5.0.8:** Both Draft Policy sections 4.1.8 and section 13 provide pathways outlining the studies needed to be performed to apply for and the ability of SWRCB to consider and

grant exemptions or variances to regional criteria based on the specific hydrology of a watershed. These sections should provide more specifics regarding the due process by which such requests would be evaluated including the timelines by which SWRCB would respond to requests for variance or exemption as well as the recourse for appeal and review. *(Eric Goldsmith, Sanctuary Forest)*

**Response:** Comment and suggestion noted. Staff will consider this comment when developing additional details on the requirements of a site specific study in the Policy.

**Comment 5.0.9:** The City supports the opportunity for applications based on site-specific flow criteria supported by instream flow models as an alternative to Regionally Protective Instream Flow Criteria. However, the City considers the Draft Policy to discriminate against applicants using site-specific flow criteria based on the structure of the Draft Policy and the lesser detail provided for the site-specific flow criteria. The City requests that the Draft Policy be restructured to give equal weight to site-specific approach. *(Susan Gorin, City of Santa Rosa)*

**Response:** Comment and suggestion noted. Staff will consider this comment when developing additional details on the requirements of a site specific study in the Policy.

**Comment 5.0.10:** If the State Water Board were to adopt the draft criteria, we would also have to assume that large numbers of applicants would pursue site-specific studies and seek a variance. Since the guidelines for site-specific studies and the process for seeking a variance remain somewhat undefined, the situation might look fairly similar to what we have today. It would not be catastrophic - as many unauthorized diverters apparently believe - but we might see less movement beyond the status quo than we think possible. *(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society)*

**Response:** See response to 5.0.23.

**Comment 5.0.11:** The policy should include more guidance than the Draft Policy for applicants conducting site-specific biological studies, whether for individual or group application processing. The Policy should include narrative criteria for assessing biological resource impacts and establishing appropriate minimum bypass flow, cumulative diversion, and onstream dam limitations. A narrative criterion is a description of the desired biological or hydrological condition to be protected or impact to be avoided, such as the minimum stream flow necessary to maintain salmonid spawning at the point of diversion. TU/PAS and WB/ESH believe that these criteria should be tailored to address the specific features of projects within the region and the potential impacts caused by those projects. The narrative criteria should function to screen smaller projects with lesser impacts into an expedited review process from larger projects with greater effects into a more involved evaluation process. We have discussed concepts for narrative criteria. We request that the Board direct staff to meet with stakeholders to further develop such criteria. *(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** These comment and suggestions were superceded by the April 30, 2009 Draft Joint Recommendations for the North Coast Instream Flow Policy.

**Comment 5.0.12:** The Draft Policy provides for site-specific analyses to support a variance in

the event that a pending application fails the regional criteria. However, the Draft Policy direction for a site-specific analysis makes clear that the regional criteria are the presumptive standard of protectiveness even under a variance. Recent experience with pending applications before the State Water Board has taught that the proposed regional criteria are likely to be applied as absolute requirements. Although the 2002 DFG-NMFS "Guidelines for Maintaining Instream Flows to Protect Fisheries Resources Downstream of Water Diversions in Mid-California Coastal Streams" (Draft Guidelines) were intended to "provide standard recommended protective terms and conditions to be followed in the absence of site-specific, biological, and hydrologic assessments," they have been applied as the sole measure of protectiveness. Accordingly, only a handful of projects have been permitted under the Draft Guidelines. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** See response to 5.0.4.

**Comment 5.0.13:** The Draft Policy fails to provide direction for how to conduct a biologically-based, site specific analysis for salmonid protection. Useful direction for analysis might take the form of biologically-based criteria or it could take the form of scientific issues to be addressed. The direction in the Draft Policy for a variance analysis is little more than recapitulation of the regional criteria. Because most projects will not be able to meet the regional criteria and because the site-specific analysis presumes the regional criteria as the measure of protectiveness, most projects will fail and the backlog of pending water right applications will not be cleared. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Comment and suggestion noted. Staff will consider this comment when developing additional details on the requirements of a site-specific study in the Policy,

**Comment 5.0.14:** The site specific studies section of the Policy (section 4.1.8) and Section 6 of the Appendix of the Policy should require that site specific studies be designed in consultation with, and approved by, applicable state and federal agencies. Additionally the results of such studies should be evaluated by those agencies to determine whether and to what extent adjustments could be made to the regional criteria. While it is reasonable to expect that there may be variances to the minimum bypass flow requirement, the State Water Board should clarify expectations and study requirements for variance to the maximum cumulative diversion criteria. Variances should be addressed on a watershed basis rather than a project-by-project basis. A timeline for study progression or completion should be provided. DFG also recommends that these sections be revised to reflect both consultation with, and approval by, DFG for any site specific studies related to variances from the recommended diversion season, minimum bypass flows and maximum cumulative diversion rate, and that the results of these studies must be approved by DFG prior to inclusion as protective terms in any permit issued by the SWRCB. (*Donald Koch, State of California Department of Fish and Game*)

**Response:** Comments and recommendations noted. Staff will consider this comment when developing additional details on the requirements of a site specific study in the Policy.

**Comment 5.0.15:** The Draft Policy's regional criteria do not contain any site-specific provisions, and such site-specific provisions may be very important for many projects.



Therefore, project proponents should have the option of preparing site-specific studies for a specific project, and the SWRCB should favor such site specific studies over the regional criteria.. (*Alan Lilly, Bartkiewicz, Kronick & Shanahan/North Gualala Water Company*)

**Response:** See response to 5.0.4.

**Comment 5.0.16:** The operative provisions of the Draft Policy appear to assume that the regional criteria should be the starting point for any development of instream flow requirements, and that alternative, site-specific criteria should be allowed only if the applicant can convince the SWRCB that the alternative, site-specific criteria may replace the regional criteria. Thus Section 4.1.8 of the Draft Policy repeatedly refers to site-specific criteria as "variances from the regional criteria." (See Draft Policy, pp. 16-18.) This proposed approach is logically backwards. Because the Draft Policy's regional criteria were developed through a general analysis of a few creeks in five counties, the SWRCB should not presume that these regional criteria are more protective of the native fish populations in a particular stream than site-specific criteria that are developed for the particular stream through a site-specific study. Similarly, the SWRCB should not assume that proposed "variances" will be "less restrictive," as the Draft Policy does. (See Draft Policy, p. 3.) Instead, the SWRCB should give petitioners and applicants opportunities to perform site-specific studies and to develop site-specific criteria for the streams involved in their projects, and the SWRCB should consider and evaluate such criteria with an open mind and not with a preconceived notion that they will not be as protective of native fish as the regional criteria. We therefore request that the Draft Policy be edited to change "variances" to "alternative, site-specific criteria" throughout the document, and to remove the presumption that the regional criteria will be the starting point for evaluation of the alternative, site-specific criteria. Our requested changes to the Draft Policy to address this problem are attached as Exhibit A to these comments. (*Mary Burns, Sonoma County Regional Parks; Alan Lilly, Bartkiewicz, Kronick & Shanahan/North Gualala Water Company*)

**Response:** See response to 5.0.4.

**Comment 5.0.17:** Variances to the Policy should require a hearing before the State Water Board, notification to all stakeholders in the watershed, and posting of funds to restore other aquatic habitats in the watershed as mitigation. (*Chris Malan, Earth Defense for the Environment Now, Living Rivers Council*)

**Response:** The Draft Policy allows water right applicants the option of performing a site-specific study to more accurately determine the fishery resource instream flow needs for a particular location. Staff is considering revisions to the Draft Policy describing the approval process for site-specific studies.

The commenter's suggestions appear to more appropriate for the case-by-case exceptions to the Policy (Section 13.0). Section 13.0 already requires case-by-case exceptions to be approved at a public meeting of the State Water Board.

**Comment 5.0.18:** The AB 2121 Policy is largely silent with respect to coordination and cooperation with other relevant State and Federal agencies, such as the California Department of Fish and Game, the National Marine Fisheries Service, and the United States Army Corps of Engineers. Although the AB 2121 Policy provides some guidance with respect to the development of mitigation plans and procedures for obtaining "case-by-case" exceptions to policy provisions, it is not clear whether the State Water Resources Control Board staff will defer to California Department of Fish and Game and/or National Marine Fisheries staff with

respect to the technical aspects and scope of any site-specific instream flow studies an applicant may elect to perform, and more specifically, if or how conflicting agency directives or differences of opinion will be resolved. *(Roland Sanford, Mendocino County Water Agency)*

**Response:** NMFS and DFG have individually expressed similar concerns in their comments on the site specific study provisions of the Draft Policy (see comments above). Staff will consider these concerns when developing additional details on the requirements of a site specific study for the revised policy.

**Comment 5.0.19:** Lacking gauge data, and dealing with widely varying sizes of streams, the Policy has set generalized flow formulas rather than stream-by-stream instream flows. This reflects that tacit understanding that waters in the Policy area are often fully or over-appropriated, and that a policy that is not comprehensive will allow extirpation of salmon and steelhead because of the cumulative impacts of over-diversion. This is the Draft Policy's strength, but it must not be allowed to become its weakness. Because water is limited, and because of likely costs, we foresee the likelihood that most applicants will request variances. They will be based on the logic that, viewed individually, their impacts are small. A generalized policy cannot work if variances become the default approach. To prevent thus institutionalizing death by a thousand cuts, requests for variances should be required to fulfill the following principles: 1) if based on water volume, they should be substantially better than volume-neutral with the instream requirements for their watersheds; and 2) if based on infrastructure, they must propose and implement a specific and relatively immediate benefit to salmonid fisheries that is functionally better than the stated Policy requirement. In general, variances must be administratively discouraged, and a process for weeding out variance requests not based on substantive alternative proposals must be established to prevent a regulatory bottleneck whose intent or de facto result is delay. *(Chris Shutes, California Sportfishing Protection Alliance)*

**Response:** Comment and suggestions noted. Staff will consider this comment when developing additional details on the requirements of a site-specific study in the Policy.

**Comment 5.0.20:** An example of a situation for which a variance that is substantially better than volume-neutral with the instream requirements for the watershed could be as follows: Applicants requesting more water than is allowed under the applicable policy formula, or petitioners seeking changes that would decrease at any time the amount of water in a stream, could subsidize conservation for a neighbor and then have the neighbor devote the conserved water to a section 1707 instream water right. *(Chris Shutes, California Sportfishing Protection Alliance)*

**Response:** Staff is considering revisions to the Draft Policy that would provide incentives for authorized diverters to modify diversions to enhance conditions for fish and wildlife.

**Comment 5.0.21:** No variances should be allowed for infrastructure requirements on Class I streams. Applicants or petitioners requesting infrastructure variances for Class II or Class III streams might be allowed to pay for a fish ladder or screen on an existing facility on a Class I stream, where this would not otherwise be required, and provided that it actually gets done. Channel improvements in a Class I stream might qualify if it could be demonstrated that the improvement is biologically substantial and that is enough water in the thus improved channel to provide a tangible benefit to salmon or steelhead. *(Chris Shutes, California Sportfishing Protection Alliance)*

**Response:** The types of projects referred to in this comment would more appropriately be

considered by Draft Policy section 13.0 (Case-by-Case Exceptions).

**Comment 5.0.22:** The Draft Policy fails to apply the Legislature's stated concern for expediting approval of appropriative water right applications in that no factual criteria and legal standards are articulated for variances and other site-specific exceptions. Any water right applicant trying to utilize these provisions will inevitably suffer lengthy permitting delays. *(Paul "Skip" Spaulding, Farella Braun + Martel LLP/Golden Vineyards)*

**Response:** See response to 5.0.23.

**Comment 5.0.23:** Golden Vineyards certainly supports the concept of incorporating variances and exceptions into any adopted instream flow policy. However, as currently formulated, these variances/exceptions are completely illusory and unavailable as a practical matter to applicants under the Draft Policy. The primary reason is that no factual criteria or legal standards whatsoever are articulated for the granting of either a variance or an exception request. Rather, the granting of a variance/exception appears to be at the complete and unconstrained discretion of the State Board on a case-by-case basis. This lack of articulated criteria and legal standards means that neither State Board staff nor an applicant will have guideposts by which to determine whether and to what extent it might qualify for a variance/exception and this situation will likely result in significant processing delays. It also means that the State Board itself will not have definitive guidance on when a variance or exception is appropriate, leaving it open to charges of acting in an arbitrary or capricious manner. *(Alan Levine, Coastal Action Group; Paul "Skip" Spaulding, Farella Braun + Martel LLP/Golden Vineyards)*

**Response:** The Draft Policy contains guidelines on site specific studies in section 4.1.8. It also states that after the applicant develops proposed site specific criteria, the applicant would need to perform a daily flow analysis to demonstrate that the proposed diversion, using the proposed site specific criteria, will not adversely affect instream flow needs. A proposed site specific criteria would be considered appropriate if the daily flow analysis shows there is no adverse affect on instream flow needs.

## **6.0 Water Availability Analysis**

**Comment 6.0.1:** Commenter is with engineering firm working in water rights in Northern CA for 30 years and has seen increasing difficulty in obtaining appropriative water right. Despite the fact that they (Applicants and Petitioners) are several years into the 2002 Guideline process, Applicants and Petitioners are now faced with the new proposed Instream Flow Policy, which raises the standard for stream flows to the detriment of small agricultural to a point where good projects which were conceived under prevailing regulation are not feasible, and there is no provision that all pending applicants and petitioners will not be required to conform to the new Policy. *(Drew Aspegren, Napa Valley Vineyard Engineering, Inc.)*

**Response:** Section 4.0 of the Draft Policy indicates that if an applicant has submitted a water availability analysis and analysis of cumulative flow-related impacts prior to January 1, 2008, and the proposed project is consistent with the recommendations contained in the DFG-NMFS Draft Guidelines, then the State Water Board will consider processing the water availability aspects of the application using the DFG-NMFS Guidelines. Staff notes that most, if not all, of the hydrologic analysis recommended by the NMFS-DFG Draft Guidelines would be utilized as part of the proposed policy's analysis requirements. The NMFS-DFG Draft Guidelines allow for site specific study, so does the proposed Policy. Although the Draft Guidelines did not delineate the biological studies required, staff does not anticipate the costs for site specific

biological studies described in the Draft Policy to be substantially different than those that would be performed under the NMFS-DFG Draft Guidelines.

**Comment 6.0.2:** There is no balance presented in the Policy or background information protecting current applicants and petitioners from having to start over in the WAA, the very basis of project viability. Further projects applications will face denial after many years of processing. This is blatantly unfair. (*Drew Aspegren, Napa Valley Vineyard Engineering, Inc.*)

**Response:** Section 4.0 of the Draft Policy indicates that if an applicant has submitted a water availability analysis and analysis of cumulative flow-related impacts prior to January 1, 2008, and the proposed project is consistent with the recommendations contained in the DFG-NMFS Draft Guidelines, then the State Water Board will consider processing the water availability aspects of the application using the DFG-NMFS Guidelines. Staff notes that most, if not all, of the hydrologic analysis recommended by the NMFS-DFG Draft Guidelines would be utilized as part of the proposed policy's analysis requirements. The NMFS-DFG Draft Guidelines allow for site specific study, so does the proposed Policy. Although the Draft Guidelines did not delineate the biological studies required, staff does not anticipate the costs for site specific biological studies described in the Draft Policy to be substantially different than those that would be performed under the NMFS-DFG Draft Guidelines.

**Comment 6.0.3:** Aggregate diversions have a tremendous effect on public trust resources throughout a particular stream system. Therefore, as an integral part of this Policy, the SWRCB should continuously consider the effects of regulated activities across entire watersheds. To effectively protect public trust resources, the Division should in particular assess water availability for entire watersheds and the aggregate effects of all diversions on fish and wildlife. A majority of the applications in the Division's backlog are for water rights on the North Coast where a particular stream system may contain dozens of unauthorized diversions. The cumulative effect of these diversions, some smaller than ten acre-feet per year ("afy") and some in excess of 1,000 afy, is a decrease in stream flow levels and an increase in sediment levels, both of which adversely affect threatened Coho, Chinook and Steelhead fisheries. (*Joshua Basofin, Defenders of Wildlife; Don McEnhill, Russian Riverkeeper; and Linda Sheehan, California Coastkeeper Alliance*)

**Response:** Section 4.1 of the Draft Policy requires water right applicants to submit a Water Availability Analysis that evaluates whether the proposed project, in combination with senior authorized diversions, impacts the instream flows needed for protection of fishery resources. Appendix 1 and Figure A-1 describe guidelines for performing water availability analyses. Water availability is based on first in time, first in right and therefore only needs to consider senior rights and the pending project. For the purposes of water availability, only senior authorized diversions plus the proposed project need to be evaluated.

Unauthorized diversions both by diverters without a valid water right and those diverters who divert beyond their license or permit conditions do not affect a water availability determination. Unauthorized diversions are illegal and should not be occurring. A water availability determination is based on legal users of water and instream beneficial uses for public trust resources. This determination is needed in order to decide if the proposed project can become the next diverter in a line of legal diverters all taking from the same supply of water. If the diversion is illegal then enforcement staff should be working towards bringing those diversions to a stop. Illegal diverters can apply for a water rights permit and a water availability determination will be made while processing that application and will take into account the cumulative effects of the proposed diversion and all other senior right holders.

The cumulative consideration of all existing and reasonably foreseeable diversions is a requirement of CEQA, which is a separate evaluation from a water availability analysis.

**Comment 6.0.4:** Without factoring these [unauthorized] diversions in to its calculations, SWRCB will be unable to accurately estimate the cumulative effects of a pending application for an appropriative right. More fundamentally, without actions to encourage those diverters to improve their practices, the SWRCB is unlikely to accomplish its statutory mandate of "maintaining instream flows." This is particularly true for existing summertime diversions, which may account for the greatest threat to the recovery of fish populations. The Policy cannot achieve success in safeguarding the public trust unless it brings in all diversions, particularly non-filers (see comment above regarding enforcement). (*Joshua Basofin, Defenders of Wildlife; Don McEnhill, Russian Riverkeeper; and Linda Sheehan, California Coastkeeper Alliance*)

**Response:** Section 4.1 of the Draft Policy requires water right applicants to submit a Water Availability Analysis that evaluates whether the proposed project, in combination with senior authorized diversions, impacts the instream flows needed for protection of fishery resources. Water availability is based on first in time, first in right and therefore only needs to consider senior rights and the pending project. For the purposes of water availability, only senior authorized diversions plus the proposed project need to be evaluated.

Unauthorized diversions both by diverters without a valid water right and those diverters who divert beyond their license or permit conditions do not affect a water availability determination. Unauthorized diversions are illegal and should not be occurring. A water availability determination is based on legal users of water and instream beneficial uses for public trust resources. This determination is needed in order to decide if the proposed project can become the next diverter in a line of legal diverters all taking from the same supply of water. If the diversion is illegal then enforcement staff should be working towards bringing those diversions to a stop. Illegal diverters can apply for a water rights permit and a water availability determination will be made while processing that application and will take into account the cumulative effects of the proposed diversion and all other senior right holders.

The cumulative consideration of all existing and reasonably foreseeable diversions is a requirement of CEQA, which is a separate evaluation from a water availability analysis.

The Draft Policy precludes new diversions during the summer thereby protecting summer flows. The Draft Policy thus ensures that summer habitat conditions and instream flows will not deteriorate beyond conditions already imposed by existing permitted diversions.

**Comment 6.0.5:** Section 4.1.2 Water Supply Report

Much of the information required to be submitted as part of the water supply report is overly broad, burdensome, and may not even exist. For example, the policy requires applicants to supply information regarding the demand and season of diversion of riparian and pre-1914 appropriative water right holders and claimants. (Policy pp. 10-11.) This information is supposed to be used in the water supply analysis to demonstrate that there is sufficient unappropriated water to supply the proposed project. (Policy pp. 10-11, A1-4.) Unfortunately, there is no database or other document depository that contains complete information regarding riparian and pre-1914 appropriative water right holders and/or claimants. If no statements have been filed with the Board regarding such claims, it is virtually impossible to determine whether they exist. (*Barbara Brenner*)

**Response:** Most of the information required to be submitted for the water supply report is readily available in State Water Board records for use in the analysis. A consistent data set currently exists in the Division's e-WRIMS public database, which not only includes the necessary information on senior diverters for the Water Supply Report, it also includes the locations of each POD in GIS. In addition, the information needed for the water supply report is very similar to the information needed for completing a WAA/CFII report for implementing the DFG-NMFS Draft Guidelines. However the commenter is correct that the Division's information on riparian and pre-1914 water right holders and claimants is not complete for all diverters making such claims. Section 4.1.2 of the Draft Policy states that information on riparian and pre-1914 claimants should be utilized in the Water Supply Report to the extent information is available in State Water Board records or other sources of information.

**Comment 6.0.6:** Section 4.1.2, Water Supply Report. The Policy, as currently written, also requires applicants to note on maps the locations of all points of diversion within the watershed between the proposed point of diversion for the project and the river/ocean used above. (Policy p. 12.) This map must also include riparian users and pre-1914 rights. Even if the applicant were to do a field survey of the entire watershed, it would be impossible to identify all riparian users and pre-1914 rights. Again, such information is overly burdensome and nearly impossible to collect. *(Barbara Brenner)*

**Response:** Section 4.1.2 of the Draft Policy states that information on riparian and pre-1914 claimants should be utilized in the Water Supply Report to the extent information is available in State Water Board records or other sources of information.

**Comment 6.0.7:** On page 8 of the Draft Policy the State Water Board uses the language "Will consider processing" the application prepared under the Draft Guidelines. The word "consider" should be stricken from this sentence. The Board must follow the same rules it forced applicants to adhere to at great cost. To do otherwise would be a serious breach of faith. Assurances were given to applicants by staff that the rules would not change in mid-stream, as it were. *(Tim Buckner)*

**Response:** Staff agrees that the word "consider" is not needed in the context of the sentence it is used in. The correction has been made to the revised Draft Policy.

**Comment 6.0.8:** Will the approved water availability determinations of one applicant be made available to other applicants in a related or overlapping watershed to reduce some of the now extreme costs of the application process? If each analysis is proprietary the redundancy factor becomes highly irrational. *(Tim Buckner)*

**Response:** All State Water Board records are open to the public. Any previous water availability analysis that has been submitted to the Division is part of the public record and a copy can be requested by the applicant with a pending application in a related watershed. Previously approved WAA's can also be referenced and their analysis results incorporated into WAA's being submitted for a pending application. Section 4.1.1.1 of the Draft Policy does not allow proprietary models for analysis purposes. Proprietary models are allowed only to visually summarize or demonstrate the analysis results.

**Comment 6.0.9:** NMFS (2001) had some issue with reliance on sparse and uneven USGS stream flow data and the Rational Runoff method for estimating unimpaired flows. How will unimpaired flows be derived for the analyses specified in the SWRCB's Draft Policy (2008)?

The precipitation-based hydrologic model is given more support, but the accuracy of this method is questioned, due to unknown rates of water withdrawals from unauthorized water diverters. (*Alan Levine, Coastal Action Group*)

**Response:** The Draft Policy does not recommend the Rational Runoff method for estimating stream flows. Section A.5.2.1 of the Draft Policy recommends unimpaired flows be derived using one of three approaches: (1) "adjustment of streamflow records", where the unimpaired flow at a point is determined by prorating flow data from a nearby gage using precipitation and drainage area, (2) "precipitation-based streamflow models", or (3) another method acceptable to the State Water Board.

Section 4.1 of the Draft Policy requires water right applicants to submit a Water Availability Analysis that evaluates whether the proposed project, in combination with senior diversions, impacts the instream flows needed for protection of fishery resources. Water availability is based on first in time, first in right and therefore only needs to consider senior rights and the pending project. For the purposes of water availability, only senior diversions plus the proposed project need to be evaluated. The cumulative consideration of all existing and reasonably foreseeable diversions is a requirement of CEQA, which is a separate evaluation from a water availability analysis.

**Comment 6.0.10:** To establish the minimum bypass flow standard, for any point of diversion, unimpaired conditions must be the baseline. How are unimpaired conditions going to be established for developing the minimum bypass flow standard at any POD? (*Alan Levine, Coastal Action Group*)

**Response:** Section 2.3.2 of the Draft Policy provides the minimum bypass flow equations that are protective throughout the policy area. These equations estimate a bypass flow based on unimpaired mean annual flow and drainage area. Section A.5.2.1 of the Draft Policy provides recommended methods for estimating unimpaired mean annual flow. The unimpaired mean annual flow will be based on an estimation of mean annual flow from a data set of 10 years or more. The data set can be generated using a nearby stream gage with enough data to prorate the values to the watershed of interest, or by using precipitation-based models, or other methods acceptable to the Division.

**Comment 6.0.11:** Assessment of cumulative effects must be accomplished by a qualified person and such assessment must be made available to the public and responsible agency for comment under CEQA. (*Alan Levine, Coastal Action Group*)

**Response:** Comment noted. Water right applications are required to address CEQA. Proposed permits and associated supporting technical documentation are made available to the public and responsible agencies for review and comment under CEQA.

**Comment 6.0.12:** How does the assessment of cumulative effects consider unlicensed diversions or diversions beyond license or permit conditions? Should not all uses be considered? (*Alan Levine, Coastal Action Group*)

**Response:** Section 4.1 of the Draft Policy requires water right applicants to submit a Water Availability Analysis that evaluates whether the proposed project, in combination with senior authorized diversions, impacts the instream flows needed for protection of fishery resources. Water availability is based on first in time, first in right and therefore only needs to consider senior rights and the pending project. For the purposes of water availability, only senior

authorized diversions plus the proposed project need to be evaluated. The Policy with respect to Water Availability does not consider junior rights because it is applying the seniority of the water rights system. Junior right holders cannot be considered in a Water Availability analysis because the project being evaluated has a higher priority and water is only available to junior holders after all senior rights are satisfied. Junior right holders will conduct their own water availability analysis that considers all senior right holders plus their project at the appropriate time. The cumulative consideration of all existing and reasonably foreseeable diversions is a requirement of CEQA, which is a separate evaluation from a water availability analysis.

**Comment 6.0.13:** We agree the applications submitted prior to Jan 1, 2000 should be consistent with either the CDFG/NMFS Draft Guidelines or the Policy. (*Alan Levine, Coastal Action Group*)

**Response:** Comment noted. Staff notes this commenter probably intended this date to be January 1, 2008 rather than January 1, 2000.

**Comment 6.0.14:** Water availability analysis and instream flow analysis must include all uses, including riparian, all authorized use and all unauthorized use. Such analysis should be made available for public and responsible agency noticing and review as required by CEQA. (*Alan Levine, Coastal Action Group*)

**Response:** Sections 4.1.2, A.2.0, and A.5.0 of the Draft Policy indicate that information on senior diverters and riparian and pre-1914 claimants should be utilized in the water availability analysis to the extent information is available in State Water Board records or other sources of information.

Water availability is based on first in time, first in right and therefore only needs to consider senior rights and the pending project. For the purposes of water availability, only senior diversions plus the proposed project need to be evaluated.

Unauthorized diversions both by diverters without a valid water right and those diverters who divert beyond their license or permit conditions do not affect a water availability determination. Unauthorized diversions are illegal and should not be occurring. A water availability determination is based on legal users of water and instream beneficial uses for public trust resources. This determination is needed in order to decide if the proposed project can become the next diverter in a line of legal diverters all taking from the same supply of water. If the diversion is illegal then enforcement staff should be working towards bringing those diversions to a stop. Illegal diverters can apply for a water rights permit and a water availability determination will be made while processing that application and will take into account the cumulative effects of the proposed diversion and all other senior right holders.

The cumulative consideration of all existing and reasonably foreseeable diversions is a requirement of CEQA, which is a separate evaluation from a water availability analysis.

All records of the Division of Water Rights are open to the public. Any water availability analysis that has been submitted to the Division is part of the public record and a copy can be requested by the applicant with a pending application in a related watershed. Additionally all water availability analyses that are completed for projects under CEQA review are circulated with the CEQA documents and made available for responsible agencies for review and comment.



**Comment 6.0.15:** The area of who is qualified to make anadromy and water availability determinations is a place where policy standards can be a problem. If the "qualified" fisheries biologist standards remain as written, additional wording should be included to incorporate all the best available information held by any of the managing agencies (DFG, NMFS, Regional Boards, and SWRCB). This would include all information in related planning documents and EIRs for the area under study (*Alan Levine, Coastal Action Group*)

**Response:** The commenter's suggested wording changes to the fishery biologist qualifications seem more appropriate for Policy Section 4.1.4, Determination of the Upper Limit of Anadromy, which already recommends studies that have been previously accepted by the State Water Board, NMFS or DFG.

**Comment 6.0.16:** Water availability analysis submittals shall be completed by qualified professionals and reviewed by SWRCB staff and CDFG, NMFS staff. (*Alan Levine, Coastal Action Group*)

**Response:** Comment noted. Qualified Division staff review every water availability analysis that is submitted by the applicants. If errors are found, the Division does not accept the analysis and requires the applicant or the applicant's agent to revise the analysis and resubmit it. Division staff then review the subsequent resubmittal to make sure all errors have been fixed before acceptance of the analysis. The public has always had access to these reports. Water availability analysis reports are stored in the appropriate water right application file in the Division's records office. Members of the public are welcome to come to the Division's records office, view the application file they are interested in, and have copies made. During the CEQA public review period, the public and responsible agencies may review and comment on the technical documents supporting a permit application.

**Comment 6.0.17:** We agree that data submissions shall not be proprietary. Data shall be easily accessible by common programs and formatting. (*Alan Levine, Coastal Action Group*)

**Response:** Comment noted.

**Comment 6.0.18:** We agree with the provisions outlined in policy section 4.1.2, Water Supply Report, and section 4.1.3, Map Requirements. (*Alan Levine, Coastal Action Group*)

**Response:** Comment noted.

**Comment 6.0.19:** The language included in Policy section 4.1.6, Selection of Points of Interest (POIs) is appropriate. (*Alan Levine, Coastal Action Group*)

**Response:** Comment noted.

**Comment 6.0.20:** The Instream Flow Analysis should include all diversions (cumulatively) including subsurface diversion (from a defined channel), and diversions that are not licensed or permitted (to include water transfers - authorized or unauthorized). The proposed criteria and methodology in Policy section 4.1.7 seem appropriate. Such analysis shall be made available to the public and managing agencies for review and comment under CEQA. (*Alan Levine, Coastal Action Group*)

**Response:** Section 4.1 of the Draft Policy requires water right applicants to submit a Water Availability Analysis that evaluates whether the proposed project, in combination with senior

authorized diversions, impacts the instream flows needed for protection of fishery resources. Water availability is based on first in time, first in right and therefore only needs to consider senior rights and the pending project. For the purposes of water availability, only senior authorized diversions plus the proposed project need to be evaluated. The cumulative consideration of all existing and reasonably foreseeable diversions is a requirement of CEQA, which is a separate evaluation from a water availability analysis.

The public has always had access to water availability analysis reports. Water availability analysis reports are stored in the appropriate water right application file in the Division's records office. Members of the public are welcome to come to the Division's records office, view the application file they are interested in, and have copies made. During the CEQA public review period, the public and responsible agencies may review and comment on the technical documents supporting a permit application.

**Comment 6.0.21:** The data to support a Water Supply Report (Policy Section 4.1.2) should be initially prepared by the Division, perhaps in consultation with the U.S. Geological Survey. This would provide a consistent data set for evaluations specific to each pending application or petition. This could minimize the redundant of applicants and petitioners, and could reduce the potential for errors in reviewing Water Supply Reports. (*Darren Cordova, MBK Engineers*)

**Response:** Most of the information required to be submitted for the water supply report is readily available in State Water Board records for use in the analysis. A consistent data set currently exists in the Division's e-WRIMS public database, which not only includes the necessary information on senior diverters for the Water Supply Report, it also includes the locations of each POD in GIS. In addition, the information needed for the water supply report is very similar to the information needed for completing a WAA/CFII report for implementing the DFG-NMFS Draft Guidelines. With new applications and petitions consistently being added into the e-WRIMS system, the Division will be providing a consistent database for the public to use in its evaluation of existing water diversions.

**Comment 6.0.22:** The intent of this discussion is not to argue whether the minimum bypass flow and maximum cumulative diversion constraints are suitable. Rather, we believe it is imperative for water right applicants to understand the practical implications of these constraints in the context of the stream hydrology expected at the proposed point(s) of diversion. We urge the Division to consider adding an additional requirement to the Instream Flow Analysis to require applicants to determine the number of days over which water could be diverted at the proposed point of diversion, given  $Q_{mbf}$  and streamflow records from the nearest gauge, in a normal type year; and multiply that number of days by the  $Q_{mcd}$  to determine the total cumulative abstraction, annually, that may occur above the proposed point of diversion. It is also useful for applicants to perform similar analyses for a typically dry year (such as that with a total annual discharge exceeded by 75% or 80% of the years of record). Many of the data necessary for these calculations will already be assembled (streamflow at the nearest USGS gauge, proposed POD catchment area, USGS gauge catchment area, and the  $Q_{mbf}$  estimate), so it would simply require counting the number of exceedence days at the proposed POD for two different years. Applicants in small headwater streams must be aware that they may have few possible days to divert in a typical year, and this analysis would provide the opportunity to perform this self-check. These additional steps will help applicants determine whether the project as proposed can realistically meet its intended objectives. (*Matthew Deitch and Adina Merenlender, University of California, Berkeley*)

**Response:** The commenter suggests that the Draft Policy be revised to require applicants to

estimate the project yield and the number of days available for diversion. Staff notes that the analysis proposed by the commenter is incorrect because it would calculate the yield and the number of days available for diversion for the entire watershed rather than the individual project. Although the purpose of the Instream Flow Analysis is to assess the effects of the proposed project, in combination with senior diversion, to instream flows needed for protection of fishery resources, the project yield and the number of days available for diversion would help assess the viability of the proposed project. Staff will consider adding provisions for calculating individual project yield and the individual project's number of days available for diversion to the Instream Flow Analysis.

**Comment 6.0.23:** The 2007 Draft Policy requires water right applicants to perform a thorough exploration of senior water rights and hydrologic data relative to proposed points of diversion as part of the Instream Flow and Water Availability Analyses. Informal feedback from potential appropriators and researchers has indicated that this is an enormous undertaking for individual applicants; yet we agree that this information is important for understanding how a proposed diversion may affect senior water right holders and hydrological conditions locally as well. Because the data required for these water supply and water availability reports are so extensive, compiling these data may not accelerate the approval or disapproval of pending or future water rights as the policies are intended. Second, from the perspective of agencies charged with evaluating proposed projects, the tools currently employed may not allow for transparency and methods for analysis may be overly time-consuming. A GIS/database tool with a web-based interface could provide a comprehensive and standard mechanism for creating water supply and availability analyses, which would save applicants from the cost of piecemeal analyses for each new water right, and would save Division staff and other resource agencies from having to review ambiguous reports. A suitable GIS tool may also provide a spatial framework for guiding and evaluating the Watershed Approach, for assessing the ecological benefits of shifting water demand from times of need (such as the summer growing season), to periods of relative abundance, and for comparing management scenarios (such as the magnitude of different Qmbf or Qmcd values) across a drainage network. We would welcome the opportunity to develop and test hypotheses of local- and cumulative impacts related to small reservoir construction policies, if the opportunity were to arise. *(Matthew Deitch and Adina Merenlender, University of California, Berkeley)*

**Response:** Most of the information required to be submitted for the water supply report is readily available in State Water Board records for use in the analysis. A consistent data set currently exists in the Division's e-WRIMS public database, which not only includes the necessary information on senior diverters for the Water Supply Report, it also includes the locations of each POD in GIS. In addition, the information needed for the water supply report is very similar to the information needed for completing a WAA/CFII report for implementing the DFG-NMFS Draft Guidelines. With new applications and petitions consistently being added into the e-WRIMS system, the Division will be providing a consistent database for the public to use in its evaluation of existing water diversions.

A GIS-based tool for analysis purposes may expedite the time involved in performing analysis work; however, due to budget limitations, the State Water Board is unable to pursue this at the present time.

**Comment 6.0.24:** The Policy does not apply to the backlog of applications. *(Ellen Drell, The Willits Environmental Center)*

**Response:** Comment noted. The Draft Policy applies to pending and future water right

applications, which include backlog applications.

**Comment 6.0.25:** The Policy leaves too much baseline data gathering and analysis to the diverter (applicant), which should be done by the State Water Board or other agency. *(Ellen Drell, The Willits Environmental Center)*

**Response:** Most of the information required to be submitted for the water supply report is readily available in State Water Board records for use in the analysis. A consistent data set currently exists in the Division's e-WRIMS public database, which not only includes the necessary information on senior diverters for the Water Supply Report, it also includes the locations of each POD in GIS. In addition, the information needed for the water supply report is very similar to the information needed for completing a WAA/CFII report for implementing the DFG-NMFS Draft Guidelines. With new applications and petitions consistently being added into the e-WRIMS system, the Division will be providing a consistent database for the public to use in its evaluation of existing water diversions. Qualified Division staff review every water availability analysis that is submitted by the applicants. If errors are found, the Division does not accept the analysis and requires the applicant or the applicant's agent to revise the analysis and resubmit it. Division staff then review the subsequent resubmittal to make sure all errors have been fixed before acceptance of the analysis.

**Comment 6.0.26:** I represent four Landowners in Mendocino County and the proposed policy will directly impact the viability and long term sustainability of these on going farming operations. Combined, these Landowners own over 500 acres of vineyard that divert water from the Russian River and its tributaries for irrigation and frost protection purposes. These Landowners have filed Applications or Petitions for change; some were filed up to ten years ago, and these Landowners are still working their way through the regulatory process. Most are well along in their CEQA studies, many have completed necessary CFII and WAA studies or will do so shortly; they are in the process of preparing the necessary CEQA documentation (Draft Initial Study). They are all attempting to complete the required regulatory process. The January 1, 2008 "cut off", requiring that they submit the CFII and WAA studies prior to this date, and that they comply substantially with the Policy requirements ignores the fact that these Landowners have been working towards the completion of their project for many years, at great expense. In certain instances, these Landowners have been effectively prohibited from completing the necessary studies due to the fact that State Agencies have not fulfilled their responsibility to provide necessary feed back or information. For example the California Department of Fish and Game has failed to provide POI information in a timely manner - thus delaying or eliminating the possibility of proceeding (and passing through the process before the deadline to do so). Placing the cut off for these projects mid-stream in the process (after they have spent years and great sums of money on the project) is unfair. A more equitable solution would be to trigger the new policy only for projects for which the Application or Petition were filed after the regulation enactment date. *(Mark D. Edwards, North Coast Resource Management)*

**Response:** Section 4.0 of the Draft Policy indicates that if an applicant has submitted a water availability analysis and analysis of cumulative flow-related impacts prior to January 1, 2008, and the proposed project is consistent with the recommendations contained in the DFG-NMFS Draft Guidelines, then the State Water Board will consider processing the water availability aspects of the application using the DFG-NMFS Guidelines. Staff notes that most, if not all, of the hydrologic analysis recommended by the NMFS-DFG Draft Guidelines would be utilized as part of the proposed policy's analysis requirements. The NMFS-DFG Draft Guidelines allow for site specific study, so does the proposed Policy. Although the Draft Guidelines did not

delineate the biological studies required, staff does not anticipate the costs for site specific biological studies described in the Draft Policy to be substantially different than those that would be performed under the NMFS-DFG Draft Guidelines. The Scientific Basis Report that supports the Draft Policy concluded that the NMFS-DFG Draft Guidelines are not fully protective of fish habitat throughout the policy area. The Draft Policy proposes using different criteria that the Scientific Basis Report found to be protective throughout the policy area. Using a cut off date of January 1, 2008, which coincides with the public release of the December 2007 Draft Policy and the Scientific Basis Report, would allow implementation of regionally protective criteria that would minimize further habitat deterioration.

The Scientific Basis Report that supports the Draft Policy concluded that the NMFS-DFG Draft Guidelines are not fully protective of fish habitat throughout the policy area. The Draft Policy proposes using different criteria that the Scientific Basis Report found to be protective throughout the policy area. Using a cut off date of January 1, 2008, which coincides with the public release of the December 2007 Draft Policy and the Scientific Basis Report, would allow implementation of regionally protective criteria that would minimize further habitat deterioration.

**Comment 6.0.27:** Many projects (with associated petitions and applications) currently under review by the Division of Water Rights involve projects that were constructed by Landowners many years ago. Landowners have submitted applications or petitions to change these projects, in a "good faith" effort to bring projects into conformity with current law. The Draft Policy does not appropriately differentiate between those landowners who are in the system, and those who have never entered the system (and hence have not expended any effort of funds to reach compliance). As such, the January 1, 2008 cut off that does not recognize the good faith efforts of these landowners is punitive and discriminatory to these landowners. Again, I recommend that any new policies adopted only apply to those projects for whom no application or petition has been filed. (*Mark D. Edwards, North Coast Resource Management*)

**Response:** Section 4.0 of the Draft Policy indicates that if an applicant has submitted a water availability analysis and analysis of cumulative flow-related impacts prior to January 1, 2008, and the proposed project is consistent with the recommendations contained in the DFG-NMFS Draft Guidelines, then the State Water Board will consider processing the water availability aspects of the application using the DFG-NMFS Guidelines. Staff notes that most, if not all, of the hydrologic analysis recommended by the NMFS-DFG Draft Guidelines would be utilized as part of the proposed policy's analysis requirements. The NMFS-DFG Draft Guidelines allow for site specific study, so does the proposed Policy. Although the Draft Guidelines did not delineate the biological studies required, staff does not anticipate the costs for site specific biological studies described in the Draft Policy to be substantially different than those that would be performed under the NMFS-DFG Draft Guidelines. The Scientific Basis Report that supports the Draft Policy concluded that the NMFS-DFG Draft Guidelines are not fully protective of fish habitat throughout the policy area. The Draft Policy proposes using different criteria that the Scientific Basis Report found to be protective throughout the policy area. Using a cut off date of January 1, 2008, which coincides with the public release of the December 2007 Draft Policy and the Scientific Basis Report, would allow implementation of regionally protective criteria that would minimize further habitat deterioration.

The Scientific Basis Report that supports the Draft Policy concluded that the NMFS-DFG Draft Guidelines are not fully protective of fish habitat throughout the policy area. The Draft Policy proposes using different criteria that the Scientific Basis Report found to be protective throughout the policy area. Using a cut off date of January 1, 2008, which coincides with the public release of the December 2007 Draft Policy and the Scientific Basis Report, would allow

implementation of regionally protective criteria that would minimize further habitat deterioration.

**Comment 6.0.28:** The commenter suggests that hydrologists be included as qualified to prepare the studies required by Draft Policy Section 4. (*Eric Goldsmith, Sanctuary Forest*)

**Response:** The biological assessments that are described in the water availability analysis involve interpretative professional judgment. Because these assessments can be complex and involve many variables, it is important that the fisheries biologist hired to perform them have the appropriate background and experience. On the other hand, the other aspects of the water availability analysis are explicitly detailed within the Draft Policy and Appendix. On a case by case basis, staff may request the qualifications of other individuals participating in the completion of site specific studies and water availability analyses for review and acceptance.

**Comment 6.0.29:** The Policy section entitled Data Submissions (4.1.1.1) repeatedly refers to public domain spreadsheets and programs. The issue is not whether data analysis and models are done using public or private software, but whether the raw data are made available and the computer codes for models are made available so that results can be fully audited. Any revision of the Policy should have clear language that specifies full raw data availability and model transparency. (*Patrick Higgins, Consulting Fisheries Biologist/Sierra Club Redwood Chapter*)

**Response:** Comment noted. Staff will consider this recommendation when making revisions to the Draft Policy.

**Comment 6.0.30:** The water supply report described in section 4.1.2 of the Draft Policy does not require the description of flow conditions in the stream or a determination of surplus water availability for April through November. Applicants are asked, however, to hire consultants to make a case that there is surplus water available in winter. This will not only be expensive, the consultants may actually be unable to determine the amount of cumulative diversion without an extensive survey because of unregistered riparian rights, pre-1914 water rights and those that have been established illegally. They will also be forced to use models and simulated data that produce considerable error, as discussed by peer reviewer Lang (Lang, 2008). (*Patrick Higgins, Consulting Fisheries Biologist/Sierra Club Redwood Chapter*)

**Response:** Section 4.1.2 of the Draft Policy requires the water supply report analysis to cover the season of diversion being proposed by the applicant.

Most of the information required to be submitted for the water supply report is readily available for use in the analysis. Additionally, the information needed for the water supply report is the same information needed for completing a WAA/CFII report under the State Water Board's current analysis recommendations for assessing water availability.

The commenter is correct that the Division's information riparian and pre-1914 water right holders and claimants is not complete for all diverters making such claims. Sections 4.1.2, A.2.0, and A.5.0 of the Draft Policy indicate that information on senior diverters and riparian and pre-1914 claimants should be utilized in the water availability analysis to the extent information is available in State Water Board records or other sources of information.

The Draft Policy allows the use of methods other than the adjustment of streamflows method to estimate unimpaired flows. Section A.5.2.1 of the Draft Policy recommends unimpaired flows be derived using one of three approaches: (1) "adjustment of streamflow records", where the

unimpaired flow at a point is determined by prorating flow data from a nearby gage using precipitation and drainage area, (2) "precipitation-based streamflow models", or (3) another method acceptable to the State Water Board.

All analysis should be based on the best available data using accepted modeling techniques. The models may not predict the exact stream flow but they can be used to make an informed decision on whether or not further more accurate studies are needed to determine water availability.

**Comment 6.0.31:** Where the policy calls for a standard calculation (instantaneous peak flows, unimpaired flow volumes), select a preferred methodology and ask applicants to use it where possible. *(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society)*

**Response:** Comment noted. Staff will consider this recommendation when making revisions to the Draft Policy.

**Comment 6.0.32:** Ensure that the Policy appendices and flowcharts require consideration of all existing and reasonably foreseeable diversions in the cumulative effects analysis, and to ensure that the analysis is not limited to senior diversions. *(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society)*

**Response:** Appendix 1 and Figure A-1 describe guidelines for performing water availability analyses. Water availability is based on first in time, first in right and therefore only needs to consider senior rights and the pending project. For the purposes of water availability, only senior diversions plus the proposed project need to be evaluated. The cumulative consideration of all existing and reasonably foreseeable diversions is a requirement of CEQA, which is a separate evaluation from a water availability analysis.

**Comment 6.0.33:** Amend Draft Policy Sections 4.1.4 and 4.2 to require consultation with DFG on determinations of upper limit of anadromy and stream classification, respectively. *(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society)*

**Response:** Comment noted. Staff will consider making these revisions to the Draft Policy as they pertain to Policy Section 4.1.4.3 (Determination of upper limit of anadromy using site-specific studies conducted by a qualified fisheries biologist.), and Policy Section 4.2 (stream classification). If revisions are made, the DFG would be provided a reasonable period of time (not less than 30 days) to review and comment on the determinations before they are finalized.

Concurrence from DFG is not necessary if water right applicants use one of the two methods described in Policy Sections 4.1.4.1 and 4.1.4.2 for determining the upper limit of anadromy. These two methods rely on either studies previously accepted by the State Water Board, NMFS, or DFG; or rely upon a channel gradient approach developed by the fisheries biologists that provided the Scientific Basis for the Draft Policy.

**Comment 6.0.34:** The Policy Appendix provides, in detail, three different methods for estimating the 1.5-year recurrence interval of annual peak flow rate. This leaves open the possibility for ambiguity as to whether a project meets the 5 percent difference criterion. One of the methods ("regional regression") is not a function of flow and therefore will provide the same estimated 1.5-year flow rate under unimpaired and impaired conditions. This limits its

usefulness. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** The March 2008 Draft Policy recommends two peak flow frequency analysis methods that could be used for the determination as to whether a project meets the 5 percent difference criterion: the Bulletin 17B methodology (described in A.1); and the peaks over threshold method (described in A.2). In addition, the Policy allows the use of the regional regression method or other methods acceptable to the State Water Board if more accurate methods become available in the future.

As noted by the commenter, different methods of peak flow frequency analysis will provide different estimates of the 1.5 year peak flow therefore whichever method is used to calculate the unimpaired peak flow should also be used to determine the impaired peak flow. The commenter also noted that the regional regression method can be used to determine the 1.5 year peak flow for the purpose of determining the maximum cumulative diversion but this method is not useful for the assessment of impaired conditions.

Staff will consider this comment and other comments received on this topic when evaluating whether to primarily recommend the peaks over threshold method for determining whether a project meets the 5 percent difference criterion between the unimpaired and impaired 1.5 year peak flow.

**Comment 6.0.35:** The Policy Appendix directs that statistical analysis be conducted to estimate the 1.5 year flow rate corresponding to unimpaired and impaired flow conditions. This can be problematic since statistical techniques developed for unimpaired conditions may not be applicable to impaired conditions. While the Policy Appendix directs use of USGS Bulletin 17B "Guidelines for Determining Flood Flow Frequency" for estimating the 1.5- year flow rate, Bulletin 17B warns "The procedures do not cover watersheds where flood flows are appreciably altered by reservoir regulation..." (p. 2). It goes on to explain that while a natural time series can reasonably be assumed to conform to a log-Pearson Type III distribution, that assumption is violated where impairment is significant. Indeed, because the Bulletin 17B technique only looks at annual peak flows, all low and moderate flows could be eliminated without affecting the estimate of the 1.5-year flow. This would, however, violate the assumption on which the technique is based. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** The statement referred to in Bulletin 17B applies to streams that have regulated flows that are controlled by large dam operation. The flows in most of the streams affected by the Draft Policy are impaired due to small dam operation. Flows in these types of streams do not see large sudden controlled changes in flow. Staff will consider this comment and other comments received on this topic when evaluating whether to primarily recommend the peaks over threshold method for determining whether a project meets the 5 percent difference criterion between the unimpaired and impaired 1.5 year peak flow. The peaks over threshold method (also referred to as the partial duration method) considers approximately three peaks per year and does not dictate use of a particular distribution for curve fitting.

**Comment 6.0.36:** The maximum cumulative diversion rate (MCD2) was modeled as a rate of flow limiting the daily diversion at each respective point of diversion (POD). However, the Policy Appendix appears to allow a project to divert more than the MCD2 rate, provided that



the change in estimated 1.5-year flow rate does fall by more than 5 percent between the unimpaired and with-project conditions. This has the potential effect of allowing fill and spill operation for a reservoir (recognizing that the minimum bypass requirement is still effective). Analyses of diversion operations without the MCD2 as a diversion constraint nevertheless showed greater than 5 percent change in the estimated 1.5-year flow rate. Thus the apparent allowance to "ignore" the MCD2 diversion constraint fails upon testing for the change in 1.5-year rate. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** This commenter has two concerns. The commenter indicates the MCD was used differently in the hydrologic analysis contained in Appendix F of the Scientific Basis Report as compared to how the Draft Policy proposes to apply it to water right applications. The commenter states that the MCD2 was modeled as a rate of limiting flow at respective points of diversion, which appears to describe the modeling that occurred for the validation sites used in development of the Policy. In the Scientific Basis Report, the maximum limit under each MCD scenario was modeled in order to evaluate the worst-case effects of the various MCD alternatives. The modeling at these sites with respect to the MCD assumed that the cumulative diversion upstream of these sites was maximized to the limit of each MCD scenario. Therefore, in the case of MCD2 the instantaneous cumulative diversion rate at any time at any validation site was assumed to be the rate equal to 5% of the 1.5 year flow.

The Policy Appendix describes how the MBF and MCD should be applied when evaluating the effects of proposed water right projects on instream flows for passage, spawning, and channel maintenance. This analysis is different from the analysis to evaluate worst case conditions. Staff agrees that the language in Section 2.3.3 of the Policy is confusing when compared to the procedures outlined in Sections A.5.2.3 and A.5.11.5 describing application of the MCD for analysis of proposed projects. The MCD criteria is a threshold used to evaluate the effects of cumulative diversions in a POI's watershed, and is not necessarily the rate of diversion limit for a POD. Staff will evaluate making revisions to the Draft Policy to clarify this. The MCD principle is the same in both sections of the Policy. The inclusion of an MCD limitation is meant to preserve the natural hydrograph and channel maintenance by limiting cumulative diversion rates above a point of interest to 5% of the 1.5 year flow.

Using the procedures in Section A.5.11.5, if a project does not cause a change in existing conditions at a POI, the project does not affect channel maintenance flows. If a project results in less than a 5% change to the 1.5-year peak flow at a POI, the project does not affect channel maintenance flows. This means that under certain impaired watershed conditions, the Draft Policy allows an individual project to divert more than 5% of the 1.5 year return flow at its point of diversion if the MCD is met in the overall watershed at the POI.

It may be possible for a fill and spill reservoir to operate without a rate of diversion limitation in the right circumstances. Staff modeled a pending water right application using the provisions of the Policy and showed that a reservoir could fill without a rate of diversion limitation and still have less than a 5% change to the 1.5 year flow at the POI when comparing the unimpaired vs. the impaired with project daily flow data. This occurred because the reservoir had a very large upstream watershed. This allowed the reservoir to fill quickly in most years which had little effect on the natural hydrograph.

**Comment 6.0.37:** Policy section 2.3.4 "requires the evaluation of whether a proposed water diversion project, in combination with existing diversions in a watershed, may affect instream

flows needed for fishery resource protection". While this section does not clarify how that is to be done, the process is detailed in the Appendix Section 5.11.4 and 5.11.5. This section inappropriately uses an assessment method to evaluate a proposed project's impacts by allowing a comparison to the current baseline conditions in the watershed. To properly evaluate a project's impacts as they relate to protecting instream flow, this section should be revised to require an appropriate analysis of the individual project's impacts. This comparison should be made not with the current conditions or the unimpaired conditions, but instead to the protective conditions for the minimum bypass flow and maximum cumulative diversion recommended in the Task 3 Report. Projects unable to comply with the protective conditions developed in the Task 3 Report are not protective of instream flow, which is the goal of this policy. DFG can not support a provision that would allow continuous incremental reductions in the minimum bypass flow or incremental increases in the maximum cumulative rate limitations that would result in additional incremental cumulative adverse impacts to the public trust. *(Donald Koch, State of California Department of Fish and Game)*

**Response:** Commenter appears to have misinterpreted the sections of the Policy they refer to. Division staff will consider revising the language of the Appendix Sections 5.11.4 and 5.11.5 if it appears unclear. The requirements of these sections of the Policy appropriately assess the projects impacts and do not allow for incremental cumulative reductions in flows below the MBF or above the MCD. The evaluation of whether the project contributes to significant reduction in flows for spawning, passage, and channel maintenance are assessed using the unimpaired condition, the existing impaired condition, and the existing impaired condition plus the pending project to get an assessment of the change the pending project would make if approved. The number of days flows exceed the MBF and the estimation of the 1.5 year flow based on the natural flow conditions of the unimpaired state are the baseline for the analysis. The analysis requires an evaluation of the existing conditions (senior diverters) without the project vs. the unimpaired condition to get an idea of the existing impairment at various points of interest in a watershed. If the existing impairment exceeds the MBF and MCD thresholds, in order to show water is available for the pending project, the evaluation of the pending project's incremental increase should show no change to the existing conditions at the various points of interest being evaluated. This is essentially equates to zero change to the existing condition. If a pending project creates a change to the existing conditions and the existing conditions already exceed the MBF and MCD thresholds, then water would not be available for the pending project, unless changes are made to the project that result in no change to the existing conditions. If the existing conditions do not exceed MBF and MCD thresholds then water is available for the pending project as long as the MBF and MCD thresholds are not exceeded.

It should be noted that the analysis outlined in the Policy Appendix is for making a determination about water availability for the pending project. This determination is separate from a determination that the pending project creates no impacts under CEQA. Water availability is based on first in time, first in right and therefore only needs to consider senior rights and the pending project. For the purposes of water availability, only senior authorized diversions plus the proposed project need to be evaluated. The cumulative consideration of all existing and reasonably foreseeable diversions is a requirement of CEQA, which is a separate evaluation from a water availability analysis.

**Comment 6.0.38:** DFG recommends that any determination of the upper limit of anadromy be done by a qualified biologist in conjunction with DFG and that any determination of the upper limit of anadromy accepted by the State Water Resources Control Board include a written concurrence from DFG. *(Donald Koch, State of California Department of Fish and Game)*

**Response:** Comment noted. Staff will consider making these revisions to the Draft Policy as they pertain to Policy Section 4.1.4.3 (Determination of upper limit of anadromy using site-specific studies conducted by a qualified fisheries biologist.). If revisions are made, the DFG would be provided a reasonable period of time (not less than 30 days) to review and comment on the determinations before they are finalized.

Concurrence from DFG is not necessary if water right applicants use one of the two methods described in Policy Sections 4.1.4.1 and 4.1.4.2 for determining the upper limit of anadromy. These two methods rely on either studies previously accepted by the State Water Board, NMFS, or DFG; or rely upon a channel gradient approach developed by the fisheries biologists that provided the Scientific Basis for the Draft Policy.

**Comment 6.0.39:** DFG recommends changes to Policy section 4.1.6 to require points of interest determinations be made by the State Water Board in consultation "and with concurrence from" DFG. (*Donald Koch, State of California Department of Fish and Game*)

**Response:** Comment noted. On past projects, Division staff have experienced delays to processing pending applications because they are waiting for a response from DFG regarding the selection of points of interest. This delay slows down the permitting process, sometimes by several months. Section 4.1.6 of the Draft Policy will be modified to provide the DFG a reasonable period of time (not less than 30 days) to review and comment on POI selection before they are finalized.

**Comment 6.0.40:** At some point permitting additional diversions within a watershed will certainly exceed the capacity of that watershed to provide enough water to protect instream flows and supply senior diverters. However, both the text and the flow chart provided in the Appendix (Figure A-1) that provide guidelines for the preparation of the Water Supply Reports and Instream Flow Analysis never find that "insufficient water is available for diversion" after the process enters the Instream Flow Analysis phase. Continuing to permit additional diversions in already impaired watersheds only compounds the problem that already exists by allowing additional non-conforming diversions without adequate instream flow protection to continue to come "on line", causing continued incremental damage to resources and/or their habitat. DFG recommends that if it is impossible to permit a project with instream flow protections to support passage, spawning and habitat maintenance, then the determination that "insufficient water is available for the project" should be made and the stream should be placed on the FAS list. (*Donald Koch, State of California Department of Fish and Game*)

**Response:** Comment noted. The Water Supply Report and Instream Flow Analysis are used to make an evaluation of water availability while considering instream flows and senior diverters. The analysis outlined provides an evaluation of the project's impacts to instream flows, initially using the regional thresholds described in Draft Policy section 2.3. The finding "insufficient water is available for diversion" is not mentioned because the applicant has the option of doing site specific studies to determine if the regional Policy thresholds are too high for the site specifics of the project. If site specific studies show that the MBF and MCD can be changed to a lower threshold, then the Applicant can re-evaluate the impacts of senior diverters and the pending project based on the site specific thresholds. If the site specific studies show that the regional criteria outlined in the Policy can not be lowered OR the re-evaluation of the project based on site specific thresholds still show the proposed project will cause impacts to instream flows, then water may not be available for diversion, unless the applicant modifies the pending project so that impacts do not occur. If the applicant cannot

modify the project to prevent impacts to instream flow then water is not available for diversion.

**Comment 6.0.41:** In the procedure outlined in Policy Appendix Section A.5.2.1.A, Adjustment of Streamflow Records, step 1 requires the selection of daily streamflow records from a gage near the POD. Step 2 requires the applicant to calculate the average seasonal flow volume from the gage data selected in step 1. Step 2 also states that the applicant should "assume that this is the average unimpaired seasonal flow volume". DFG recommends that, unless the daily streamflow records selected in step 1 are from a watershed that is not impaired by water diversions or impoundments, the streamflow records should be adjusted for impairments to obtain an estimate of the unimpaired flow at the gage before they are used to calculate the average unimpaired seasonal flow volume in step 3. *(Donald Koch, State of California Department of Fish and Game)*

**Response:** Staff notes that this comment probably refers to Policy Appendix Section A.2.1.3 (Water Supply Report) rather than Section A.5.2.1.A. Step 2 of Section A.2.1.3 does not require the applicant to unimpaired the seasonal flow volume because this analysis is used only in the Water Supply Report, and use of gage records with some impairment will result in a conservative estimate of the volume of water available for diversion. This level of accuracy is adequate for the level of detail needed to complete a Water Supply Report.

**Comment 6.0.42:** DFG recommends that the State Water Board modify the language in Appendix 1, Section A.2.1.3 of the Draft Policy to state that the State Water Board, rather than individual applicants, calculate the unimpaired flows at the gages in the policy area to avoid individual errors in calculating these unimpaired flow values. *(Donald Koch, State of California Department of Fish and Game)*

**Response:** Comment noted. Qualified Division staff review every water availability analysis that is submitted by the applicants. If errors are found, the Division does not accept the analysis and requires the applicant or the applicant's agent to revise the analysis and resubmit it. Division staff then review the subsequent resubmittal to make sure all errors have been fixed before acceptance of the analysis.

**Comment 6.0.43:** DFG states the equation found in Appendix 1, Section A.5.4 for calculating the mean monthly flow at each onstream storage point of diversion is incorrect. DFG provided a suggested correction to the formula on page 19 of Attachment A of their comment letter. *(Donald Koch, State of California Department of Fish and Game)*

**Response:** Comment noted. Correction will be made.

**Comment 6.0.44:** Appendix 1 Section A.5.8 of the Draft Policy describes the method for increasing the minimum bypass flow at the proposed point of diversion (POD) to prevent impacts to flows needed for spawning and passage at downstream points of interest (POI). The first step of the method requires the water right applicant to calculate impaired flows at the POI. It appears that the method is intended to account for accretions between the POD and the POI. However, the method calculates accretions by adjusting the minimum bypass flow at a POD based on the change in drainage area and the change in precipitation. To properly account for accretions, the method should add the unimpaired accretions between the POD and the POI to the minimum bypass flow at the POD and then subtract the diversions. DFG provided a suggested correction to the formula on page 20 of Attachment A of their comment letter. *(Donald Koch, State of California Department of Fish and Game)*

**Response:** Commenter's suggested correction is noted, however the equation in the Policy is correct and achieves the intended results. The purpose of Policy Section A.5.8 is to check to see whether the MBF at the POD needs to be increased in order to create conditions where the impaired flow at the POI equals the regional estimate of the MBF for the POI.

The proration part of the equation,  $MBF_{pod} * (DA_{poi} / DA_{pod}) * (P_{poi} / P_{pod})$  accounts for any accretion flows between the POD and the POI because this part of the formula estimates the unimpaired flow that will occur at the POI when the unimpaired flow at the POD equals the calculated MBF. Prorating the drainage area and precipitation between the two points accounts for accretion flows. The commenter's suggestion of taking the difference between the mean annual unimpaired flow for the POI and the mean annual unimpaired flow for the POD and adding it to the MBF for the POD does not estimate the flow that will occur at the POI when the MBF is met at the POD because the commenter's suggestion uses the annual average flow for the two points.

By prorating the MBF for the POD to the POI, you have an estimate of the instantaneous flow that will occur at the POI when flow at the POD equals the MBF. Taking this estimate of flow at the POI and subtracting out all instantaneous direct diversion rates and diversion rates to offstream storage gives an estimate of the impaired flow that will occur at the POI when the flow at the POD equals the MBF. If this flow is less than the regional estimate of the MBF for the POI, then the MBF at the POD should be increased in order to create the condition where the impaired flow at the POI equals the regional estimate of the MBF for the POI. In other words the MBF at the POD is increased to account for any senior diverters without bypass conditions that are causing the flow at the POI to drop below the regional estimates for protection of instream flows. The proration part of the equation in the Policy gives a more accurate estimate of these intended results than the commenter's suggestion.

**Comment 6.0.45:** If the Daily Flow Study is intended to be used as an assessment of the effects of the project on instream flow protection to address both biological protection and habitat availability requirements, including appropriate channel maintenance flows, it must include site specific information on the biological needs of public trust resources at and below the POI sites. Supplying information on the amount of flow reduction or the duration of flow decreases will not adequately address the loss of required habitat necessary to meet the biological needs of fish and wildlife resources. Adequate assessment of the effect of loss of available habitat for rearing, passage and reproduction are necessary if the assessment is to be used for a finding of less than significant impact. (*Donald Koch, State of California Department of Fish and Game*)

**Response:** The Daily Flow Study is described in Section A.5.11 of the Draft Policy. It is an assessment of the proposed project's effect on instream flows and senior diverters for the purposes of making a Water Availability determination. It is not a complete biological assessment. The Daily Flow Study may be used in a CEQA document as part of the biological and hydrological assessment, but depending on site specifics of the proposed project, it may not be the only study conducted for CEQA purposes. However the Daily Flow Study, in conjunction with the other parts of the Water Availability Analysis, does give Division Staff sufficient information to make a determination on water availability for a project, as required by Water Code Section 1375 subdivision (d).

**Comment 6.0.46:** Circulating a CEQA document does not ensure that the project is approvable; the project may be modified or mitigated based on comments provided during the public comment period or the project may be withdrawn. DFG recommends this exception to

the Policy (described in item 4 of section 4.0) be revised to read: "If, prior to adoption of the policy, the State Water Board has certified a negative declaration, mitigated negative declaration, or environmental impact report, pursuant to the California Environmental Quality Act, the State Water Board may continue processing the application without applying the regionally protective criteria contained in Section 2.3." (*Donald Koch, State of California Department of Fish and Game*)

**Response:** If a project's CEQA document is completed prior to the adoption of the policy, and a CEQA document is put into circulation, all of the technical analysis would be complete, and the project would have been evaluated with the DFG-NMFS Draft Guidelines. It is unreasonable to go back and redo the Initial Study and water availability analysis if the policy is adopted during the circulation period. If the CEQA analysis has a flaw, the State Water Board will use their discretion on whether to approve the circulated documents.

**Comment 6.0.47:** DFG recommends changing the fisheries biologist qualifications contained in Policy Section 4.1.5 to read "documentation of "participation in" field data collection rather than "presence during". (*Donald Koch, State of California Department of Fish and Game*)

**Response:** Draft Policy Section 4.1.5 already states, "Persons proposing to conduct either (1) site specific studies to modify regional policy criteria, or (2) biological assessments for the watershed approach shall provide documentation of direct, substantial participation in at least two previous fish habitat instream flow studies."

**Comment 6.0.48:** DFG recommends expanding the fisheries biologist qualifications list contained in Policy Section 4.1.5 to include all of the qualification necessary for the work described in the Policy. As written, it is specific to fish habitat assessment and instream flow studies, but if the biologist is expected to prepare mitigation, consider life history and habitat needs for resident fish, amphibians, and riparian species, then this should be included in the qualifications listed. (*Donald Koch, State of California Department of Fish and Game*)

**Response:** The biological assessments that are described in the water availability analysis involve interpretative professional judgment. Because these assessments can be complex and involve many variables, it is important that the fisheries biologist hired to perform them have the appropriate background and experience. On a case by case basis, staff may request the qualifications of other individuals participating in the completion of other studies for review and acceptance.

**Comment 6.0.49:** DFG recommends the Policy include the qualifications requirements for all other consultants that will be providing information for State Water Board review and approval during the permitting process. Specifically, hydrologists, geomorphologists, and agencies will be needed to perform site-specific studies to obtain variances from the Regional Criteria for diversion season, minimum bypass flow and or maximum cumulative diversions specified in Appendix A. Their qualifications should be as clearly identified in the Policy as those for the fisheries biologist. (*Donald Koch, State of California Department of Fish and Game*)

**Response:** The biological assessments that are described in the water availability analysis involve interpretative professional judgment. Because these assessments can be complex and involve many variables, it is important that the fisheries biologist hired to perform them have the appropriate background and experience. On the other hand, the other aspects of the water availability analysis are explicitly detailed within the Draft Policy and Appendix. On a case by case basis, staff may request the qualifications of other individuals participating in the

completion of site specific studies and water availability analyses for review and acceptance.

**Comment 6.0.50:** Policy Appendix Section A.5.2.1.A.2 on page A1-15 states that the gauge record can be assumed to represent unimpaired conditions. DFG recommends that the gauge record used to calculate daily unimpaired flows at a point of interest be adjusted to account for any impairments. In addition, DFG recommends that the information utilized to determine this adjustment be included for review to ensure that an error in the process does not result in the determination of an inappropriate minimum bypass flow. (*Donald Koch, State of California Department of Fish and Game*)

**Response:** Policy Appendix Section A.5.2.1.A. outlines procedures for the Adjustment of Streamflow Records Method of estimating mean annual unimpaired flows at POIs. Although the commenter pointed out that item 2 in this section does not state to unimpair the gauge, item 3 does. If a gauge is unimpaired, this section of the policy also requires the submittal of the details of how the upstream demands were estimated, and how they were used to unimpair the gage.

**Comment 6.0.51:** Another consideration is the methodology whereby potentially significant curtailments to water rights and uses will be administered. As it stands, the policy ignores junior versus senior water rights, in spite of applying in the appropriative water rights system which is predicated on seniority. (*Bill Kocher, City of Santa Cruz Water Department*)

**Response:** Section 4.1 of the Draft Policy requires water right applicants to submit a Water Availability Analysis that evaluates whether the proposed project, in combination with senior diversions, impacts the instream flows needed for protection of fishery resources. Water availability is based on first in time, first in right and therefore only needs to consider senior rights and the pending project. For the purposes of water availability, only senior diversions plus the proposed project need to be evaluated. The Policy with respect to Water Availability does not consider junior rights because it is applying the seniority of the water rights system. Junior right holders cannot be considered in a Water Availability analysis because the project being evaluated has a higher priority and water is only available to junior holders after all senior rights are satisfied. Junior right holders will conduct their own water availability analysis that considers all senior right holders plus their project at the appropriate time. The cumulative consideration of all existing and reasonably foreseeable diversions is a requirement of CEQA, which is a separate evaluation from a water availability analysis.

**Comment 6.0.52:** In the interim while a new policy is developed with the assistance and cooperation of all stakeholders, not just Trout Unlimited and Natural Heritage Institute, here are three suggestions. As you read further, the rationales for these suggestions will become clear, and are simply based on what the Division staff repeatedly told applicants they would do, but never did.

A. For applications submitted prior to December 31, 1997, the appropriate procedure to evaluate them should be based on the procedures acceptable through December 31, 1997, i.e., procedures that were acceptable at that point in time.

B. For applications dated January 1, 1998 and later until a reasonable and comprehensive policy is developed, the Draft Guidelines of 2000 (modified in 2002) should be used, but in accordance with revisions suggested by professional engineers.

C. For applications dated subsequent to the adoption of a new Policy, use the provisions of

the new Policy. *(Rudolph Light)*

**Response:** The 1997 procedures were based on the best available information at the time they were developed. Ongoing discussion of the level of protectiveness of the 1997 procedures to instream resources led to the development of the NMFS-DFG Draft Guidelines. However, once developed, the NMFS-DFG Draft Guidelines states on page 7 that the February median bypass flow is only partially protective of instream flows needed for fish habitat in the policy area. The Scientific Basis Report for the Draft Policy corroborated this, and recommended different criteria that it concluded are protective throughout the policy area. Because of the threatened and endangered status of anadromous salmonids in the policy area, it is more protective to set a cut off date of January 1, 2008, which coincides with the public release of the December 2007 Draft Policy and the Scientific Basis Report, to minimize further habitat deterioration. Water Code section 1259.4 allows the State Water Board to consider the recommendations of the 2002 NMFS-DFG Draft Guidelines until the State Water Board adopts a policy.

**Comment 6.0.53:** The Policy states on page 8 under Section 4.0 that "If the applicant has submitted a water available [sic] analysis and an analysis of cumulative flow-related impacts prior to January 1, 2008, the State Water Board will consider processing the water availability aspects of the application using the DFG-NMFS Draft Guidelines if the State Water Board determines that the project is consistent with the recommendations contained in the DFG-NMFS Draft Guidelines pertaining to diversion season, onstream dams, minimum bypass flows, protection of the natural hydrograph and avoidance of cumulative impacts." This should be changed from "will consider processing the water availability aspects of the application . . ." to "will accept the Water Availability Analysis and the Cumulative Flow Impairment Index of the application . . ." The Draft Guidelines should first be modified in accordance with professional engineers' recommendations regarding natural hydrograph, minimum bypass flows and necessary structures. *(Rudolph Light)*

**Response:** Staff agrees that the word "consider" is not needed in the context of the sentence it is used in. The correction has been made to the revised Draft Policy. Modifications to the DFG-NMFS Draft Guidelines would need to be considered by the Agencies that jointly developed them, DFG and NMFS, rather than the State Water Board, because the State Water Board was not an author of the DFG-NMFS Draft Guidelines.

**Comment 6.0.54:** In the Power Point Presentation at the Santa Rosa Technical Workshop, State Water Board staff asserted that more storage is available under the Draft Policy than under the Draft Guidelines. The table of Bypass Flows comparing the four scenarios of Upper MBF, Lower MBF, Draft Guidelines February Median Flow (DG FMF) and 10% Exceedance is not a helpful table because it omits two very important things. First, there are only four selected streams and they may not be representative. But more important, the table doesn't include how many days per year one could collect water. In all of these methods, anytime a MBF is exceeded, it is a diversion day. For the Dry Creek Tributary, the DG FMF bypass is 6.8 cfs. How many diversion days would this allow? It isn't stated. Using the Lower MBF there must be at least 10 cfs, and the same question is asked: How many days does this happen? It doesn't say, but will clearly be fewer days because the MBF must exceed 10 cfs instead of 6.8 cfs. So, the DG FMF method obviously allows more storage in this size watershed than the Lower MBF method. On small watersheds, the Lower MBF and Upper MBF methods clearly are more restrictive than the DG FMF bypass as demonstrated by the Power Point Presentation table. *(Rudolph Light)*



**Response:** This commenter has taken the information presented at the workshop out of context. First, staff did not assert that more storage is available under the Draft Policy than under the Draft Guidelines. This can be seen in the Water Cost section of the workshop presentation. This part of the presentation provided examples of the application of the Policy to real water right projects. These examples provided a comparison of the Draft Policy vs. the Draft Guidelines and in all instances showed that the estimated project yield under the Draft Guidelines was higher than or equal to the Draft Policy.

Second this commenter has incorrectly commented on the data presented in the table that has been referenced. The referenced table provided a comparison of the different bypass flow levels at specific sites within the policy area based on the four alternatives for calculating bypass flow. The purpose of the table was to compare the minimum bypass flows allowed by the alternatives. It does not suggest that more diversion is allowed under the Draft Policy. In addition, it does not imply that there are more days of diversion allowed under one alternative or another. The commenter questions the selection of the streams displayed in the referenced table and suggests they may not be representative of Policy area streams. However, the sites selected for display in the referenced table are 4 of the 13 validation sites within the Policy area described in the Scientific Basis Report, and are representative of Policy area streams.

The commenter incorrectly assumes that because one MBF is higher than another that there automatically are more days of diversion and a greater yield for the diverter associated with the lower bypass flow rate. It is very plausible that on a day that the 6.8 cfs the commenter references is exceeded, that the flow on that day also exceeds the referenced 10 cfs. It is possible for there to be a few days where flow exceeds 6.8 cfs and is less than 10 cfs allowing for extra diversion of water, however this isn't likely to cause a large difference in yield for the project. More importantly, the commenter's argument does not take the MCD into consideration. The MCD is likely to have a greater impact on the days of diversion and the yield. In order to properly compare the Draft Policy with the Draft Guidelines the effects of the MCD limitations described in each alternative need to be included. The water cost portion of the staff presentation at the workshop provided a comparison of the flow volume available for diversion between three alternatives that includes consideration of the MCD. In addition, Appendix F of the Task 3 Report contains further discussion on the hydrologic analysis of the validation sites and the effects of the different MBF and MCD alternatives on diversion.

The Task 3 Report discusses the need for higher flows in smaller watersheds in order to be protective of fishery resources. Thus the DFG-FMF in the Draft Guidelines may not be protective of fishery resources in smaller watersheds. The Task 3 Report found the Upper MBF to be the most regionally protective bypass flow and thus the referenced table shows a higher bypass flow in the sample watersheds picked for comparison.

**Comment 6.0.55:** Finally, there is another issue which needs addressing. The Policy will require a stream gage to have been in service at least 10 years in order to consider the data both reliable and valid. While this is a laudable goal, the fact is most stream gages do not have that long an operating period. This requirement should be reduced to a five-year continuous operation. Moreover, using correlation studies one can develop valid and accurate long-term models from a gage with many years of data and apply results to gages with fewer years. This is not only possible but should be encouraged. Otherwise, the engineers will not be able to utilize valid and important stream gage data when preparing the Water Supply Report and the Instream Analysis, or the WAA/CFII as appropriate. Instead of a 10 year period for stream gages, require a period of 5 years continuous operation. (*Rudolph Light*)

**Response:** Staff assumes this comment refers to the text in Section A.5.2.1 of the Draft Policy which requires a 10 year period of record to estimate unimpaired flows using the Adjustment of Streamflow Records Method. There are an adequate number of stream gages in the policy area that have a 10 year period of record. A sampling of stream gage data from the USGS website for just Sonoma County shows the 10 year baseline for stream gage data is not unreasonable. Of the 41 USGS stream gages that are operated or were operated in Sonoma County, 28 gages had a period of record of 10 years or more. Additionally there were 11 gages with a period of record greater than 30 years and only one of those gages had a period of record that started after 1970. There were a total of 13 gages with a 10 year or greater period of record that started prior to 1970. This is just a small sampling of the USGS gages in the North Coast Policy area.

The commenter's method of using correlating studies to develop a period of record where gage information is not available would be considered another method of estimating unimpaired flows, which could be proposed for consideration by the State Water Board in accordance with Draft Policy Section A.5.2.1. A 10 year period of record would still be needed because most 10 year periods include a varying degree of water year types all of which help a decision maker understand the effects of diversion on a watershed during those different water years.

**Comment 6.0.56:** I realize on page 9 of the Draft Policy there are conditions which favor the acceptance of the Draft Guidelines' WAA/CFII for older projects but I think most applicants would appreciate a firmer stance on this point, so we know the WAA/CFII will be accepted. The rules and the process have changed numerous times over the last decade and each time the applicant has had to bear the expense and has had no real input into the process. It has been a nightmare, and we need to wake up with provisions we can abide by and can afford. Therefore, I respectfully suggest that until a new Policy is formulated and adopted, the Division of Water Rights (1) will use the Draft Guidelines (as modified by professional consulting engineers) as the standard method for implementing the North Coast Instream Flow Policy for all applications dated after January 1, 1998; and (2) will accept the WAA and CFII for all applications dated after January 1, 1998. (*Rudolph Light*)

**Response:** The Division has implemented the NMFS-DFG Draft Guidelines as recommendations rather than requirements because they were never formally adopted as policy. Because of this, the Division cannot consider them to be a standard method.

The NMFS-DFG Draft Guidelines states on page 7 that the February median bypass flow is only partially protective of instream flows needed for fish habitat in the policy area. The Scientific Basis Report corroborated this, and recommended different criteria that it concluded are protective throughout the policy area. Because of the threatened and endangered status of anadromous salmonids in the policy area, it is more protective to set a cut off date of January 1, 2008, which coincides with the public release of the December 2007 Draft Policy and the Scientific Basis Report, to minimize further habitat deterioration.

**Comment 6.0.57:** The review process in evaluating new water applications must be updated to reflect that all fresh water sources are dependent on precipitation and resultant runoff. Sonoma County located within the study area has a greater density of individual wells than any other rural county in the state. Hundreds of wells are located alongside streams which support salmonids, while ground water levels and well recharge rates have declined. (*NA, Maacama Watershed Alliance*)

**Response:** The Policy requires applicants to prepare a water availability analysis which

quantifies the amount of unappropriated water remaining instream after senior rights are accounted for and evaluates the effects of the proposed project, in combination with existing diverters, on instream flows needed to protect the fishery resource. These effects must be assessed at a minimum of two Points of Interest (POIs) as determined by the State Water Board in consultation with the Department of Fish and Game. In determining the POIs, the State Water Board will consider specific geology and site conditions present within the watershed and other pertinent information to ensure that the effects on fishery resources are adequately assessed. By maintaining instream (surface) flows needed to protect the fishery resource, the Policy also will help maintain riparian groundwater (subsurface) supplies. The State Water Board has completed mapping of subterranean streams and areas where groundwater pumping could potentially cause streamflow depletion in the Policy area. This mapping information is available from the State Water Board in a compilation of technical memoranda and maps entitled "Delineated Subterranean Streams and Potential Streamflow Depletion Areas," dated November 14, 2008 by Stetson Engineers Inc.

**Comment 6.0.58:** The Policy calls for water availability analysis, WAA, by applicants. Will the State Water Board call for peer review of each water availability analysis? Will the public have access to these reports? (*Chris Malan, Earth Defense for the Environment Now, Living Rivers Council*)

**Response:** Qualified Division staff review every water availability analysis that is submitted by the applicants. If errors are found, the Division does not accept the analysis and requires the applicant or the applicant's agent to revise the analysis and resubmit it. Division staff then review the subsequent resubmittal to make sure all errors have been fixed before acceptance of the analysis. The public has always had access to these reports. Water availability analysis reports are stored in the appropriate water right application file in the Division's records office. Members of the public are welcome to come to the Division's records office, view the application file they are interested in, and have copies made. During the CEQA public review period, the public and responsible agencies may review and comment on the technical documents supporting a permit application.

**Comment 6.0.59:** The 10 year mean annual unimpaired flow is the basis for the calculations of minimum bypass flows MBF and maximum cumulative diversions, MCD. The baseline of 10 year mean annual unimpaired flow is a questionable baseline for unimpaired flows due to: (1) lack of stream gauge data, (2) lack of long term data (3) the 10 year benchmark is already an impaired baseline and should NOT be used as a baseline to determine unimpaired flows; (4) illegal dams have contributed to impaired flows. Fish data through NOAA and DFG shows us that Coho, Chinook and steelhead numbers started plummeting in the 1970's mostly from lack of fresh water habitats. The 10 year unimpaired flow is already a highly deprived base flow that has been a detrimental flow contributing to the decline in salmonid populations for over 30 years. (*Chris Malan, Earth Defense for the Environment Now, Living Rivers Council*)

**Response:** The following responses are grouped according to the comment's itemized list: (1) and (2): There are an adequate number of stream gages in the policy area to perform this analysis. A sampling of stream gage data from the USGS website for just Sonoma County shows the 10 year baseline for stream gage data is not unreasonable. Of the 41 USGS stream gages that are operated or were operated in Sonoma County, 28 gages had a period of record of 10 years or more. Additionally there were 11 gages with a period of record greater than 30 years and only one of those gages had a period of record that started after 1970. There were a total of 13 gages with a 10 year or greater period of record that started prior to 1970. This is just a small sampling of the USGS gages in the North Coast Policy area. (3) and (4):

Regarding existing impairments affecting the stream flow data, Policy section A.5.2.1 indicates that if a gage is located in a watershed impaired by diversions, the gage record shall be adjusted for the impairments before estimating the mean annual unimpaired flow. In addition, the Draft Policy allows unimpaired flows to be estimated from precipitation based models, or other methods acceptable to the State Water Board.

**Comment 6.0.60:** The National Park Service supports the consideration of cumulative effects when making decisions regarding appropriations, because incorporation of this consideration into the decision process should lead to more informed decisions and result in greater protection of instream resources. *(Don Neubacher, US National Park Service, Point Reyes National Seashore)*

**Response:** Comment noted.

**Comment 6.0.61:** The National Park Service supports the separate consideration of water availability and the impact of the proposed diversion on instream resources because this approach will afford a greater level of protection to instream resources. *(Don Neubacher, US National Park Service, Point Reyes National Seashore)*

**Response:** Comment noted.

**Comment 6.0.62:** Municipalities are currently given some leeway in terms of diligence in developing their appropriations; i.e., they are allowed to "grow into" their water right. How will the draft Policy handle this? Would a municipality be required to analyze water availability and stream flow impact based on full use of the appropriation? *(Don Neubacher, US National Park Service, Point Reyes National Seashore)*

**Response:** When the commenter states "Municipalities are given some leeway to grow into their water right," Staff assumes the commenter is referring to the amount of time given to the permittee to develop full beneficial use of water for the amount shown on the permit. While municipalities are typically given a longer period of time to develop full beneficial use under the permit, the expected diligence towards developing water use is the same for all permittees. The Policy will not afford any more additional time to develop full beneficial use of water for municipalities than is already specified in their water right permit. Municipalities are expected to develop their water use within the conditions listed on their permit, and within the amount of time specified. When a permit expires, a municipality has the option, as do all permittees, to take a license for the maximum amount of water put to beneficial use during the permit period. If water use has not reached the maximum allowed under the permit, and the municipality needs more time to develop beneficial use, then a petition for extension of time needs to be filed by the municipality. If the municipality takes a license for the maximum use to date, and future water development becomes necessary, a new application would need to be filed with the Division.

A municipality, as well as all other applicants and petitioners, is required to analyze water availability and stream flow impact based on the full amount listed on the Application, and/or permit in the case of an extension of time. Water availability needs to be assessed based on the entire requested amount of water. This includes all senior permits and licenses and the pending project. In the case of a petition for extension of time to further beneficial use, all legal users of water should be considered in the water availability including permitted or licensed junior right holders. Once a permit is issued for an amount of water, it is assumed that the full amount will be used because the applicant was given the right to divert that amount of water

each year. The water availability analysis should include the face value of all water rights being considered in the analysis.

**Comment 6.0.63:** The State Board has created a massive backlog of applications to appropriate water in the North Coast areas by not diligently processing the applications. For example, despite its best efforts to expeditiously complete the processing of its applications, Golden Vineyards waited several years before the State Board even gave public notice of its applications and then had to wait between two and four years more for the State Board to enter into two MOUs for CEQA review. Since entering into the requisite MOU for Fairbairn Ranch, Golden Vineyards has been waiting over two more years to receive information from State Board staff necessary to prepare a water availability analysis. If the State Board had been doing its job properly, Golden Vineyards almost certainly would have received water right permits, if not licenses, by now. Given the State Board's creation of this huge backlog, it is inappropriate, illegal and unfair to apply the Draft Policy retroactively to applications that were filed prior to the time that the new policy is adopted. *(Mike Morris, North Bay Agriculture Alliance; Peggy Phelan; Paul "Skip" Spaulding, Farella Braun + Martel LLP/Golden Vineyards)*

**Response:** Comment noted. There are many factors that have led to the backlog of applications waiting to be processed by the State Water Board but lack of diligence has not been one of them. Staffing and budget resources has been one large obstacle. Compliance with environmental regulations has also played a role. Additionally many pending applications in the North Coast areas were filed after the project was built, and as built conditions are tougher to bring into compliance with environmental regulations. Enforcement sweeps by the Division located many of these unpermitted projects in the North Coast and due to the influx of several filings in a short period of time, the backlog of pending applications grew exponentially with a limited number of staff to process them. Staff also notes that the commenter's Fairbairn Ranch has been existing and operational since 1986, according to their website. However an application to appropriate the water they were already using was not filed until 2001. Therefore the commenter contributed to the exponential growth of the backlog by not diligently pursuing a permit to appropriate water before building the project.

**Comment 6.0.64:** In the four examples disclosed by the State Board at the February 2008 workshop (based on diversions from Forsythe Creek, Donnelly Creek, Star Creek and an unnamed tributary), the minimum bypass flows would be 290%, 812%, 650% and -27% higher than they would be under the DFG/NMFS Guidelines. If these new minimum bypass flow principles are adopted, the availability of water for diversions by wine grape growers, especially during normal and dry years, will plummet. *(Paul "Skip" Spaulding, Farella Braun + Martel LLP/Golden Vineyards)*

**Response:** Comment noted. While the commenter is correct that in most cases the recommended Policy bypass flow is higher than the DFG-NMFS Draft Guidelines recommended bypass flow, the commenter failed to include the estimated yield for the projects analyzed as examples presented in the February 2008 workshop. The estimated yield results of the four examples from the presentation are as follows with the DFG-NMFS estimated project yield listed first and the Policy estimated project yield listed second 1) 9.8 ac-ft/9.6 ac-ft 2) 30 ac-ft/18 ac-ft 3) 8.6 ac-ft/1.2 ac-ft 4) 18 ac-ft/18 ac-ft.

As can be seen based on the estimated yield results, the amount of water available for diversion varies due to the site specifics of the project. Two of the four examples from the February 2008 workshop showed that the estimated yield under the Draft Policy would be equal to, or almost equal, to the yield using the DFG-NMFS Draft Guidelines.

To be regionally protective, the regional criteria are designed to limit water diversions so that adequate flows are available for spawning and passage at sites with the most restrictive instream flow needs. At some sites, therefore, more than adequate flows will be provided by regionally protective criteria. Only site specific study can determine where on the protectiveness spectrum a given site lies, as described in section D.5 of Appendix D of the Scientific Basis Report (R2, 2008) which is why the conservative regional MBF criterion apply in the absence of site specific data. The Draft Policy allows water right applicants the option of performing a site-specific study to more accurately determine the fishery resource instream flow needs for a particular location. A site specific study may result in a lower bypass flow rate which may increase the estimated project yield.

**Comment 6.0.65:** Policy must have measures to guard against the cumulative impacts of multiple diversions. (*TU Form Letter*)

**Response:** Section 4.1 of the Draft Policy requires water right applicants to submit a Water Availability Analysis that evaluates whether the proposed project, in combination with senior diversions, impacts the instream flows needed for protection of fishery resources. Water availability is based on first in time, first in right and therefore only needs to consider senior rights and the pending project. For the purposes of water availability, only senior diversions plus the proposed project need to be evaluated. The Policy with respect to Water Availability does not consider junior rights because it is applying the seniority of the water rights system. Junior right holders cannot be considered in a Water Availability analysis because the project being evaluated has a higher priority and water is only available to junior holders after all senior rights are satisfied. Junior right holders will conduct their own water availability analysis that considers all senior right holders plus their project at the appropriate time. The cumulative consideration of all existing and reasonably foreseeable diversions is a requirement of CEQA, which is a separate evaluation from a water availability analysis.

**Comment 6.0.66:** If the Policy requires that data for the analysis has to come only from official weather stations then local differences which impact that final outcome of the analysis are not considered, for example our area receives approximately 20% more rainfall than that recorded at nearest official station. (*Edward Wallo, Yorkville Vineyards*)

**Response:** The Policy does not require the data for the water availability analysis come only from official weather stations. For estimating the mean annual unimpaired volume using the adjustment of streamflow records method, Section A.2.1.2 of the Draft Policy provides recommendations for using an area-weighted average annual precipitation over the watershed of interest using data obtained from average annual precipitation maps. The Policy also allows for alternative methods of estimating mean annual unimpaired flows using precipitation-based flow models, which may be based on precipitation data from weather stations.

**Comment 6.0.67:** The discretionary selection of POIs should be addressed. (*Edward Wallo, Yorkville Vineyards*)

**Response:** Comment noted. Section 4.1.6 of the Draft Policy contains provisions for the selection of POIs.

## 7.0 Upper Limit of Anadromy

**Comment 7.0.1:** Inclusion of "historically" present in definition of upper limit of anadromy (section 4.1.4) is vague and potentially overbroad due to existing physical conditions and should not include ephemeral streams. (Policy page 12). There is no limit as to how long ago anadromous fish had to be present in a certain portion of a stream in order for it to be designated as the upper limit of anadromy. Thus, there may be evidence that anadromous fish inhabited portions of a stream 75 years ago, but have not been present since; yet under the existing policy, that portion of the stream would be considered the upper limit of anadromy. Further, by tying the definition of upper limit of anadromy to historical presence, the Policy ignores existing physical conditions that may make defining certain portions of waterways as the upper limit of anadromy impractical or nonsensical. (*Barbara Brenner*)

**Response:** Chapter 1 of the Task 3 report explains the need for protecting flows in streams formerly supporting juvenile steelhead, including upstream of artificial barriers, and in ephemeral streams. Staff also note that studies have shown the importance of headwater streams, even those that are fishless or that are above the limit of anadromy, to the ecology and productivity of downstream areas that are occupied by fish (See Naiman, R.J. and J.J. Latterell. 2005, Principles for linking fish habitat to fisheries management and conservation. *Journal of Fish Biology*, 67 (Supplement B), 166-186.). Section 4.1.4 of the Draft Policy contains guidelines on how to determine the upper limit of anadromy based on studies of habitat or stream gradient.

**Comment 7.0.2:** The policy also provides that the upper limit of anadromy may be located on an ephemeral stream. Extending the upper limit of anadromy to ephemeral streams is also highly impractical and has no basis. It is extremely rare that anadromous fish utilize ephemeral streams as habitat, and to the extent such streams are used, it can only be for brief periods. There is thus no apparent basis to include ephemeral streams in the definition of upper limit of anadromy. (*Barbara Brenner*)

**Response:** See response to 7.0.1.

**Comment 7.0.3:** In Policy Section 4.1.4, of the methods intended to identify the upper limit of anadromy, none require consultation with DFG or NMFS. NMFS recommends that all determinations of the upper limit of anadromy be done in consultation with and have written concurrence from DFG. (*Dick Butler, US National Marine Fisheries Service*)

**Response:** Comment and recommendation noted.

**Comment 7.0.4:** How is the upper point of anadromy to be established? Should not artificially landlocked anadromous fish be considered in the upper limits? (*Alan Levine, Coastal Action Group*)

**Response:** Section 4.1.4 of the Draft Policy contains guidelines for determining the upper limit of anadromy in their watershed by either providing the results from a previous study or information on stream gradient or by paying for a site-specific study conducted by a fisheries biologist.

**Comment 7.0.5:** We agree that upper limit of anadromy should be defined by historic area in the case of blockage by an artificial barrier. (*Alan Levine, Coastal Action Group*)

**Response:** Comment noted.

**Comment 7.0.6:** Site specific studies for making anadromy limit determinations shall be accomplished by a qualified fishery biologist. Such analysis shall be made available to the public and managing agencies for review and comment. (*Alan Levine, Coastal Action Group*)

**Response:** Paragraph 3 of section 4.1.4 of the Draft Policy requires site specific studies be performed by a qualified fisheries biologist. All studies performed to support a water right application undergo CEQA review.

**Comment 7.0.7:** Important terms are not defined, e.g. points of anadromy. It is ambiguous as to whom will be affected, e.g. all diversions even if above existing fish barriers or if the stream does not have anadromous species. (*Nick Frey, Sonoma County Winegrape Commission*)

**Response:** Terms that are defined in the Glossary of Terms are indicated in bold font in the policy. The upper limit of anadromy is defined in the Glossary of Terms. In the main text of the policy, the first instance the term "upper limit of anadromy" is used has been bolded. Section 3.2 of the Draft Policy states the policy applies to diversions from all streams and tributaries in the policy area. Section 3.3 of the Draft Policy lists the water right actions that are affected by the policy.

**Comment 7.0.8:** Wagner & Bonsignore Engineers conducted hydrographic analyses to evaluate how the regional criteria of the Draft Policy improved hydrological conditions for salmonids and impacted diversion by irrigation projects. Hydrographic analyses of five projects which have applications pending before the State Water Board were evaluated and described in their comment letter. The hydrographs were developed for the purpose of demonstrating possible flow impacts associated with the project diversions. The analysis revealed that at the limit of anadromy, where impacts to salmonids could be experienced, these projects even without diversion constraints do not cause significant changes to the hydrology. Therefore, diversion constraints (i.e., bypass flow and maximum diversion rate) are not needed on these projects to protect fishery values. Nevertheless, the Draft Policy would apply these diversion constraints resulting in significantly reduced diversion yield for these projects. There is insufficient impact to the hydrology at the limit of anadromy due to these projects to justify the Draft Policy restrictions. The Draft Policy restrictions on these projects (including both onstream and off stream diversions) would decimate project yields for no benefit to fisheries. This highlights a fundamental flaw in the Draft Policy which is the requirement that point-of-interest (POI) analyses be conducted at points upstream of the limit of anadromy (Policy pg A1-12). The Draft Policy requires that a POI be located immediately below the point of diversion. At that location, the change in hydrology may appear significant. However, downstream at the limit of anadromy, where salmonids can be affected, the change in hydrology can be slight, as is the case with these five projects. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Both comments are noted. Staff will reassess whether a POI is needed at the POD if the POD is located above the limit of anadromy. Staff will also take into consideration the other points raised in this comment regarding diversion constraints for projects located above anadromy that do not cause significant changes to hydrology at the upper limit of anadromy.



**Comment 7.0.9:** The Policy identifies a criterion of 12% slope over 100 meters as a means for an applicant to demonstrate that the upper limit of anadromy is at a different location than what was presumed by the SWRCB. Stream gradients associated with anadromous salmonid habitat utilization reported in two literature sources are generally less than what is identified in the Policy as the upper limit of anadromy. Therefore, the application of a gradient criterion that is higher than the range of stream gradients frequently reported for anadromous salmonids would be overly protective because fish would not likely have been present historically in these upstream reaches. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Comment noted. See Table 1 in Agrawal et al. (2005) for a list of references used to define the gradient suitability criteria for steelhead that considers a 12% slope defined in GIS over a 100 m distance to be the approximate upper limit for distributions. See Bryant et al. (2004) for evidence of steelhead and coho in reaches with gradients as high as 16%. Note that Bliesner and Robison (2007) more recently concluded that 12-13% approximated the general upstream limit to fish distribution in their surveys in Northern California. Note also that steelhead are capable of leaping over 3 m high falls, which could potentially be associated with roughly 25 m spacing between falls in a 12% slope reach. New Citation: A.K. Bliesner, and E.G. Robinson. 2007. Detecting the upstream extent of fish in the redwood region of Northern California. US Forest Service Gen. Tech. Rep. PSW-GTR-194.

**Comment 7.0.10:** Data collection has been compromised in studies of the Maacama Watershed due to Kendall Jackson's denial of access of several important creeks such as Kellogg and Yellowjacket Creeks. This can affect water right applicant's ability to locate the upper limit of anadromy. Restoration should precede expanded water rights and/or regulatory relief for major water users. Yellowjacket Creek (historically an upper limit of anadromy in the Maacama Watershed flowing into Redwood Creek) is now contained within a concrete channel that should be restored if further water rights are to be granted to Kendall-Jackson in the Russian River drainage system. (*NA, Maacama Watershed Alliance*)

**Response:** Comment noted.

**Comment 7.0.11:** The way the Policy is written, it is up to the applicant to prove a stream is not an anadromous stream rather than for the state to prove it is. There is the assumption that if a stream might be suitable for anadromous fish, it must have been an anadromous stream at some point in time. The historical records are not there for many tributaries in the Upper Russian River. Stream surveys are far and few between. Just what does "historically present" mean with regard to this river system? (*Roland Sanford, Mendocino County Water Agency; Jim Wattenburger, Mendocino County Board of Supervisors*)

**Response:** Historically present refers to locations with fish habitat that was accessible in the past and where fish were once present on site, including habitat to sustain fish migration and spawning.

The Policy allows water right applicants to determine the upper limit of anadromy in their watershed by either providing the results from a previous study or information on stream gradient or by paying for a site-specific study conducted by a fisheries biologist (Section 4.1.4).

**Comment 7.0.12:** A truly effective instream flows policy should also, at a minimum...apply best available science applicable to the particular watershed by, among other things, better

defining the point of anadromy based on documented, existing barriers to fish rather than a non-scientific, and overly conservative, assumption based on elevation change over a given distance (*Leonard Stein, Jackson Family Investments, LLC*)

**Response:** Section 4.1.4 of the Draft Policy provides three approaches to determining the upper limit of anadromy. The upper limit of anadromy could be estimated using either (1) the results from a study previously accepted by the State Water Board, NMFS, or DFG, or (2) information on stream gradient, or (3) conduct of site-specific studies. The stream gradient approach was developed by fisheries biologists and documented in "SWRCB Instream Flow Policy: GIS-Analysis Criteria for Upstream Distribution Limit of Steelhead", R2 Resource Consultants, Inc., 2007.

## 8.0 Stream Classification System

**Comment 8.0.1:** We find the Stream classification system described in policy section 4.2 appropriate. (*Alan Levine, Coastal Action Group*)

**Response:** Comment noted.

**Comment 8.0.2:** The criteria and standards applied in policy section 4.2.2 (Determination of stream class by Stream Survey) are appropriate. The criteria and standards that apply should be the same as for variance and/or Flow Analysis or Anadromy limit analysis. Such Analysis shall be made available to the public and managing agencies for review and comment under CEQA. Approval of a variance is subject to public and responsible agency noticing and participation requirements. (*Alan Levine, Coastal Action Group*)

**Response:** Criteria and standards may vary depending on the intent of the study. All analyses that are completed for projects under CEQA review are circulated with the CEQA documents and made available for responsible agencies for review and comment.

**Comment 8.0.3:** The Draft Policy specifies criteria for Stream Class that differs from the California Code of Regulation (CCR), California Forest Practice Rules. While the two classification systems are similar, even down to the use of roman numerals, the Draft Policy definition for Class I is more inclusive. The CCR definition for Class I states "Fish always or seasonally present onsite, includes habitat to sustain fish migration and spawning." The Draft Policy for Class I streams states "...the presence of seasonal presence of fish, either currently or historically, or by the presence of habitat to sustain fish" [emphasis added]. The inclusion of the word "or" could make streams above natural barriers, such as waterfalls, a Class I stream, though salmonids have never been in that reach. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Note that self-sustaining populations of resident salmonids (including rainbow trout that may provide a genetic source for downstream steelhead populations) and other species do occur upstream of natural barriers. Staff will consider this comment when making revisions to the Draft Policy.

**Comment 8.0.4:** The CDF classes developed to address forestry impacts may not be directly applicable for assessing protectiveness of instream flow standards. The Policy relies upon a stream classification system developed by the California Department of Forestry (CDF). However, Appendix D of the Scientific Basis (pg. D-34) states that "...because the CDF classes

were developed with forestry impacts in mind, particularly with respect to sedimentation and riparian management, they might not lend themselves strictly to assessing protectiveness of instream flow standards." (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Comment noted. The Draft Policy already contains stream classes that were modified from the CDF classifications to better address the instream flow needs of fish.

**Comment 8.0.5:** We support the inclusion of a broad definition of fish instead of the narrow definition of "fish" as used in the Stream Classification System contained in Section 4.2 of the Draft Policy. Fish and Game Code section 45 defines "Fish" to mean wild fish, mollusks, crustaceans, invertebrates, or amphibians, including any part, spawn, or ova thereof. A limitation of the Policy's narrow definition of "fish" (to include only anadromous salmonids) would result in an inconsistency with the Fish and Game Code and would possibly allow unacceptable impacts on fisheries resources held in the public trust. (*Donald Koch, State of California Department of Fish and Game*)

**Response:** Comment noted. Staff also note that provision of flows in streams that are protective of anadromous salmonids also conveys benefits to other aquatic organisms, as well as waterfowl and mammals inhabiting or using the flows so provided.

**Comment 8.0.6:** In its role as trustee for the State's resources, DFG must be able to provide input for any stream surveys or other method to determine stream classifications and concur with the assessment. The current language in the Policy should be modified to allow DFG to exercise its public trust role in the final determination of Stream Classification. (*Dick Butler, US National Marine Fisheries Service; Donald Koch, State of California Department of Fish and Game*)

**Response:** Staff will consider making these revisions. If revisions are made, the DFG would be provided a reasonable period of time (not less than 30 days) to review and comment on the determinations before they are finalized.

**Comment 8.0.7:** The Policy uses both of the terms "watercourse" and "stream" but defines only streams. Both terms have legal definitions in use. The Forest Practice Rules (FPRs), Title 14, California Code of Regulations (CCRs) defines the term "watercourse" and CCRs, Title 14, Section 1.72 defines the term "stream". DFG recommends that to avoid confusion: 1) the term "watercourse" be used exclusively, 2) the term "stream" be eliminated, and 3) for the purpose of administration of this policy, the following modifications to the classification system contained in the policy be used: Class I: Fish are always present or seasonally present, either currently or historically; or habitat to sustain fish exists; and/or domestic supplies, including springs, are on site and/or within 100 feet downstream of the operation areas. Class II: No fish are present, but seasonal or year-round habitat exists for aquatic non-fish vertebrates and/or other aquatic life. Class III: An ephemeral watercourse exists that shows evidence of periodic scour and sediment transport. (*Donald Koch, State of California Department of Fish and Game*)

**Response:** Comment noted. Staff will consider this comment when making revisions to the Draft Policy.

**Comment 8.0.8:** DFG is concerned that Policy Section 4.2.2 part 4 requires the observation of

species when making stream classification determinations. This is inconsistent with the definitions provided in Policy Section 4.2, which are based on habitat and do not require that the species be observed for determining the stream classification. Additionally, the types of surveys listed do not prove absence of a species. DFG recommends that this inconsistency be corrected and that surveys for determining stream classification be based on habitat availability. *(Donald Koch, State of California Department of Fish and Game)*

**Response:** DFG's comment recommending that stream classification surveys be based only on observation of habitat rather than presence of species is noted. Staff will consider modifying this policy section in response to this concern.

**Comment 8.0.9:** DFG agrees that the survey length of 25 bankfull widths referenced in Policy Section 4.2.2 (Determination of Stream Class by Stream Survey) is appropriate; however, the bankfull concept is really only applicable to stable alluvial stream channel types and is difficult to define in 1) unstable alluvial channels, e.g., incised streams, 2) in alluvial systems with poorly defined floodplains or lacking surrogate bar formations, and 3) in bedrock controlled or bedrock-alluvial hybrid channels. DFG recommends the policy either contain a reference to a specific recurrence interval for the definition of bankfull width provided in the glossary or provide guidance for determining stream survey lengths for stream systems where the bankfull concept is not applicable. *(Donald Koch, State of California Department of Fish and Game)*

**Response:** Comment and recommendation noted. This comment concerns practical applications, where bankfull width is often difficult to identify in the field. Staff will consider modifying section 4.2.2 to allow applicants to use 25 lengths of a characteristic channel width that is either (1) the width between the top of clearly defined banks of the channel, or (2) the width corresponding to the 1.5 yr or 2 yr event peak flow rate. These distances are comparable to each other, are practical to measure, and are adequate for a survey distance for determination of stream class.

**Comment 8.0.10:** Policy Section 4.2.2 (Determination of Stream Class by Stream Survey) should provide recommended sampling techniques and methods for measurement of instream habitat conditions to provide consistency in measurement techniques and to ensure data results are comparable. *(Donald Koch, State of California Department of Fish and Game)*

**Response:** Comment noted. This level of detail is not required for this section of the policy.

**Comment 8.0.11:** Draft Policy Page 18 section 4.2 Stream Classification System - The introductory statement appears to be subjective and possibly contentious. A clear and logical explanation that protection of fish is more important than other species, or that fish are more highly dependent on flow protection, should be provided. Otherwise this statement should be removed. I can understand the economic, ecological, and conservation value in instating strong protection for fish. However, the same ecological and conservation values apply to many other species in the policy area (e.g., species' roles in trophic dynamics, and species recognition for conservation). Perhaps the statement is meant to confer that fish are more highly dependent; if so, further explanation regarding the biology of species is required to support such a statement. *(Elliott Matchett)*

**Response:** Comment and suggestion noted. Staff will consider revising the second sentence in section 4.2 to include: "... in large part because fish are mobile and require more physical aquatic habitat (living space) than non-fish species."

**Comment 8.0.12:** Policy Page 19, section 4.2.2 Determination of stream class by stream survey - the scientific basis for the methodology of stream surveys should be provided. Regarding stream surveys, I believe that applicants should have to demonstrate that sampling occurred during periods within seasons when detection of species is highest (e.g., when spawning areas area accessible and spawning is at a peak). To assist agencies managing water, land use, fish and wildlife resources, I suggest that surveys should also be required to record data that is detailed enough to provide a baseline assessment of species populations and habitat conditions. Future biological assessments can be compared with baseline data to detect changes in habitat and species populations, which will assist adaptive management. This data may additionally be used to assist staff across multiple agencies address concerns involving public trust resources. If survey methods and data are established with the intent of integrating monitoring data with survey data, this may also increase the number of candidate sites for evaluating policy effectiveness. *(Elliott Matchett)*

**Response:** Staff will consider these comments when making revisions to the Stream Classification section of the Draft Policy.

**Comment 8.0.13:** The policy proposes to adopt an overly aggressive and unacceptable stream classification system that appears designed to classify almost any reservoir as being located on a Class I stream. According to the proposed classification system, any stream or drainage (whether perennial, intermittent or ephemeral) that now has or ever contained a fish of any kind, or which even has habitat for fish present (with no fish), will be designated a Class I stream. The policy effectively establishes a presumption that all drainages or streams are Class I streams, which puts the factual burden on the applicant to commission an expensive stream classification study to prove that its watercourses do not so qualify. The definition of a Class II watercourse is similarly unreasonable, requiring only the presence of habitat for macroinvertebrates or benthic organisms, even if none are present. These proposed stream classifications, with their significant and expensive consequences for onstream dams, are unreasonable and bear no rational relationship to the achievement of the goal of the Draft Policy, which is to protect listed salmon and steelhead species *(Paul "Skip" Spaulding, Farella Braun + Martel LLP/Golden Vineyards)*

**Response:** The stream classification provisions in Section 4.2.1 of the Draft Policy do not classify almost all reservoirs as being on a Class I stream. This section of the Policy says that the State Water Board will make an initial determination of stream class. There is no presumption that all onstream dams are on Class I streams. The policy allows the applicant to conduct a stream survey to support a different determination. For Class II streams, besides the presence of habitat for macroinvertebrates or benthic organisms, the policy requires indication that the stream reach is outside the known historical distribution limits for fish species, fish were not observed during any surveys, and instream habitat conditions for fish were not observed during the requested diversion season. Staff believes these stream classifications are appropriate for the protection of listed fish species.

**Comment 8.0.14:** The Draft Policy fails to apply the Legislature's stated concern for expediting approval of appropriative water right applications. The policy essentially presumes that all streams in the policy area are Class I (even if intermittent or ephemeral) and requires an applicant to commission an expensive stream classification study (estimated at \$15,400) to demonstrate that a particular stream should be classified differently. This presumption is unnecessary and only adds unnecessary financial expense and administrative delay in the process. *(Paul "Skip" Spaulding, Farella Braun + Martel LLP/Golden Vineyards)*

**Response:** The commenter refers to the presumption that the point of diversion (POD) is within the range of anadromy in Section 4.1.4, Determination of the Upper Limit of Anadromy. The presumption that the POD is within the range of anadromy is important for the protection of fish habitat. Even intermittent and ephemeral streams may provide spawning and rearing habitat as discussed in Section 1.2.2 of the Scientific Basis Report. Section 4.1.4 of the Draft Policy provides three ways that the applicant could use to overcome this presumption. The cost of \$15,400 is for the most expensive option of conducting site specific studies. Utilizing the results of a study previously accepted by State Water Board staff, NMFS, or DFG; or demonstrating the gradient of a segment of stream reach is equal to or greater than 12% are anticipated to be less expensive. As more information on stream class and the upper limit of anadromy is collected in the Policy area, the need for site-specific studies will greatly decrease.

**Comment 8.0.15:** The Draft Policy's stream class definitions are inconsistent with the definitions used by other state and federal agencies for classifying various types of watercourses, which will thereby inevitably lead to regulatory inconsistencies and other adverse consequences. (*Paul "Skip" Spaulding, Farella Braun + Martel LLP/Golden Vineyards*)

**Response:** The NMFS-DFG Draft Guidelines utilized the California Department of Forestry and Fire Protection stream classifications which were designed to protect streams and riparian zones from the effects of timber harvesting. The Draft Policy proposes a different stream classification system that addresses protection of instream habitat conditions.

## 9.0 Fish Screens

**Comment 9.0.1:** Policy section 4.3 (Fish Screens at Diversions in Class I Streams) - This section shall be consistent with the CDFG Coho Recovery Guidelines. There is no justification for not fitting fish screens on diversions. Also, such diversions fall under the CDFG 1600 permitting process and are subject to CEQA determinations. (*Alan Levine, Coastal Action Group*)

**Response:** Commenter appears to have misinterpreted Policy section 4.3. This section requires fish screens on all diversions from Class I streams and requires the screening facilities to be designed in accordance with NMFS screening criteria. Fish screens are not required on offset wells or Ranney collectors. This is due to the fact that these types of diversion facilities do not have pump intakes in the stream channel. Offset wells and Ranney collectors divert water through intakes that are below grade and take advantage of the link between surface flow and groundwater. Since these types of diversion facilities divert water through the sand and gravel underlying a stream channel, a fish screen is not necessary.

**Comment 9.0.2:** DFG recommends that Policy Section 4.3 (Fish Screens at Diversions in Class I Streams) be expanded to require consideration of fish screens on diversions on Class II streams to protect amphibian and /or other aquatic non-fish vertebrates as required under Fish and Game Code "fish" definitions. DFG suggests revising the title of Policy Section 4.3 to read: "4.3 Fish Screens at Diversions in Class I and Class II Streams", and recommends that the first paragraph of the section be revised as follows: "fish screens shall be installed at diversions on Class I streams and may be required on Class II streams . . ." (*Donald Koch, State of California Department of Fish and Game*)

**Response:** Comment and recommendation noted. Staff searched but could not find any DFG or NMFS document that describes screening measures for protection of amphibians.

**Comment 9.0.3:** DFG recommends that the third paragraph in Policy Section 4.3 discussing written certification by DFG for screening on Class I (and Class II) streams be revised to read: "If the applicant or petitioner disagrees . . . the applicant or petitioner shall provide a written certification from DFG prior to the environmental review . . ." (*Donald Koch, State of California Department of Fish and Game*)

**Response:** Comment noted. Staff disagrees that the written certification from DFG should be provided prior to the environmental review of the application or petition. The paragraph referenced in this comment requires the written certification be provided during the period in which State Water Board staff is reviewing the project for environmental impacts and prior to the release of environmental documents for the project.

## 10.0 Onstream Dams Permitting Requirements

**Comment 10.0.1:** What is further dismaying is the fact that no more instream dams will be allowed by this new policy and existing instream ponds will have to have installed an expensive bypass diversion system. The pond we have is located near the top of a mountain. It fills within the first two weeks of the rainy season and then overflows the remaining portion of the season. After the rains are over our pond seeps and contributes to the watershed the rest of the season. This benefits the fisheries by cooling and provides additional water that otherwise will not be there for fish or other wild life. This definitive information was not addressed in the new policy. (*Robert Battinich and Tom Spinardi, Aladdin Depot*)

**Response:** Staff is reevaluating the flow related criteria in the Draft Policy for small watersheds based on consideration of the comments and suggestions that have been received. The Draft Policy allows the use of results of a site-specific study instead of the regional criteria to more accurately assess the fishery resource instream flow needs at a particular location (Policy, Section 4.1.8). Information regarding the beneficial aspects of the pond due to seepage should be provided in this assessment.

**Comment 10.0.2:** Marin's Tomales Bay watershed supports successful Coho recovery efforts in spite of dams blocking half the length of its salmon creeks and the Substitute Environmental Document estimates of another 180 unauthorized dams. The authorized and the unauthorized impairments together now total almost 62% of the watershed's rainfall, yet we have recently found that local agencies are researching methods to impair even more rainfall. (*Gordon Bennett, Sierra Club Marin Group*)

**Response:** Comment noted.

**Comment 10.0.3:** Sections 4.4.1 and 4.4.2 Onstream Dams on Class I and II streams. The Policy requires water right applications for onstream dams on Class I and II streams built prior to July 19, 2006, to be submitted within one year after the Policy is adopted. (Policy pp. 22-23.) This time frame is much too short given the significant amount of information and data that must be collected, analyzed, and submitted by applicants under the Policy. The deadline to submit water right applications for onstream dams on Class I and II streams built prior to July 2006 should be extended to two years from the date of the adoption of the Policy. (*Barbara Brenner*)

**Response:** These provisions were contained in the December 2007 Draft Policy. As of November 2009, the State Water Board has not yet adopted a policy, which has already given

potential water right applicants almost two years to submit water right applications.

**Comment 10.0.4:** Section 4.4.1 on pages 21-22 of the Draft Policy provides that the SWRCB will not consider issuing water right permits for onstream dams in Class I streams unless several requirements are met. One of these requirements is that fish passage facilities "are constructed in accordance with requirements provided by DFG in a written certification." Our normal practice is to consult with DFG regarding all of our proposed projects, and we normally are able to reach agreement with DFG on appropriate protective criteria for fish and wildlife. We intend to follow this process for the Tolay Lake Project. Nevertheless, we are concerned that the Draft Policy would improperly delegate the SWRCB's decision making authority regarding fish passage requirements to DFG, and would give DFG a "blank check" to impose any fish passage requirements that it wants to, even if such requirements are not reasonable or appropriate. We therefore request that the Draft Policy be edited to make it clear, that, if the applicant and DFG cannot reach agreement on appropriate fish passage criteria, then the SWRCB will decide what criteria are appropriate. Our requested changes to the Draft Policy to do this are attached as Exhibit B to these comments. *(Mary Burns, Sonoma County Regional Parks)*

**Response:** DFG code sections 5931 and 5933 provide DFG the authority to do site-specific evaluations to determine whether a dam owner will be required to provide fish passage. The State Water Board is not aware of DFG or NMFS approved criteria for fish passage facilities at dams. DFG reviews and makes recommendations for fish passage facilities on a site-specific basis.

**Comment 10.0.5:** All state entities "shall comply with state policy for water quality" (Water Code §13146). Given the importance and possibility of the task ahead of the Board, the opportunity to draft unambiguous and enforceable policy at this time, must be fully embraced. The policy must articulate the clear intent, to reverse the damage caused by over appropriation of watersheds in a timely manner, as well as outlining numeric limits and quantitative requirements from which implementing regulations can readily flow. Where science has indicated risks to fish survival including, migration, reproduction, and rearing, adoption of the most cautious approach is indicated and proper. The most cautious approach includes mathematical models as developed by Deitch, Kondolf, and Merenlender in combination with field observations and daily precipitation patterns. *(Kimberly Burr)*

**Response:** Comment noted. The Policy contains regionally protective measures to protect native fish populations, with a particular focus on anadromous salmonids and their habitat that are conservative in the absence of site specific data. The intent of the Policy is to protect anadromous salmonid habitat from further degradation. Models of the type indicated will likely result in site-specific assessments that may indicate less water is needed instream, thus the Policy is more cautious in this respect.

The commenter expressed concern regarding damage caused by over appropriation of watersheds. The Draft Policy does not propose to reopen existing permits and licenses. However, existing water rights are subject to the continuing authority of the State Water Board to protect public trust uses and to prevent the waste or unreasonable use of water.

**Comment 10.0.6:** NMFS supports the draft policy's recommended permitting requirements for onstream dams, as described in Policy Section 4.4 and subsections thereof. *(Dick Butler, US National Marine Fisheries Service)*



**Response:** Comment noted.

**Comment 10.0.7:** Limitations on new (again define new - last 5, 10, or 20 years) onstream dams, solely on basis of migration barrier issues, fails to address the flow needs issue. When these dams normally fill during the early rain season, it limits critical stream flows during that period. In this case NMFS (2001) speaks strongly against allowing new onstream dams - except on Class III streams and only if the cumulative reduction in stream flow is not seriously (10%) reduced in fish bearing reaches. In addition, existence of barriers that preclude fish migration also preclude consideration of the potential to restore salmonids upstream of these unauthorized structures. The SWRCB's Draft Policy (2008) is in conflict with these recommendations. *(Alan Levine, Coastal Action Group)*

**Response:** The Policy is not effectively in conflict with the recommendation of NMFS. New water right permits for dams would be allowed on Class II streams only with mitigation of impacts to the fishery resource including ensuring sufficient instream flows for downstream reaches containing anadromous salmonid habitat. In addition, the Policy considers artificial barriers as temporary, with anadromous habitat including otherwise accessible reaches upstream of such barriers in anticipation of future barrier correction.

**Comment 10.0.8:** Onstream dams that block fish habitat or make maintenance of instream flows impossible shall be removed. This condition should be applied to all newly (last 20 years, particularly if unauthorized) built or unpermitted dams and onstream storage facilities. *(Alan Levine, Coastal Action Group)*

**Response:** The Draft Policy provisions regarding onstream dams were developed in consideration that there are existing unauthorized onstream dams that may be blocking fish habitat or affecting instream flows. The onstream dam provisions provide mitigation for these existing structures. Onstream dam owners will also be required to comply with flow-related provisions.

**Comment 10.0.9:** Dams built in the channel (defined by bed and bank) in Class III watercourses may not impede fish migration. However, they may interfere with natural hydrologic function, including natural peak flows needed sustain geomorphic function and/or the desired flows, including minimum bypass flows may be inhibited. Such situations are subject to CDFG 1600 permitting process and review constraints noted above. *(Alan Levine, Coastal Action Group)*

**Response:** Comment noted.

**Comment 10.0.10:** It is acknowledged that the construction and operations of onstream dams adversely affect instream flows and fishery resources. The intent of the SWRCB policy is to be directed towards reversing cumulative damage from hundreds (thousands) of unpermitted projects. Such projects should be discouraged and/or the most beneficial mitigation, dam removal, should be of the highest priority. Only in the case where dam removal is more damaging than other mitigation, as documented by a full environmental study (EIR), can such mitigation, rather than removal, be justified. Again, such structures are subject to DFG Code and supporting environmental review, under CEQA - as well as sections of Cal Water Code. *(Alan Levine, Coastal Action Group)*

**Response:** Comment noted.

**Comment 10.0.11:** How is policy principle no. 4 going to be enforced? What is the cutoff point of dams already (historically) in place? It is very unlikely that onstream dams can be fully mitigated. *(Alan Levine, Coastal Action Group)*

**Response:** Policy principle 4 (construction or permitting of new onstream dams shall be restricted) will be met through implementation of the provisions in Section 4.4 of the Draft Policy (Permitting requirements for onstream dams) which includes mitigation measures for permitting onstream dams. The Draft Policy does not retroactively apply to already permitted onstream dams.

**Comment 10.0.12:** Any unauthorized onstream on a Class I stream that can not be completely mitigated for flow maintenance and fish passage, should not be permitted. Applications for permitting or authorizing diversion related to such dams should not be processed. Establishing an artificial date of July 2006 as a threshold for what should or should not fall under this guidance (where application for approval can be accepted) is not logical nor is it good policy. If a dam was built instream without benefit of a permitting process which would include CDFG 1600 permitting and environmental review and permitting review under Cal Water Code, that dam should, legally, be subject all existing law and to any newly proposed policy (and conditions contained therein - and where removal is an option if fish passage and flow issue can not be completely remedied) for maintaining instream flows. *(Alan Levine, Coastal Action Group)*

**Response:** Comment noted.

**Comment 10.0.13:** The draft policy's exemption of dams built on Class II streams built prior to July 19, 2006, with potential mitigation being the solution, is not acceptable (see discussion above). Dams built onstream in Class II watercourses may not impede fish migration. However, they may interfere with natural hydrologic function, including natural peak flows needed sustain geomorphic function and/or the desired flows, including minimum bypass flows may be inhibited. Such situations are subject to CDFG 1600 permitting process and review constraints (see discussion above). *(Alan Levine, Coastal Action Group)*

**Response:** Comment noted. Natural hydrologic function is protected by the Policy requirement for passive bypass systems along with the flow criteria.

**Comment 10.0.14:** The commenter states that peer reviewer Charles M. Burt indicated that removal of onstream dams in upper watersheds will have no impact until downstream impediments to fish passage are removed as well. The commenter further states that Mr. Burt indicates it might be sufficient to remove natural barriers rather than removing onstream dams, and asks the State Water Board to resolve natural flow impediments first rather than requiring removal of onstream dams. *(John Curry and Janice Crow; Adrian and Mary Martinez)*

**Response:** See response 2.2.2 to Dr. Burt's comment in the Response to Peer Review document.

**Comment 10.0.15:** Past efforts to define reservoir and abstraction thresholds have focused on considering the cumulative impairment that all upstream abstractions may cause. It is certainly important to consider the cumulative impairment at a point of interest and the relative storage of each reservoir (i.e., the magnitude of impacts), but it is equally important to consider the duration of impacts that small reservoirs cause on streamflow and aquatic resources. We believe there should be a defined policy for evaluating small reservoirs on Class III streams

that weighs impacts on local and downstream hydrology, relative to both the magnitude and duration of the effects they may have. For example, new reservoirs could be approved if: (1) they impound no more than a defined portion of the average annual discharge at the proposed dam site; and (2) the total amount of impounded catchment upstream of the transition point from Class III to Class II stream does not exceed a certain percent. In a typical year, application of this example would allow a large percent of the annual discharge to flow beyond the reservoir locally because it would fill early in the year, and it would ensure that much of the catchment at the Class II-III transition would always be hydrologically and geomorphically connected downstream. This example also could reduce the dependence for a "passive bypass system," which could result in less water actually being stored than expected and have adverse geomorphic impacts as well. *(Matthew Deitch and Adina Merenlender, University of California, Berkeley)*

**Response:** The daily flow study in the water availability allows the consideration of the impacts of a project at the point of interest in terms of magnitude and duration. In addition, the Draft Policy allows water right applicants the option of performing a site-specific study to more accurately determine the fishery resource instream flow needs for a particular location and to demonstrate that the project will not adversely affect these site-specific instream flow needs. The conceptual criteria the commenter indicated for approval, i.e., conditions (1) and (2), may be difficult to define quantitatively without site specific data, although they may be satisfied effectively through required assessment of cumulative effects to downstream flows and instream flow needs.

Staff is reevaluating the flow related criteria in the Draft Policy for projects in small watersheds based on consideration of the comments and suggestions that have been received.

**Comment 10.0.16:** Because the regional criteria become so restrictive in headwaters, we think it may be useful to consider an exception rule for very small reservoirs located in headwater reaches where their impacts to streams with anadromous fishes would be low. The rationale for creating a small reservoirs rule is that small reservoirs far above anadromy may provide opportunity to store water during high flows, despite that defined thresholds at that point may not be exceeded; and taking water when abundant in winter is critical for mitigating the impacts of diversions in spring and summer. Water needs during the growing season will be met one way or another, and rules designed to minimize the cumulative effect of small reservoirs in a watershed on streamflow at anadromy reaches provide a more viable alternative for salmonid persistence than diversions in spring and summer under a legal gray area. Because small reservoirs withhold water as it flows proportionally with discharge at a downstream point, rather than diverting it as direct instream diversions operate, a particular maximum diversion magnitude is not entirely compatible with objectives for small reservoirs. For example, very high flow conditions would allow requirements to allow reservoirs to take more water than a defined threshold magnitude would allow; this may not necessarily magnify adverse impacts because more water is available during such high-flow periods. *(Matthew Deitch and Adina Merenlender, University of California, Berkeley)*

**Response:** Comment noted. Fill and spill operations will not be protective of downstream instream flow needs if there are enough such small reservoirs acting cumulatively, see Appendix J of the Task 3 report for a discussion of the issues with the type of flow regime proposed. Operational details of the sort identified here are best addressed through site specific study and analysis to demonstrate that a proposed onstream dam will not contribute to adverse cumulative effects on downstream flows and geomorphology. Staff is reevaluating how the Draft Policy analyzes small watersheds based on consideration of the comments and

suggestions that have been received.

**Comment 10.0.17:** I support removal of some dam systems (*Mitch Fleitz*)

**Response:** Comment noted.

**Comment 10.0.18:** Several peer reviewers express reservations about damming and diversion of small headwater tributaries (Band, 2008; McMahon, 2008). Band (2008) notes a high risk of cumulative effects despite mitigations proposed for such projects in the Policy. According to McMahon (2008) "dams on ephemeral streams have the potential to greatly dampen the early fall/winter freshets important for access to the upper reaches of small spawning tributaries by their capture of the entire flow within the stream until the reservoir is filled, potentially resulting in significant dewatering downstream." (*Patrick Higgins, Consulting Fisheries Biologist/Sierra Club Redwood Chapter*)

**Response:** Comment noted. This is a reason why the Policy relies on instantaneous streamflow for applying a protective MCD, and requires an evaluation of cumulative effects for all applicants, including those requesting fill and spill operations.

**Comment 10.0.19:** Many of us farmers fill our reservoirs by late January, early February (after today's rain, my reservoir will be full). Thus, after today, any additional water going into my pond simply flows right out the spill-way. What you call my "on-stream" stream dries up by mid-March. Thus, it is hard to understand how the diverted water, my reservoir takes, from the rains December - February harms anything. When you balance this against a potential cost of \$100,000 - \$3,000,000 there is simply no sense of proportion. (*Barry Hoffner*)

**Response:** The impact of an onstream dam on habitat is not only due to the regulation and storage of flow but also by blocking upstream passage and the downstream movement of sediment and food sources and by providing habitat for non-native species.

**Comment 10.0.20:** We question whether the proposed requirements for fish passage and screens will be viable mitigation for onstream dams on Class I streams. Fish and Game Code sections 1603 et seq. prohibit any diversion that DFG has not conditioned to include a fishway, screen, and other measures necessary to conserve fish and wildlife resources in good condition. At a minimum, permits for these dams should require periodic proof that the fish passage facility is functional. (*Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society*)

**Response:** DFG will determine the need for fish passage and fish screen. The maintenance and operation of fish passage facilities and fish screens required by DFG will be included as a term of any permit issued in compliance with the Policy.

**Comment 10.0.21:** Amend the provision of Section 4.4.2 (onstream dams on Class II streams) allowing new construction of dams on Class II streams under certain circumstances to state that the SWRCB will permit such a dam only with the concurrence of the Regional Board and DFG. (*Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society*)

**Response:** The Draft Policy allows the State Water Board to consider a permit for these types of facilities. Individual projects will still undergo environmental review at the project level.

**Comment 10.0.22:** Section 4.4 contains permitting criteria for onstream dams. The draft Policy's approach to the permitting of and mitigation for onstream dams is generally sound. We endorse the idea to require applications for unauthorized diversions to be filed within a date certain in order to benefit from the Policy's more lenient provisions for old dams. (*Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society*)

**Response:** Comment noted.

**Comment 10.0.23:** Adopt the general approach taken in Sections 2.3.5 and 4.4 of the Policy, only if sufficient provisions for monitoring and reporting of diversions and stream flows, and the Policy Effectiveness Monitoring and Review program are included in the policy (See Recommendations on Section 10). (*Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society*)

**Response:** Staff anticipates monitoring and reporting requirements for onstream dams will be consistent with the provisions of Policy section 8.0.

**Comment 10.0.24:** Amend Section 4.4.1 (onstream dams on Class I streams) so that permits requiring fish passage measures require annual written proof by a qualified professional or by DFG that the fish passage measures are functioning as designed. (*Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society*)

**Response:** DFG's recommendation regarding the frequency of inspection of fish passage facilities will be a requirement to be included as a element of the permit compliance plan.

**Comment 10.0.25:** Removal of onstream dams may adversely affect stream biological productivity. Policy elements or enforcement actions potentially requiring removal of unpermitted or out-of-compliance onstream dams may adversely impact instream productivity in upper reaches by eliminating the retention capability of the reach, limiting the stream's ability to maintain the organic matter and macroinvertebrate communities that accumulate with the dam in place. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Appendix E of the SED provides a detailed discussion of the potential indirect environmental impacts of the Policy on water quality (section 5.9). As pointed out in the SED (pp. ii - iii), the environmental assessment was conducted at a programmatic level, which is more general than a project-specific analysis. Individual water right applications and petitions subject to the Policy will be further evaluated under CEQA at a project-level by the State Water Board or, depending on the proposed project, by another lead agency such as the Regional Water Quality Control Boards. Future environmental reviews can be expected to identify project-specific environmental effects; the lead agency must identify any project-specific environmental effects and either mitigate them to a less-than significant level or adopt a statement of overriding considerations.

**Comment 10.0.26:** Habitat values may be enhanced by "fill and spill" of onstream dams. Allowing upstream reservoirs to fill early in the diversion season, could provide spill later in the season to sustain habitat later into the dry season, which may be more beneficial than constraining early season filling opportunities, as proposed by the Draft Policy. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel,*

*Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** It is highly unlikely that the majority if not all fill-and-spill type reservoirs requiring permitting have sufficient storage to augment streamflows later in the diversion season, let alone in the dry season when the water is being used consumptively. However, water right applicants have the option to demonstrate in the required water availability analysis using the Policy regional criteria or the results of an optional site-specific study that their projects will not adversely affect fish habitat.

**Comment 10.0.27:** Most onstream storage reservoirs are located on very small drainage areas. Wagner and Bonsignore reviewed drainage areas for 71 onstream reservoirs listed in the State Water Board eWRIMS database for the Maacama Creek watershed (pending and permitted/licensed) and 124 client projects with onstream reservoirs. In summary, half of the pending applications for onstream storage involve drainage areas less than 0.09 sq. mile and 90 percent involve drainage areas well less than one square mile. Dams located across the low point in small drainage areas may be "onstream" for water rights administration, but they are not streams in the usual sense. They do not share many of the qualities associated with larger streams such as aquatic habitat and alluvial beds. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Staff is considering modifications to the Draft Policy that account for a proposed diversion's location in the watershed. The analysis would consider the proposed diversion, senior diversions in the watershed, and contributory flows from tributaries draining into the flow path. Projects upstream of anadromy would determine the minimum bypass flows and rates of diversion needed for their project by consideration of the flow reductions by senior diverters and contributory flows from stream tributaries. Application of this modification to small diversions could result in no minimum bypass flow or rate of diversion limitations for some projects.

**Comment 10.0.28:** Neither the Policy nor the Scientific Basis define the specific conditions that would constitute an impassable natural barrier. The burden of proof (i.e., survey) lies with the applicant, but the specific criteria that SWRCB staff will use to make their determination is not identified. Thus, with no established standard or definitive guidance criteria, it is unclear what criteria would be applied, and how this information would compare to the previously established criterion of a 12% gradient and possibly, to other applicable features (e.g., suitable pool depths) that are defined for other evaluation purposes elsewhere in the Scientific Basis. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** The methodology and recommendations of Part IX of the CDFG California Salmonid Stream Habitat Restoration Manual (DFG 2003a) can be used to assess whether a natural waterfall is impassable. Powers and Orsborn (1985) also provides recommendations for assessing natural barriers. Both of these references are cited in the Task 3 report. Staff will consider adding these citations to section 4.1.4 of the policy to clarify methods that could be used to assess the passability of a natural waterfall.

**Comment 10.0.29:** Policy elements or enforcement actions potentially requiring removal of un-permitted or out-of-compliance onstream dams may have negative implications on instream

productivity in upper reaches that could outweigh the potential benefits. Bilby and Likens (1980) showed the importance of debris dams in small streams for the accumulation of coarse particulate organic matter. Nearly 75% of the organic matter deposited in first-order streams was associated with the dams, versus 58% in second-order streams and 20% in third-order streams. Removal of an onstream dam in headwater areas could further reduce productivity by eliminating the retention capability of the reach, thereby limiting the ability of the stream to maintain the limited amount of organic matter that does accumulate with the dam in place. Findings from macroinvertebrate studies conducted for small low-head dams in Europe indicate: (1) Small dams often do not substantially alter the natural discharge regime or chemical conditions, but can influence local flow velocity patterns, sediment composition and energy budgets; (2) There is little to no indication that barrier effects created by dams are of large ecological significance to benthic invertebrates; (3) Changes in macroinvertebrate communities can occur in reaches immediately downstream of dams (e.g., longitudinal shift of a few 100 m for most factors), but the effects of small dams were found to not be far-reaching downstream; and (4) Differences in invertebrate assemblages among sites are primarily not the result of a barrier effect, nor of an altered flow regime, but due more to canopy cover that influences algal growth. Results from studies conducted on lowhead dams in the United States indicate that effects on macroinvertebrate communities immediately upstream and downstream of impoundments are similar in different areas of North America and are similar to the findings of European studies; and resemble those for large dams, although to a lesser extent. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Constructed onstream dams are not necessarily functionally equivalent to organic debris dams, which are also more transient. Organic debris dams trap sediments in the pool formed upstream from them and the dam structure itself collects particulate organic matter, but this material may be released periodically. Onstream dams are constructed with earthen or streambed materials and involve disturbance of the stream channel, altering the substrate composition with the increase in fines, thus changing the functional and structural composition of the macroinvertebrate community, and potentially decreasing secondary production. And, while the effect of any one dam may be localized, the effects may be multiplied downstream through construction of more than one dam in a drainage network.

**Comment 10.0.30:** No principled basis is provided in the Draft Policy for the distinction between municipal dams and agricultural dams; both have the precisely the same effect on fish passage. Nor is there any real basis for a distinction between natural and man-made barriers in the utility of upstream fish passage flows; an unreachable stream reach exists in both cases, and requiring fish passage flows in streams that fish cannot use is equally ineffectual in both cases. *(Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Draft Policy Section 4.4.2 allows an exception to the general provisions regarding onstream dams on Class II streams when the proposed onstream dam is above an existing onstream dam that provides municipal water supply or is under the jurisdiction of the Federal Energy Regulatory Commission, and that do not have fish passage facilities. This language describes very large onstream dams without fish passage facilities that are used for municipal water supply or energy use, and which will never be made passable.

**Comment 10.0.31:** Because the Draft Policy would apply to all petitions for changes in

appropriative rights, an unusable fish passage flow restriction imposed on a senior water right holder upstream of a junior appropriator's reservoir will have the effect of reversing water right priorities and reallocating the senior's water resource to the junior appropriator. The Draft Policy would impose no requirement that the downstream reservoir owner release the bypassed flows; they would simply augment to the water stored in the downstream reservoir under the junior water right. Such a reversal of priority is inconsistent with California water law, as recently held in *El Dorado Irrigation District v. State Water Resources Control Board* (2006) 142 Cal.App.4th 937, 970 (allowing junior rights holders to continue diverting water while senior rights holder was precluded from doing so violates California law's fundamental rule of priority). (*Janet Goldsmith and Becky Sheehan, Kronick, Moskowitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** The Draft Policy would require any incremental decrease in stream flow resulting from approval of a change petition to be evaluated for potential impacts to fish and wildlife in accordance with the policy. The policy does not call for an evaluation of the underlying water right as a whole. Before the Board may approve a change in a permitted or licensed right, the Board must find that the change will not injure other legal users of the water involved or unreasonably affect fish, wildlife or other instream beneficial uses. (Wat. Code, §§ 1702, 1725, 1736.) In other words, with respect to a change, a petitioner is junior in priority relative to other water right holders, including junior appropriators. Accordingly, the policy's applicability to change petitions, which will ensure that change petitions do not adversely affect fish and wildlife, is consistent with both the requirements of the Water Code and the water right priority system.

**Comment 10.0.32:** There is no cogent justification for preventing the use of the water that would be fruitlessly dedicated to non-existent fish in streams above physical barriers by the Draft Policy. In the case where an artificial passage barrier is eliminated, the Water Board has ample authority, either under Water Code section 1394 or under its Public Trust authority, to impose the bypass flows needed for anadromous fish passage. In parallel circumstances, the legislature has expressly approved and encouraged interim uses of water that may ultimately be required for municipal supplies (Water Code section 1462); the same approach and logic should be employed where artificial barriers that currently prevent anadromous fish from ascending a stream might someday be eliminated. Until the barriers are eliminated, foreclosing the beneficial use of water through bypass flow requirements under the spurious distinctions proposed by the Draft Policy would violate the Constitutional mandate of Article X, Section 2. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskowitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Article X, section 2 of the California Constitution does not preclude the imposition of protective requirements upstream of artificial barriers. Article X, section 2 provides in relevant part: "It is hereby declared that because of the conditions prevailing in this State the general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare." The requirement that water resources be put to beneficial use to the fullest extent possible must be read together with the requirement that all water use be reasonable, which in turn requires consideration of all relevant facts. In this case, the benefits of allowing the use of water above an artificial barrier on an interim basis, as the



commenter suggests, must be weighed against the administrative difficulty of modifying an existing permit pursuant to a reservation of authority once the barrier is removed, and the potential impact to anadromous fish in the event that the permit is not modified. It also merits note that the Policy would not treat a stream above an artificial barrier as potential habitat for anadromous fish if a water right applicant can show that the barrier is not passable and can never be made passable. The approach taken by the Policy strikes a reasonable balance of competing considerations that is consistent with article X, section 2.

**Comment 10.0.33:** DFG recommends adding water quality objectives for onstream dams that are consistent with their definition of a water quality objective, and recommends that the first sentence of paragraph two in section 2.3.5 of the policy be rewritten as follows: Onstream dams shall only be allowed if they avoid (1) individual or additive impacts on instream flows, (2) interruption of fish migratory patterns, (3) interruption of downstream movement of gravel, woody debris, or aquatic benthic macroinvertebrates, (4) loss of riparian habitat or wetlands, or (5) creation of habitat for non-native species. *(Donald Koch, State of California Department of Fish and Game)*

**Response:** Comment and recommendation noted.

**Comment 10.0.34:** DFG supports the recommendations in the Task 3 Report restricting the permitting of onstream dams. *(Donald Koch, State of California Department of Fish and Game)*

**Response:** Comment noted.

**Comment 10.0.35:** DFG recommends the Policy clarify section 4.4.1 regarding onstream dams on Class I streams by modifying the first sentence to read as follows: "The State Water Board will not consider approving a water right permit for a new onstream dam on a Class I stream and will not consider approving an existing unauthorized onstream dam on a Class I stream unless all of the following requirements are met:" *(Donald Koch, State of California Department of Fish and Game)*

**Response:** Comment noted.

**Comment 10.0.36:** DFG recommends that Policy section 4.4.1.2.a be modified to read ". . . contacted the Streambed Alteration Agreement Program at the local regional DFG office for the . . . ". *(Donald Koch, State of California Department of Fish and Game)*

**Response:** Comment noted.

**Comment 10.0.37:** DFG provided suggested language to be added to Policy section 4.4.1 to make it a requirement that state and federal resource agencies will approve site specific mitigation plans or measures prior to the State Water Board's acceptance of these plans or measures. *(Donald Koch, State of California Department of Fish and Game)*

**Response:** Federal and State Agencies will be provided the opportunity to review and comment on site-specific mitigation plans prior to issuance of any permit. The Policy does not require the approval of site specific mitigations plans by federal and state agencies prior to the State Boards acceptance of the mitigation measures and or mitigation plans.

**Comment 10.0.38:** DFG recommends removing the exception for onstream dams on Class II streams that is proposed in Policy Section 4.4.2 because this exception is inconsistent with the

biological recommendations in the Task 3 Report. *(Donald Koch, State of California Department of Fish and Game)*

**Response:** Staff will consider revisions to the Draft Policy to clarify the intent of the exception, which addresses situations in which an onstream dam on a class II stream would not affect flows on a Class I stream.

**Comment 10.0.39:** DFG recommends additional language to Policy Section 4.4.3 to explicitly require flow bypass even when the onstream dam is not full. The suggested language is as follows: "Any onstream dam on a Class III stream shall be constructed in such a way as to be able to bypass early and/or late season flows even when the reservoir is not full." *(Donald Koch, State of California Department of Fish and Game)*

**Response:** The operation of any dam will require the applicant to demonstrate the ability to bypass instream flows that occurs outside of the authorized season of diversion. Policy section 7.0 provides the design requirements for passive bypass systems that address the bypass of early and late season flows regardless of the amount of water that remains in a storage reservoir.

**Comment 10.0.40:** DFG recommends adding language to Policy Section 4.4 requiring onstream dams to have multilevel water release features to ensure bypass of early season flows and as temperature controls, even if the impoundment is not full. *(Donald Koch, State of California Department of Fish and Game)*

**Response:** Comment and recommendation noted. The objective of the Draft Policy is not necessarily to recommend the most protective option, but the option that results in sufficient protection. Any option that is more protective than necessary would reduce water availability to other uses or place an unnecessary compliance burden on the diverter.

**Comment 10.0.41:** The proposed Policy does not consider the multi-dimensional nature of the hydrologic regime and the connectivity of hillslope and groundwater processes to channel form and function but instead narrowly focuses on effects that diversions and impoundments have on instream flows. This narrow view may have unintended consequences. *(Catherine Kuhlman, State of California Regional Water Quality Control Board, North Coast Region)*

**Response:** Comment noted. The Policy is designed to apply to activities for which the State Water Board has the authority to regulate such as diversions and impoundments of surface and subterranean water. Land use and extractions from percolating groundwater are not subject to the State Water Board's water right permitting authority.

**Comment 10.0.42:** RWQCB1 supports onstream dam alternatives DP1.1, DP2.1, and DP3.2 and does not support permitting dams on Class I and II streams because it will not fully protect salmonids and water quality, and may conflict with temperature and dissolved oxygen objectives in the Basin Plan. Onstream dams also pose a risk to downstream environments in the event of dam failure, release of sediment, and stream channel damage. If the State Water Board pursues permitting dams on Class I and II streams, Regional Board staff request additional language in the policy that a water right applicant be required to receive a 401 permit, waste discharge requirements, or a waiver from the Regional Board before the Division issues a water right permit. This would give Regional Board staff the opportunity to approve mitigation plans. Regional Board staff also recommend a reopener provision in the water right permit allowing for specific provisions that may be developed through TMDLs. *(Catherine*

*Kuhlman, State of California Regional Water Quality Control Board, North Coast Region)*

**Response:** Any water right application considered by the State Board shall consider water quality control plans and may subject such applications to such terms the State Water Board may consider appropriate to carry out such plans. Regional Boards are notified of the proposed projects and are provided the opportunity to submit a protest. Terms and conditions for resolution of their protest may include that the applicant is required to receive a waste discharge permit or waiver from the Regional Board. The Division of Water Rights is responsible for 401 certifications for water development projects and where applicable will require the applicant to apply for and receive a 401 certification as a condition of approval and prior to any diversion and use of water. The Board includes a standard permit term in all water right permits that reserves the right of the State Water Board to reopen the permits or licenses to add or change the terms and conditions of approval to protect public trust uses and to prevent waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of water. This standard term would authorize the Board to reopen permits to consider whether to impose provisions developed through TMDLs to the extent that the provisions may be necessary to protect public trust uses or prevent the unreasonable use or unreasonable method of diversion of water. No action will be taken to modify or change any permit terms unless the State Water Board determines after notice to the affected parties and opportunity for hearing that the changes are warranted.

**Comment 10.0.43:** RWQCB1 staff recommend that the analysis of protectiveness of onstream dams be revised to consider water quality impacts. *(Catherine Kuhlman, State of California Regional Water Quality Control Board, North Coast Region)*

**Response:** Water Code section 1258 requires the State Water Board to consider the approved basin plan and to condition any approvals to carry out such plans. Comment and recommendation noted.

**Comment 10.0.44:** Regional Board staff recommend that a sixth item be include in the list of potential effects of onstream dams identified in Section 8.1 of the Task 3 Report to read: "alter water quality (e.g., increase temperature, decrease dissolved oxygen, increase nutrients, increase nuisance, increase algae) either upstream or downstream of the impoundment." *(Catherine Kuhlman, State of California Regional Water Quality Control Board, North Coast Region)*

**Response:** Comment noted. All water right permits issued by the State Water Board must be consistent with the Basin Plan and cannot conflict with any TMDL approved for the basin (Water Code section 1258).

**Comment 10.0.45:** The proposed Policy allows for the permitting of existing dams on Class I streams that meet certain provisions. But, attainment of water quality standards is not one of the criteria required for permitting. This has the potential to result in the State Board permitting dams on Class I streams that violate the Basin Plan, increase impairment in downstream reaches already listed on the 303(d) list, and/or work in conflict with a TMDL approved for the basin. *(Catherine Kuhlman, State of California Regional Water Quality Control Board, North Coast Region)*

**Response:** Comment noted. All water right permits issued by the State Water Board must be consistent with the Basin Plan and cannot conflict with any TMDL approved for the basin (Water Code section 1258).

**Comment 10.0.46:** There are limited valid arguments for maintaining dams and impoundments in place that are stream and habitat blockers. The Policy should not permit this and should assure prioritized removal of such structures. *(Alan Levine, Coastal Action Group)*

**Response:** Comment noted.

**Comment 10.0.47:** The Policy is too vague regarding non-native species mitigation plans. It is unclear as to what is to be removed and from where. There are no geographic or topographic or ecological limits set, nor is there mention of what to do if reinvasion occurs. No landowner can possibly comply. Scotch broom, yellow star thistle, Klamath weed, knapweed, arundo, sowthistle, exotic nightshades and numerous alien grass species are ubiquitous in Northern California, and are impossible to eradicate. The state and federal governments have spent tens of millions of dollars with limited success, and on most federal lands (BLM, U.S. Forest Service, U. S. Park Service) no effort at all is made to remove most entrenched non-native species. There is nothing in the Policy to designate what species are involved, how far back from a pond, what costs would be involved, and what will happen in the event of failure or reinfestation. There is an inherent unfairness about requiring removal of non-native species in this situation when ordinary homeowners can plant all the non-native species they wish. *(Rudolph Light)*

**Response:** Comment noted. Policy section 4.4.4, Guidance for Developing Mitigation Plans was intended to address non-native aquatic species that could inhabit reservoirs. Task 3 Report Section 8.1.1 discusses "non-native non-salmonid fish species such as bluegill and bass, as well as other exotic species such as the bullfrog." Staff will consider modifications to this section of the Policy so that the intent is clear.

**Comment 10.0.48:** The Policy should expand and make clear that new dams off site shall require CEQA *(Chris Malan, Earth Defense for the Environment Now, Living Rivers Council)*

**Response:** Before the State Water Board considers issuing a water right permit, the proposed diversion undergoes environmental review and CEQA review.

**Comment 10.0.49:** The Policy allows onstream dams in Class III streams. These high order streams frequently are recharge areas for groundwater along with wetland features. When the dams overflow they carry pollution throughout Class III and Class I streams. The Policy should require an NPDES permit, subject to the State Water Board's approval and comments through CEQA. *(Chris Malan, Earth Defense for the Environment Now, Living Rivers Council)*

**Response:** The Regional Water Quality Control Boards are provided public notice of all water right applications and should provide notification to the State Water Board and the applicant that a NPDES permit is required. The Regional Boards are provide copies of CEQA documents and have the opportunity to review and provide comments to be considered by the CEQA Lead Agency prior to final approval. Comment and suggestion noted.

**Comment 10.0.50:** The Policy sets parameters for determining minimum bypass flow and maximum cumulative diversion in the watershed to the upper limits of anadromy. The Policy must include upper limits of anadromy above an instream dam even if the dam is impassable by fish. If the dam does not provide fish passage then it is an illegal dam. *(Chris Malan, Earth Defense for the Environment Now, Living Rivers Council)*

**Response:** The draft Policy sets upper anadromy limits regardless of the presence of dams, excepting Warm Springs and Coyote Valley. The regional minimum bypass flow equation uses the drainage area at the upper limit of anadromy.

**Comment 10.0.51:** Policy pages 22 and 23: sections 4.4.2 Onstream Dams on Class II streams and 4.4.3 Onstream Dams on Class III streams - The content in these sections overlap with section 4.4.1, and can be truncated by stating that "solely numbers . . . of section 4.4.1 apply to onstream dams on class . . . streams." (*Elliott Matchett*)

**Response:** These policy sections were purposely laid out in this manner to minimize confusion when applied.

**Comment 10.0.52:** There will never be another dam built on a stream unless the stream is Class III. A Class III stream is by definition intermittent, has a defined channel with a defined bank and has no aquatic non-fish vertebrates, meaning no frogs, no salamanders, and no bottom dwelling invertebrates such as insects and crayfish. This kind of stream has hardly any riparian life in and around it anyway. (*Roland Sanford, Mendocino County Water Agency; Jim Wattenburger, Mendocino County Board of Supervisors*)

**Response:** Dams subject to Class III requirements are most likely to be permitted subject to demonstration that the project would not adversely affect instream flows and anadromous salmonid habitat downstream. Note that while an individual small project may by itself not adversely affect habitat, if there are enough such dams their cumulative effect downstream may be adverse, akin to "death by a thousand cuts".

**Comment 10.0.53:** If a person has to remove an existing dam, what can he do in cases where the ground is too steep to replace an onstream pond with offstream storage, i.e., a pit pond? And if one were able to do this, what are the costs? Also, how difficult will it then be to get a license for a pit pond? Will those rules also be subject to change over and over again? (*Roland Sanford, Mendocino County Water Agency; Jim Wattenburger, Mendocino County Board of Supervisors*)

**Response:** The Draft Policy allows an unauthorized onstream reservoir constructed prior to July 19, 2006 to remain onstream provided that it is modified in accordance with the applicable Policy provisions. The commenter's concern regarding potential infeasibility of building a replacement offstream reservoir because of steep terrain is noted. In cases where building a replacement offstream reservoir is feasible, the cost will vary depending on many factors, particularly reservoir size, in terms of wetted area and storage volume, and distance from the point of diversion on the stream. A general relationship between construction cost and reservoir storage volume over a range of typical volumes is presented in the Direct Cost Report (section 3.3.2).

**Comment 10.0.54:** The Draft Policy does not define exactly what qualifies as an "onstream dam" and we have found in the past that the State Board is not clear and consistent in what it means by this term. Moreover, during the application process, State Board staff often encourage applicants to characterize their dams as "onstream," even if probably located off-stream, because it will otherwise require the applicant to start back at the beginning of the process if an onstream determination is made many years later under current or new standards. Given the draconian provisions relating to onstream dams in the policy and these State Board application practices, there needs to be a clear and scientifically defensible set of provisions in any policy regarding this definition. (*Paul "Skip" Spaulding, Farella Braun + Martel*)

*LLP/Golden Vineyards)*

**Response:** Comment noted. The purpose of this Policy is to define measures for setting instream flow standards in the five county area defined in the AB2121 legislation. Setting provisions for defining what constitutes an onstream dam is a separate matter from this Policy because defining provisions for onstream dams is applicable to the entire State of California. It is more appropriate for this topic to be addressed by the State Water Board in a different setting.

State Water Board staff currently assess whether or not a reservoir is onstream based on whether or not the reservoir impounds water flowing in a known and definite channel with defined bed and banks. Some applicants tend to characterize their upstream channel as a swale that does not meet State Water Board jurisdiction. However if the land contour and slope lead water to be channelized and flow in a specific direction, no matter how small the channel may be, it is considered a stream for the purposes of water rights administration.

**Comment 10.0.55:** The interaction of the stream classification system and the onstream dam provisions needs to be revisited, balanced and perhaps deleted entirely. For example, there is no rational reason for the onstream dam limitations in the Draft Policy to be applied to any class of stream if it is above a point reasonably accessible to anadromous salmonids. In addition, the onstream dam limitations should not apply to the mainstem of the Russian River below Lake Mendocino because the minimum bypass flow and maximum cumulative diversion limitations explicitly do not apply to this area, and there is no rational basis for maintaining onstream dam limitations. *(Paul "Skip" Spaulding, Farella Braun + Martel LLP/Golden Vineyards)*

**Response:** Chapter 1 of the Task 3 report explains the need for protecting flows in streams formerly supporting juvenile steelhead, including upstream of artificial barriers/dams, and in ephemeral streams. Staff note that studies have shown the importance of headwater streams, even those that are fishless, to the ecology and productivity of downstream areas that are occupied by fish (See Naiman, R.J. and J.J. Latterell. 2005, Principles for linking fish habitat to fisheries management and conservation. *Journal of Fish Biology*, 67 (Supplement B), 166-186.). The draft Policy excludes the mainstem Russian River below Lake Mendocino from the flow-related provisions only, because instream flow requirements were previously established by the State Water Board in Decision 1610.

**Comment 10.0.56:** The onstream dam limitations in the new policy should only be applied to water rights applicants who apply on or after the date of the new policy adoption. Particularly given the range of expense estimated by the State Board for retrofitting existing storage reservoirs with passive or automated bypass systems or removing existing dams (ranging from \$100,000 to \$3 million per reservoir), these provisions should apply only to persons who had clear and unequivocal notice of these new limitations prior to the time that they applied for their water rights. Moreover, the July 19, 2006 cut-off date for construction of reservoirs that will be allowed on certain types of streams is completely arbitrary and counterproductive, particularly since it penalizes applicants who were following the law by waiting to be granted a water right before constructing the reservoir facilities. This date should be changed to be the date on which a new policy is adopted by the State Board. *(Paul "Skip" Spaulding, Farella Braun + Martel LLP/Golden Vineyards)*

**Response:** The onstream dam provisions described by the commenter provides diverters a grace period to apply for a water right for an existing onstream dam if they have not already

done so.

**Comment 10.0.57:** Policy must have restrictions on new on-stream reservoirs. *(TU Form Letter)*

**Response:** Comment noted. The Policy will not allow new onstream reservoirs on Class I streams and will only allow new onstream reservoirs on Class II and III streams with the appropriate mitigation measures to ensure there is no negative impact on the fishery resource. See Policy Section 4.4, permitting requirements for onstream dams.

**Comment 10.0.58:** In many cases, the general topography is too steep to build a pit pond to replace an onstream pond. *(Roland Sanford, Mendocino County Water Agency; Jim Wattenburger, Mendocino County Board of Supervisors)*

**Response:** See response to 10.0.53.

**Comment 10.0.59:** I do wonder if this present effort to limit ponds might not make it more difficult to improve the riparian environment via some newish innovations: vegetated filter strips and swales, first-flush catchment basins, and vernal pool recreation. (1) Many Filter Strips to clean up agricultural runoff with vegetation, should be Swales because existing drainage ditches speed the contaminants to the river. (2) First Flush Catchment Basins are off-stream reservoirs designed to fill up with the more contaminated first flow of summer-dry tributaries when the rains begin. When the basin is full, the water is level with the stream bed so the stream continues on down its channel. Vegetation in the basin can help clean up chemical and biological contamination and trash can be removed. If the vegetation absorbs toxics that make it advantageous to harvest periodically, would it be possible to claim carbon sequestration points for putting it into a landfill? (3) Vernal Pools harbor many of the native species that would be used in filter strips, swales and first flush basins. Natural vernal pools in north coast valleys are rare, degraded and disappearing. Pond making rules that don't inhibit creating new vernal pools that could function to preserve native plants and animals specific to that habitat are needed. *(Chuck Williams)*

**Response:** Comment noted.

## 11.0 Mitigation Plans

**Comment 11.0.1:** Amend Section 4.4.4 to state that for proposed projects that include onstream dams, the applicant "shall" be required "to prepare mitigation plans for the eradication of non-native species, gravel and wood augmentation, and/or riparian habitat replacement," rather than "may," but that the State Water Board may waive this requirement if it determines that such measures are unnecessary. *(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society)*

**Response:** Comment noted. Staff will consider this comment when making revisions to the Draft Policy.

**Comment 11.0.2:** Amend Section 4.4.4 to clarify that compliance plans for onstream projects that include mitigation measures for fish passage, non-native species eradication, gravel and wood augmentation, and/or riparian habitat replacement shall require annual reports demonstrating compliance with such mitigation measures. State also that SWRCB, Regional Board, or DFG may periodically inspect the facility to ensure that such mitigation measures are

functioning. (*Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society*)

**Response:** Section 4.4.4 already contains adequate language regarding reporting requirements. A water right permit term is already added to permits requiring the permittee to allow State Water Board access and designated representatives, which may include staff from the Regional Board, Department of Fish and Game, and Federal Agency representatives. All permits are subject to the standard condition that a permittee must allow “representatives of the SWRCB and other parties, as may be authorized from time to time by said SWRCB, reasonable access to project works to determine compliance with the terms of this permit.” (Water Rights Standard Term 11) Various terms include specific access requirements ( See Water Rights Permit term 47).

**Comment 11.0.3:** Gravel recruitment is not necessarily a limiting factor. Regarding gravel recruitment, the Scientific Basis recognizes that “[s]wales and similar drainage depressions . . . would by definition not be expected to be important for bedload supply downstream because there is no defined stream channel.” The Scientific Basis recognizes that the smallest watersheds are not expected to be important for supply of gravel. The document then goes further to argue that because gravels can move from Type III streams to Type II streams, that they are therefore needed to maintain gravel transport. That would be true only if the presence of streambed gravels were limited by the supply of gravel as contrasted to capacity of the stream to transport gravels. The presence or absence of gravels is often determined by flow velocities rather than by gravel supply. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Comment noted. The Policy requires that a water right applicant develops and implements a gravel and wood augmentation plan. If the presence of streambed gravels were not limited by the supply of gravel, this finding could be reported by the applicant and the gravel and wood mitigation plan would not require any on-going augmentation by the applicant.

**Comment 11.0.4:** The Scientific Basis (Appendix D, pg. D-36) states “...gravels originating in even the fourth type (d) of streams can ultimately supply spawning habitat used by anadromous salmonids downstream. Consequently, streams of type (a), (b), and (c) would all need to be protected at a minimum in terms of providing sufficient water and bedload to anadromous habitat in streams of type (a).” Even though type (d) streams can be a source of gravel input to a system, this does not necessarily mean that these stream types are needed to supply gravel. The sentence from the Scientific Basis that is quoted above does not call for type (d) streams to provide bedload to type (a) streams (i.e., anadromous fish habitat). The Scientific Basis should address the potential for site-specific gravel mobilization, and should include the following additional considerations: (1) Dependence on specific site conditions (slope, velocity); (2) Magnitude and duration of peak flow changes, which could vary by type of stream class. For example: Class III streams: Flashy, high gradient, narrow channel; peak flows are intense, of short duration and unpredictable. Class I streams: Lower gradient, wider channel, broader floodplain, greater channel complexity and habitat types; peak flows are of longer duration, and have a more regular pattern. (*Janet Goldsmith and Becky Sheehan, Kronick, Moskovitz, Tiedeman & Girard, P.C.; Peter Kiel, Ellison, Schneider & Harris LLP; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers*)

**Response:** Comment noted. These considerations are all site specific and thus would be best addressed either by completion of site specific study or in the gravel and wood mitigation plan.



**Comment 11.0.5:** DFG is concerned that the preparation of mitigation plans for the State Water Board without DFG approval will result in the applicant being required to develop additional and/or revised plans to meet Fish and Game Code or California Endangered Species Act requirements. It would streamline the process for the applicant if joint mitigation requirements were coordinated prior to the SWRCB permitting. DFG suggests the following language: "Requirements specified in the Policy that are also under DFG jurisdiction, including screening, passage, bypass facilities and mitigations plans, shall be reviewed and approved by DFG prior to permits terms being developed." (*Donald Koch, State of California Department of Fish and Game*)

**Response:** As a Trustee Agency the Department of Fish and Game is provided copies of the proposed project at the time of notice. The Division of Water Rights also consults with DFG to determine if there are any impacts or mitigation measures that should be evaluated or included in a CEQA/Public Trust analysis. If DFG provides requirements for approval during the water rights process, CEQA and or Public Trust analysis the requirements are included in the draft documents that are circulated for public review and comment. If the State Water Board as CEQA Lead Agency proposes to prepare a mitigated negative declaration, the applicant, prior to circulation for public review and comment must approve the requirements.

If DFG does not provide terms and conditions for approval before a permit is issued the Division may add term(s) that requires the permittee to receive clearance from DFG and the Regional Board prior to the diversion and use of water.

The small domestic use and livestock stock pond program requires the applicant to notify DFG and obtain written clearance prior to filing the application to the State Water Board. If the written clearance does not accompany the application is not accepted for filing and is returned to the applicant.

**Comment 11.0.6:** The policy proposes that mitigation plans include a Gravel and Wood Augmentation Plan and a Riparian Habitat Replacement Plan. RWQCB1 staff recommend that references supporting the effectiveness and success of gravel and wood augmentation and riparian habitat replacement be provided. (*Catherine Kuhlman, State of California Regional Water Quality Control Board, North Coast Region*)

**Response:** Comment and recommendation noted. Case studies of gravel and wood augmentation in the literature have generally focused on efforts below larger dams than of the type subject to the Policy. Thus the proposed mitigation plans reflect fundamental concepts, and the required measures conservatively emulate "pass-through" of gravel and wood from upstream. Relevant citations including larger dam studies are: Merz JE, LKO Chan. 2005. Effects of gravel augmentation on macroinvertebrate assemblages in a regulated California River. *River Res. Applic.* 21: 61–74; Kondolf GM, Mathews WVG. 1993. Management of coarse sediment in regulated rivers of California. Report Number 80. University of California Water Resources Center: Riverside; Kondolf, G. M., A. J. Boulton, S. O'Daniel, G. C. Poole, F. J. Rahel, E. H. Stanley, E. Wohl, A. Bang, J. Carlstrom, C. Cristoni, H. Huber, S. Koljonen, P. Louhi, and K. Nakamura 2006. Process-based ecological river restoration: visualizing three-dimensional connectivity and dynamic vectors to recover lost linkages. *Ecology and Society* 11(2): 5. There are countless studies demonstrating the benefits on riparian habitat restoration, some are identified in the Task 3 report (e.g. Platts 1991).

**Comment 11.0.7:** Mitigation plans for onstream dams are beyond the scope and authority of

the Policy because there is no nexus between a water right procedure and a legal requirement to eradicate plants or animals or to restore riparian or riverine habitat. I am well aware that the Endangered Species Act may be broadly interpreted, but I cannot accept without reservation that the ESA was intended to be used to deny issuance of a license to store water. This surely exceeds the legitimate authority of the Division of Water Rights. There is no law stated in or cited by the Policy which gives the right to the State Water Board to regulate habitat enhancement, and this entire section should be deleted. Mitigation plans should fall solely under the jurisdiction of the California Department of Fish and Game and the California Forestry Department, and as applicable to satisfy jurisdiction of NOAA Fisheries. *(Rudolph Light)*

**Response:** Water right permits may include permit terms that require the permittee implement mitigation measures to address potentially significant environmental impacts caused by the proposed diversion.

**Comment 11.0.8:** The gravel and wood augmentation plan can have serious adverse consequences. If a person moves LWD downstream to a lower reach, the accumulated material can form a barrier to stream flow which in turn can cause the channel to be moved some distance laterally, and may result in a new channel unsuitable for salmonid passage. The consequence of LWD being placed downstream can even cause catastrophic flooding under rare circumstances. Will an applicant be held legally responsible for any damage related to LWD being purposely placed downstream if this results in consequent flooding, soil erosion, streambed alteration or damage to a neighboring property? Will permits (e.g., DFG 1603) and other paperwork be required to do this work? This could easily become a logistical and financial problem, and expose a landowner to substantial liability. If these augmentation plans are adopted, please include a discussion of about the need for a 1603 permit, and state that a landowner will or will not be liable for acting as directed by the Policy. *(Rudolph Light)*

**Response:** Comment and suggestion noted. Compliance with DFG Code sections 1600 et.seq. is within the jurisdiction of DFG. DFG determines the need for a streambed alteration agreement.

**Comment 11.0.9:** In the field, riparian habitat restoration is a very complex and expensive proposition. I know this from personal experience. We constructed in 2000-2002 a large restoration project on the West Fork of the Russian River, and it still needs a lot of attention each year. Details may be found in a booklet I printed called West Fork Russian River Restoration at Light Ranch 1999-2005. Before any riparian habitat replacement plan is adopted, people in authority should contact landowners and contractors who have done riparian restoration projects and get their advice. These projects are far too complex and expensive simply to be ordered into existence by people who think they are a good idea. *(Rudolph Light)*

**Response:** The Draft Policy requires that a water right applicant prepare a riparian habitat replacement plan as part of the individual water right permitting process. The review and approval of the applicant's plan would occur on a project-level basis, not on a policy-level basis.

**Comment 11.0.10:** Policy page 25 section 4.4.4 Guidance for Developing Mitigation Plans - Relating to non-native species eradication plans: In situations that non-native species may have escaped from reservoirs and invaded stream reaches, efforts should include detection and eradication species in these locations too. *(Elliott Matchett)*

**Response:** Comment and suggestion noted. The impact and mitigation measures associated with non-native plant eradication will be evaluated during the CEQA Public Trust analysis. Mitigation plans may be developed in consultation with DFG, Boating and Waterways and the Regional Water Quality Control Board and will be site specific.

**Comment 11.0.11:** Policy Page 26 section 4.4.4 Relating to gravel and wood augmentation plan: in addition to number 4, number 5 and 6 should also have citations and references. *(Elliott Matchett)*

**Response:** Comment noted. These were developed based on professional judgment as sensible ways of distributing gravel and wood so that the material may be readily mobilized and redistributed by the stream.

**Comment 11.0.12:** The provisions in the policy for gravel augmentation, riparian revegetation and wood augmentation need to be evaluated in a watershed context. These actions would be unnecessary on creeks such as alluvial fan channels where riparian vegetation does not grow in the same pattern or density as on valley creeks. Augmenting gravel in channels affected by entrenchment in the main river channel will only result in the movement of that gravel into the river. In the 1990's an experiment was done by the Mendocino Water Agency on Forsythe Creek a tributary to the Russian River in Mendocino County when 5,000 cubic yards of gravel placed in the creek was moved out of the creek channel in a 2-year frequency storm. Gravel augmentation may have benefits for streams that are more remote from the main river in the Russian and Napa River watersheds and those which are not incised and therefore do not have as high velocity flood flows. *(Beverly Wasson, California Land Stewardship Institute)*

**Response:** The intent of gravel augmentation under the draft Policy is simply to mitigate for the interruption of gravel transport by an onstream dam. In the example given, such transport would be interrupted in the presence of a dam, and in extreme cases could lead to channel instability downstream. The gravel and wood augmentation submitted by the applicant would include site-specific information. If no sediment is trapped by the onstream dam, the plan would not require any on-going augmentation by the applicant.

## 12.0 Small Domestic Use

**Comment 12.0.1:** CAG agrees with constraints as outlined in the Small Domestic Use and Livestock Registration Program section of the Draft Policy, with the exception that the season of diversion should be changed as per the above discussion. *(Alan Levine, Coastal Action Group)*

**Response:** Comment noted. Staff will consider modifying the season of diversion in conjunction with the concerns raised regarding use of an expanding season of diversion in the regional criteria comments.

**Comment 12.0.2:** Commenter describes the Mattole Flow Program that addresses primary limiting factors in the Mattole River, namely instream flows for juvenile habitat during summer and fall, by enlisting riparian users to convert to small domestic use (SDU) or appropriative water use (if necessary) with seasonal water storage: "The primary limiting factor in the Mattole River watershed regarding the recovery and enhancement of salmonids is instream flows for juvenile salmonids habitat during the summer and fall. It is a significant oversight that section 2.2 of the draft policy makes no specific mention of that need. This issue was not

sufficiently considered in development of the draft Policy. Instead the policy focuses on maintaining the wintertime peak flows for fish passage and spawning through bypass requirements. Conserving summer rearing habitat for fisheries is addressed indirectly through restrictions on the season of diversion. Unfortunately, these restrictions applied to the specific hydrologic realities of the Mattole River would have the un-intended effect of undermining Mattole Flow Program efforts to restore healthy instream flows for fish and people." *(Eric Goldsmith, Sanctuary Forest)*

**Response:** Comment noted. Staff is considering revisions to the Draft Policy provisions for small domestic use and livestock stockpond registrations.

**Comment 12.0.3:** Draft Policy Creates Barriers to Obtaining Small Domestic Use Registrations for Conservation Purposes: The draft policy would generally limit the season of diversion for new SDU registrations to the period from October 1 through March 31. This season of diversion, while intended to protect summer flows by disallowing diversions for six months of the year, does not reflect the hydrologic reality of the dry season in the Mattole River watershed. Based on the 56 years of records at the Petrolia gage and the 8 years of records from the Ettersburg gage, lowest daily mean flows in the Mattole occur between September 1 and October 15. It is for this reason that SDU registrations already obtained for Mattole Flow Program participants contain these same dates where diversions are prohibited. To further extend this seasonal prohibition on withdrawals for the period April 1 to July 1, as would be required under the draft policy, brings no measurable benefit. Mattole River flows don't become measurably impaired by existing diversion in the headwaters until approximately July 1. Up until that date cumulative existing diversions under all basis of rights are estimated to reduce river flows by a maximum of 5%. This is within the margin of error of our SWRCB approved streamflow monitoring protocols. Please see Attachments A and B for data regarding streamflow monitoring protocols. Please see Attachments A and B for data regarding human impairment and a comparison of proposed and existing seasons of diversion in the Mattole relative to the critical dry period. The critical dry season on the Mattole is estimated to last a minimum of 105 days, approximately August 1st to November 15th. The Mattole Flow Program prepares landowners for forbearance during this dry season by providing off-stream water storage tanks of sufficient capacity for that period of time. The limited season of diversion proposed in the draft policy would essentially double the water storage requirements of Program participants, and would require the Program to provide double the water storage to facilitate participation. *(Eric Goldsmith, Sanctuary Forest)*

**Response:** Staff is considering revisions to the small domestic use provisions of the Draft Policy that allow DFG to make exceptions to season of diversion requirements.

**Comment 12.0.4:** Sanctuary Forest believes that this conservation variance for the SDU registration process forms an incentive for diverters to limit their season of diversion and store water through an SDU. Creating incentives (or at least removing disincentives) for existing diverters with valid water rights (particularly riparians) who wish to participate in programs to benefit fisheries and wildlife will more successfully bring about desired habitat improvements in the Mattole River watershed and other watersheds than the restrictive approach proposed in the draft policy. *(Eric Goldsmith, Sanctuary Forest)*

**Response:** Staff is considering revisions to the Draft Policy that provide incentives for projects that benefit fish and wildlife.

**Comment 12.0.5:** Participants in the Mattole Flow Program are not limited to those who

qualify for SDU registrations. There are agricultural, institutional and commercial water users in the Mattole community who would not qualify for an SDU but who are interested in enhancing benefits to summering juvenile salmonids through storage and forbearance. Again, most of such potential participants are riparian users who would need to obtain new appropriate rights that include the ability to divert to storage. *(Eric Goldsmith, Sanctuary Forest)*

**Response:** See response to 12.0.4.

**Comment 12.0.6:** Generally, Sanctuary Forest expresses the need to remove disincentives and provide incentives to encourage landowners to store and forbear. *(Eric Goldsmith, Sanctuary Forest)*

**Response:** See response to 12.0.4.

**Comment 12.0.7:** We propose an amendment to foster projects such as the Mattole River flow enhancement effort under which rural residential users switch from direct diversions to storage tanks in order to benefit fish. Since they require a new SDU registration to proceed, the amendment is necessary to avoid unintentionally creating a powerful disincentive to the project. This is because it is impractical to fund or locate storage tanks that could allow residents to completely limit diversions to the standard season of diversion. At the same time, even projects that allow forbearance for a shorter but still critical time will improve conditions for fish and should be encouraged. The language we propose was developed jointly with Sanctuary Forest, the sponsor of the Mattole River tanks program. We recommend amending Item 1 of Section 5.0 of the Policy (Small Domestic Use Provision) to include the following: "Notwithstanding the foregoing, the State Water Board shall extend the season of diversion beyond March 31 if the Department of Fish and Game concurs that (1) the purpose of the appropriation is to allow the registrant the flexibility to divert water for beneficial use in a manner that improves conditions for fish and wildlife, and (2) the registration would allow the registrant to forgo or reduce diversions under other valid basis of right during periods of the year that are most critical to fish and wildlife. This exception does not limit or expand DFG's authority to condition the registration pursuant to Water Code section 1228, et seq." *(Eric Goldsmith, Sanctuary Forest; Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society)*

**Response:** See response to 12.0.3.

**Comment 12.0.8:** Policy Section 5 addresses small domestic use and stockpond registrations. (Policy, p. 27.) The standard terms include a season of diversion and a prohibition on new onstream dams, but not a minimum bypass flow or maximum cumulative diversion. (Id.) (DFG could impose such conditions. See Water Code section 1228.3.) We agree that small domestic use and stockpond registrations should be included by the Policy, and we believe that the balance struck here is a good one. (See TU/PAS Petition, paragraphs 147-152.) *(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society)*

**Response:** Comment noted.

**Comment 12.0.9:** DFG recommends that policy section 5.0 (Small Domestic Use and Livestock Stockpond Registrations) include provisions requiring the State Water Board to establish bypass flow protection, limits on the rates of withdrawal, and the need to provide evidence that water is available for diversion rather than deferring to DFG to apply conditions

consistent with the policy principles. (*Donald Koch, State of California Department of Fish and Game*)

**Response:** This comment is in conflict with DFG's subsequent comment requesting the Draft Policy allow DFG to exercise its own authority to protect resources. Existing law allows the State Water Board to impose general conditions on small domestic use and livestock stockpond use registrations. In addition, registrants are required by existing law to include a certification that the registrant agrees to comply with all conditions, including conditions on the construction and operation of the diversion work, required by DFG. (Water Code section 1228.3, subd. (a)(7).) The Draft Policy proposes to allow the DFG to impose conditions on registrations.

**Comment 12.0.10:** DFG recommends that policy section 5.0 (Small Domestic Use and Livestock Stockpond Registrations) allow DFG to exercise its own authority to protect resources by including a provision allowing an exception to the season of diversion if the small domestic user agrees to comply with a site specific bypass flow condition and monitoring during an extended diversion season that would be established by DFG. DFG's suggested language is as follows: "The State Water Board may grant an exception to the season of diversion in this section if a small domestic user agrees to specific bypass flow conditions and monitoring during an extended season as required by DFG (Id., Section 1228.3 , subd. (a) (7).)" (*Donald Koch, State of California Department of Fish and Game*)

**Response:** See response to 12.0.3.

**Comment 12.0.11:** DFG recommends the Policy clarify what actions it intends to take after review of domestic use and livestock stockpond registration requests for compliance with the terms and conditions included in the Policy. (*Donald Koch, State of California Department of Fish and Game*)

**Response:** Staff does not anticipate any changes in the Division's procedures for the processing of small domestic registrations.

**Comment 12.0.12:** Do you still intend to include small domestic uses and stock pond registrations in the Policy? (*Rudolph Light*)

**Response:** See response to 12.0.14.

**Comment 12.0.13:** The Policy intends to incorporate small domestic uses of water and livestock ponds into the broader regulation of water rights. This provision is totally unneeded and will cause harm not only to ranchers but also to many rural people who depend on creeks for their residences and gardens. (Refer to the Final Scoping Report on pages 112-113 for a touching letter from a 70 year old grandmother who has lived in her cabin for 35 years and who must draw small amounts of water from the creek on her property. As it turns out, she is outside the Project Area at this time, but there are many like her who will be affected now by the Policy.) In the Mattole River system, a conservation organization called Sanctuary Forest, located in Whitethorn, is currently working on a project so people will not exercise their riparian rights to pump water in summer time in exchange for winter collection and storage over the summer months. Meeting the conditions for maintaining stream flows as set forth in Section 2.2 of the Policy will be impossible for these people. They will never be able to meet the MBF requirements, nor will they be able to construct the required facilities. As for livestock ponds,

there is no justification for including them. Most livestock ponds are pit ponds anyway, collecting runoff directly from the hillsides and not in defined channels. Many are built high on hillsides, but are so small they fill quickly. In the summer, they dry up completely. The water that flows even in springtime soaks into the ground well before reaching a Class 2 or 3 stream or the Russian River or other large river. Including these makes no sense from an ecological, hydrological or regulatory perspective. Policy Section 5.0 should be eliminated entirely. If the Division insists that livestock ponds and small domestic uses be included in the policy, at least exempt any pond or diversion where the stream would normally dry up and not flow to a major tributary or the main river in the months of April through November. *(Rudolph Light)*

**Response:** See response to 12.0.14.

**Comment 12.0.14:** We implore the State Water Board to consider the impact of this proposed new policy on smaller family-owned properties and farms. We believe strongly that the State Water Board should maintain its current policy of granting Small Domestic Use Registrations, thereby recognizing the minimal impact of these smaller ponds on our fisheries. *(John Painter and Jean Gadiot)*

**Response:** Although the individual small domestic use registrant may not exceed direct diversion of 4500 gallons of water per day or divert to storage no more than 10 acre-ft per year, the cumulative effects of multiple registrations may result in impacts to instream flows needed for fishery resources. Existing law allows the State Water Board to impose general conditions on small domestic use and livestock stockpond use registrations. In addition, registrants are required by existing law to include a certification that the registrant agrees to comply with all conditions, including conditions on the construction and operation of the diversion work, required by DFG. (Water Code section 1228.3, subd. (a)(7).) The Draft Policy proposes to allow the DFG to impose conditions on registrations. Staff is considering revisions to the small domestic use provisions of the Draft Policy that allow DFG to make exceptions to season of diversion requirements.

### 13.0 Petitions

**Comment 13.0.1:** Coastal Action Group agrees with constraints as outlined in the Petitions section of the Draft Policy, with the exception that the season of diversion should be changed as per the above discussion [to December 15 through March 31]. *(Alan Levine, Coastal Action Group)*

**Response:** Comment noted.

**Comment 13.0.2:** Section 3.3 of the Draft Policy states the Policy applies to applications to appropriate water, small domestic use and livestock stockpond registration, and water right petitions. The Policy is not clear on the applicability to change petitions for existing licensed or permitted water rights for community water supply (municipal and industrial uses). The change petition could include: place of use, extension of time, or change in point of diversion to meet a competing water quality requirement. A change petition exclusion for existing water right holders will provide certainty for NMWD and other retail water providers to existing community water supply needs. Change petition exclusion would also reduce the State Board's Policy compliance obligation and ultimate cost and staff work. *(Chris DeGabriele, North Marin Water District; Paul Helliker, Marin Municipal Water District)*

**Response:** Policy Section 6.0 describes how petitions are affected by the policy. In summary,

the instream flow-related criteria apply only to those petitions that may result in decreased flow in a stream reach. Permitting requirements for onstream dams apply for petitions that involve movement or addition of an onstream dam.

**Comment 13.0.3:** The City requests clarification that petitions for changes to existing rights (except for increased diversion) are not subject to the Policy. *(Susan Gorin, City of Santa Rosa)*

**Response:** See response to 13.0.2.

**Comment 13.0.4:** Petitions for an extension of time to put additional water to beneficial use should be considered a "new" water reauthorization and should be subject to the terms of the Policy. *(Donald Koch, State of California Department of Fish and Game)*

**Response:** Policy Section 6.0 describes how petitions are affected by the policy. In summary, the instream flow-related criteria apply only to those petitions that may result in decreased flow in a stream reach. Permitting requirements for onstream dams apply for petitions that involve movement or addition of an onstream dam. Petitions for extension of time are not considered "new" water reauthorizations, but their impacts will be reevaluated pursuant to the policy, and permits may be amended where approvable.

**Comment 13.0.5:** DFG recommends that the text in Policy Section 6.1, paragraph 2 (Water Right Petitions) be revised to read: "Petitions that do not result in decreased flow in a stream reach but involve adding or moving an onstream dam to another onstream location shall comply with all Policy Permitting Requirements." *(Donald Koch, State of California Department of Fish and Game)*

**Response:** If a petition does not result in reduced flow in a stream reach, the petition does not need to analyze for flow-related impacts (see Policy Section 6.0, Petitions).

**Comment 13.0.6:** The last sentence in the first paragraph of Policy Section 6.2 (Petitions) needs clarification. It states "only the reach of the stream potentially affected by the proposed change need be evaluated." It is unclear if the Policy is attempting to define a reach or if the reach would correctly include the point of diversion downstream as defined by the Policy. *(Donald Koch, State of California Department of Fish and Game)*

**Response:** Comment noted. Staff will review this sentence and evaluate whether it needs clarification.

## **14.0 Passive Bypass Systems**

### **Comment 14.0.1: Section 7.0 Passive Bypass Systems**

Under the Policy, the requirements for minimum bypass flow and maximum rate of diversion must be met on an instantaneous basis. (Policy p. 29.) This is a highly impractical requirement that would impose financial burdens on landowners and have virtually no benefit for instream flows. USGS gauges do not have the capability to provide real-time data, meaning that each individual diverter must install additional gauge systems to supply the Board with real time information. With the extensive policies being put in place, there is no need for real time data of flow rates. Individual diverters should not be saddled with this burdensome cost if it will have no practical benefit. *(Barbara Brenner)*



**Response:** Section 7.0 of the Draft Policy requires the implementation of a passive bypass system, unless physical site conditions prevent construction of a passive bypass system. A passive bypass system operated in compliance with section 8.1 of the Draft Policy will not require flow monitoring. If a automated bypass is utilized due to limited physical site conditions, the device shall continuously record, but the data shall be saved on an hourly basis. Costs for continuous flow monitoring devices are not prohibitive for systems without telemetry.

**Comment 14.0.2:** Assuming passive bypass systems are for onstream facilities, and thus the bypass system is, in fact, a mitigation for an unpermitted structure that may interfere with natural hydrology and minimum flows; CDFG 1600 permitting and environmental review and permitting review under Cal Water Code would apply. *(Alan Levine, Coastal Action Group)*

**Response:** The State Water Board implements a standard permit term that requires a permittee to obtain a lake or streambed alteration agreement with DFG.

**Comment 14.0.3:** DFG recommends the last sentence of Policy Section 7.0 (Passive Bypass Systems) be revised to read: "If the system is damaged, the system shall be repaired, diversions shall cease, and all flows bypassed until confirmation can be provided to the State Water Board that bypass flow requirements are still being satisfied." *(Donald Koch, State of California Department of Fish and Game)*

**Response:** If the system is damaged during high flow periods, maintenance of the minimum bypass flow would likely not be affected. However, staff will consider revising the policy to address this concern.

**Comment 14.0.4:** This Policy prefers that the bypass structure be a "passive" one so the operator may not interfere with flows. Engineering this is complex and it may never have actually been done before. *(Roland Sanford, Mendocino County Water Agency; Jim Wattenburger, Mendocino County Board of Supervisors)*

**Response:** On the contrary, passive bypass systems have been designed and built in California. The Draft Policy acknowledges that passive bypass systems are not always feasible due to physical site conditions preventing their construction at some locations. In these instances, the Draft Policy provides that automated computer-controlled bypass systems be used.

**Comment 14.0.5:** The Draft Policy proposes that flow monitoring is not required for passive bypass systems. We re-emphasize: not only should all water use be gauged, it should also be reported electronically. *(Chris Shutes, California Sportfishing Protection Alliance)*

**Response:** Reporting of water usage is required in Permittee Progress Reports and Reports of Licensee. The State Water Board is in the process of adding functionality to the EWRIMS on-line database to allow on-line viewing of these reports, which contain monthly diversion and use amounts.

## **15.0 Flow Monitoring and Reporting**

**Comment 15.0.1:** The SWRCB should require all water users on a watershed to continuously monitor diversions and stream flows, and to report the data to the SWRCB continuously as it is gathered. This system will allow the SWRCB to monitor stream flow levels across entire

watersheds and give it the flexibility to make efficient management decisions. (*Joshua Basofin, Defenders of Wildlife; Don McEnhill, Russian Riverkeeper; and Linda Sheehan, California Coastkeeper Alliance*)

**Response:** The State Water Board does not require continuous recording of stream flow except for automated computer controlled bypass systems which may monitor on a continuous basis but is required to record on an hourly basis. The State Water Board does not have the budget to implement continuous on-line stream flow reporting. The State Water Board has an on-line database called EWRIMS that contains information on existing authorized diversions and pending water right applications. The State Water Board is in the process of adding functionality to the EWRIMS on-line database to allow on-line viewing of Permittee Progress Reports and Reports of Licensee, which contain monthly diversion and use amounts. Permit terms may also require the monitoring and reporting of the parameters described in this comment. The State Water Board does not have plans to provide live streaming of data over the internet.

**Comment 15.0.2:** The Policy should mandate universal monitoring and online reporting of both diversions and stream conditions by all water users. Monitoring and reporting in California lags far behind that of other Western states and must be improved. (*Joshua Basofin, Defenders of Wildlife; Don McEnhill, Russian Riverkeeper; and Linda Sheehan, California Coastkeeper Alliance; Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society*)

**Response:** See response to 15.0.1.

**Comment 15.0.3:** The statement "Bypass flow monitoring is not necessary for passive bypass systems" does not consider the maintenance of minimum bypass flows where there are nearby stream wells that are diverting water from the underflow (in a defined channel) and where there is an established minimum bypass flow condition. In such cases flow monitoring and reporting is necessary. (*Alan Levine, Coastal Action Group*)

**Response:** The passive bypass structure would be designed to bypass the amount of water for that diversion that was calculated utilizing existing known authorized diversions from subterranean streams. As long as the bypass structure is operated correctly, the diverter would be in compliance with permit conditions.

**Comment 15.0.4:** It is recommended that Policy Section 8 (Flow Monitoring and Reporting) be amended to include a requirement to monitor and report stream conditions. Suggested language is as follows: "Permits shall require continuous monitoring and recording of stream flows below points of diversion or at another location determined by SWRCB to be more appropriate. Permits shall require all water diverters holding water rights of cumulative value greater than 100 acre-feet to conduct continuous monitoring and recording of stream temperature information at least one location. Permits shall require instantaneous reporting of stream flow and temperature information (if temperature monitoring is required), or reporting at other regular intervals sufficient to provide for effective compliance monitoring and water management. The State Water Board may waive the requirement for individual monitoring and reporting of stream flow information in favor of contribution of funds to the regional Policy Effectiveness Monitoring and Review program where the State Water Board determines that (1) stream flow monitoring and reporting at the POD is not needed for compliance monitoring purposes and (2) contribution to the regional program would provide greater value than information gathered at the POD." (*Brian Johnson, Trout Unlimited and Richard Roos-Collins,*

*Peregrine Chapter of the National Audubon Society)*

**Response:** Although some permits may require this, the Draft Policy does not contain a requirement to monitor stream temperature. Passive bypass structures that are correctly designed should provide bypass flows that comply with permit terms without the need for monitoring. The State Water Board does not require continuous recording of stream flow except for automated computer controlled bypass systems which may monitor on a continuous basis but is required to record on an hourly basis. The State Water Board does not have the budget to implement continuous on-line stream flow reporting. The State Water Board does not have the budget or staffing to implement a Policy Effectiveness Monitoring and Review program.

**Comment 15.0.5:** It is recommended that Section 8 of the Policy (Flow Monitoring and Reporting) be amended to state: "Permits shall require continuous monitoring and recording of water diversions. Permits for onstream reservoirs may require continuous monitoring and recording of reservoir levels as a means of accomplishing this purpose. Permits shall also specify instantaneous reporting of diversion information, or reporting at other intervals sufficient to provide for effective compliance monitoring and water management." *(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society)*

**Response:** See response to 15.0.1.

**Comment 15.0.6:** The Policy should require monitoring and reporting of diversions and stream conditions in order to improve decision making and foster a results-based regulatory system that promotes efficiency and effectiveness. TU/PAS and WB/ESH agree that an enforceable monitoring and compliance plan should be established, funded, and implemented. *(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Comment noted. See separate document responding to the TU/WB/ESH proposal.

**Comment 15.0.7:** Water diversions should have electronic monitoring. Reporting should be standardized with the goal of electronic reporting. Reservoirs should monitor (1) withdrawals of water, (2) stage height, (3) bypass flow (if active bypass), (4) diversion flow, if diversion is to offstream storage. *(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** The State Water Board has an on-line database called EWRIMS that contains information on existing authorized diversions and pending water right applications. The State Water Board is in the process of adding functionality to the EWRIMS on-line database to allow on-line viewing of Permittee Progress Reports and Reports of Licensee, which contain monthly diversion and use amounts. Permit terms may also require the monitoring and reporting of the parameters described in this comment. The State Water Board does not have plans to provide live streaming of data over the internet.

**Comment 15.0.8:** The State Water Board should make the reporting process more transparent by requiring submission of annual reports as well as making that information available on-line to the extent possible. *(Donald Koch, State of California Department of Fish*

*and Game)*

**Response:** The State Water Board has an on-line database called EWRIMS that contains information on existing authorized diversions and pending water right applications. The State Water Board is in the process of adding functionality to the EWRIMS on-line database t

**Comment 15.0.9:** The Policy relies heavily on the water users reporting monitoring results and needs to insure data monitoring and reporting available to the public (*Chris Malan, Earth Defense for the Environment Now, Living Rivers Council*)

**Response:** All State Water Board records are open to the public. Monitoring data is part of the public record and a copy may be requested upon payment of costs to reproduce.

**Comment 15.0.10:** Policy Page 30 section 8.2 Flow Monitoring and Reporting Requirements for Automated computer controlled bypass systems - to assist analysis of monitoring data, the Division should require data to be submitted electronically on a disk or by e-mail in a software format usable by MS Excel. If necessary, exceptions may be made for permittees who are unable to report data electronically. (*Elliott Matchett*)

**Response:** Staff will consider revising the policy to address this concern.

**Comment 15.0.11:** The Policy should not allow self-reporting or neighborhood reporting. (*Jane Nielson, Sonoma County Water Coalition*)

**Response:** It is unclear whether this commenter wants no reporting of monitoring data at all, or whether the commenter wants State Water Board staff to collect the monitoring data from all of the water diversions in the state. The State Water Board does not have the budget or staffing to visit each diversion in the state on a frequent basis to collect the monitoring data.

**Comment 15.0.12:** All monitoring data collected must be made available to the public so that analyses can be reviewed and re-analyzed by members of the public.. (*Jane Nielson, Sonoma County Water Coalition*)

**Response:** All State Water Board records are open to the public. Monitoring data is part of the public record and a copy may be requested upon payment of costs to reproduce.

**Comment 15.0.13:** As surface waters become increasingly precious, the measurement of these waters becomes increasingly important. It will therefore be critical to find sources to fund USGS streamflow gauges and rainfall gauges in the geographic area subject to this policy. (*Linda Ruffing, City of Fort Bragg*)

**Response:** Comment noted.

**Comment 15.0.14:** Electronic monitoring and reporting of all water use, as well as of stream conditions (both flow and temperature), while requiring initial monetary outlay, would prove cost efficient in the long run, and should be required. A publicly accessible, web-based database should be created that archives and organizes monitoring and reporting data from the Policy area. (*Chris Shutes, California Sportfishing Protection Alliance*)

**Response:** The State Water Board has an on-line database called EWRIMS that contains information on existing authorized diversions and pending water right applications. The State

Water Board is in the process of adding functionality to the EWRIMS on-line database to allow on-line viewing of Permittee Progress Reports and Reports of Licensee, which contain monthly diversion and use amounts. The State Water Board does not have plans to provide live streaming of data over the internet.

**Comment 15.0.15:** Cataloguing existing diversions is an essential building block of a foundational database for the Policy. In addition to providing a receiving point for Policy reporting and monitoring data, the web-based database should thus also include all available information of existing authorized diversions. Further, the database should, in the long term, require the same level of monitoring and reporting for all diversions in the geographic area that we propose be required initially for Policy affected compliance reporting (*Chris Shutes, California Sportfishing Protection Alliance*)

**Response:** The State Water Board has an on-line database called EWRIMS that contains information on existing authorized diversions and pending water right applications. The State Water Board is in the process of adding functionality to the EWRIMS on-line database to allow on-line viewing of Permittee Progress Reports and Reports of Licensee, which contain monthly diversion and use amounts.

**Comment 15.0.16:** Universal monitoring and reporting of stream flows should be required with all diversions gauged. (*Thomas Weseloh, California Trout Keeper of the Streams*)

**Response:** See response to 15.0.1.

## 16.0 Compliance Plans

**Comment 16.0.1:** Compliance plans are subject to environmental review (as part of the permitting process under both the Cal Water Code and the DFG Code). (*Alan Levine, Coastal Action Group*)

**Response:** The compliance plans describe how the water diverter will comply with the terms and conditions of the water right permit or order. Prior to approval of the water right permit, the project will have undergone environmental review.

**Comment 16.0.2:** Terms and conditions should be part of any permitting process and related environmental review. Permit holder(s) should sign and agreement to comply with all conditions and included in the agreement should be a clause for the permit holder to pay for any costs to the enforcing agency for actions and activity related to an enforcement action. (*Alan Levine, Coastal Action Group*)

**Response:** Applicants are already asked to sign permits indicating they accept the terms and conditions in the permit. The State Water Board has several enforcement mechanisms, which are described in the Draft Policy. Section 11.3.3.1 of the Draft Policy describes the procedures for processing an Administrative Civil Liability, which may result in payment to the State Water Board. The amount of the liability shall be assessed within the statutory maximum amount and at a minimum at a level that recovers the staff costs and economic benefits, if any, associated with the acts that constitute the violation. The State Water Board may also consider requesting the Attorney General to petition the superior court to impose civil liability, or the issuance of prohibitory or injunctive relief.

**Comment 16.0.3:** In the past, the Division of Water Rights has required a compliance plan to

be prepared within six months of permit issuance. It should require such a plan before the permit for two reasons. First, it will avoid circumstances such as have arisen recently in which the applicant and staff have a different understanding of what the permit requires. More fundamentally, the information contained in compliance plans is necessary to adequately evaluate, disclose, and mitigate the consequences of the project. For instance, different diversion works for offstream storage (a pipe, a streamside well, or a diversion dam) can have dramatically different environmental implications. It is recommended that Policy Section 9 (Compliance Plans) be amended to state that the State Water Board "shall require applicants and petitioners to submit a compliance plan for the State Water Board's review and approval, prior to the issuance of a permit. The compliance plan shall identify how the water diverter will comply with the terms and conditions of permits or orders, and shall include a schedule for the construction of any required facilities and the implementation of any mitigation plans." (*Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society*)

**Response:** The State Water Board imposes certain conditions in the permit or Order; therefore, it makes sense to issue the permit or Order but to prohibit diversion or construction until a compliance plan is in place. Staff will consider modifications to the Draft Policy to require schedules for construction of facilities and implementation of mitigation plans where needed.

**Comment 16.0.4:** It is recommended that Policy Section 9 (Compliance Plans) be amended to state that permits shall provide that State Water Board, Regional Board, or DFG staff, alone or with NOAA Fisheries staff, have reserved authority to inspect a point of diversion without prior notice. Peace officer status will not be necessary. (*Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society*)

**Response:** Standard water right permit terms already require the permittee to provide reasonable access for State Water Board representatives and other parties authorized by the State Water Board.

**Comment 16.0.5:** It is recommended that Policy Section 9 be amended to state that permits shall specifically provide that the State Water Board has reserved authority to remedy cumulative impacts on fisheries, riparian habitat, and associated wildlife under applicable law (including ESA), in addition to general reservation to protect public interest. The permit term will specify the procedures for exercise of this authority, including a duty to periodically assess the cumulative impacts. (*Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society*)

**Response:** The State Water Board already utilizes standard permit terms that address this comment.

**Comment 16.0.6:** DFG recommends that the first paragraph of Policy Section 9.0 (Compliance Plans) be rearranged to ensure the compliance plan clearly provides the schedule for implementation of the mitigation plans and the funding guarantee for their implementation prior to initiating the project. The paragraph should be revised to read: "The compliance plan shall identify how the water diverter will comply with the terms and conditions of permits and orders, and include the schedule for the construction of facilities, the implementation of mitigation plans, and the funding guarantee for these mitigation plans." (*Donald Koch, State of California Department of Fish and Game*)

**Response:** Staff may consider this comment when making revisions to the Draft Policy.

## **17.0 Policy Effectiveness Monitoring**

**Comment 17.0.1:** The SWRCB should also review the Policy as a whole after five years to determine its effectiveness. This review should be conducted in collaboration with the California Department of Fish and Game and the National Marine Fisheries Service and should be based on certain parameters of success, including the following: (1) Steelhead and Salmon population and survivability trends for the 5-year period; (2) success in achieving the Minimum Bypass Flow and Maximum Cumulative Diversion criteria; (3) ability of the SWRCB to make efficient management decisions; and (4) ability to maintain stream flows on watersheds where numerous variances have been issued. (*Joshua Basofin, Defenders of Wildlife; Don McEnhill, Russian Riverkeeper; and Linda Sheehan, California Coastkeeper Alliance*)

**Response:** Comment noted. Water Code section 13143 states that state policies for water quality control shall be periodically reviewed and may be revised.

**Comment 17.0.2:** No provision currently exists within the Water Code or the SWRCB's regulations requiring a review of outstanding permits and licenses. Although the hydrographs of many North Coast streams and tributaries change from year to year, and will change more rapidly in coming years due to climate change, there is no mechanism for reviewing a water right once issued to determine ongoing water availability. Effective management of salmonids requires the flexibility to make immediate decisions regarding stream flows. The Policy will not be effective unless the SWRCB receives real-time, instantaneous monitoring data to enable review of the Minimum Bypass Flows and Maximum Cumulative Diversions. (*Joshua Basofin, Defenders of Wildlife; Don McEnhill, Russian Riverkeeper; and Linda Sheehan, California Coastkeeper Alliance*)

**Response:** Section 11.1.1 states the State Water Board may impose terms and conditions on existing water rights to implement terms and conditions of the policy through public trust proceedings, enforcement proceedings, or as a result of a complaint investigation. The State Water Board does not require continuous recording of stream flow except for automated computer controlled bypass systems which may monitor on a continuous basis but is required to record on an hourly basis. The State Water Board does not have the budget to implement continuous on-line stream flow reporting. The State Water Board has an on-line database called EWRIMS that contains information on existing authorized diversions and pending water right applications. The State Water Board is in the process of adding functionality to the EWRIMS on-line database to allow on-line viewing of Permittee Progress Reports and Reports of Licensee, which contain monthly diversion and use amounts. Permit terms may also require the monitoring and reporting of the parameters described in this comment. The State Water Board does not have plans to provide live streaming of data over the internet.

**Comment 17.0.3:** Policy effectiveness monitoring is mandated under Cal Water Code. (see Legal Framework - above). Policy Effectiveness Monitoring is the basis for assuring desired results. (*Alan Levine, Coastal Action Group*)

**Response:** The California Water Code sections described in the commenter's Legal Framework discussion (Water Code sections 13140, 13141, 13142, and 13146) do not specifically require the State Water Board to implement a policy effectiveness monitoring program.

**Comment 17.0.4:** The Policy calculation of protective base flows and water availability rely on fragmentary historical flow data and flawed synthetic data and "additional data collection on small stream hydrology and fish usage is needed to verify these relationships" (Lang, 2008). A major problem is that all monitoring envisioned is on winter flows (October-March) when surplus water is theoretically available, not on April-September flows that are known to be limiting fisheries. There is a need for year around data collection in small and large streams throughout the region, with the priority identification of stream reaches where surface flows are lacking but where historically there was carrying capacity for salmon and steelhead. To fully deal with the questions of cumulative effects of water diversion and water supply, many similar data elements are needed to those of other processes like the Clean Water Act (TMDL), Endangered Species Act (ITP) and the National Forest Management Act. The SWRCB WRD needs to co-participate with other agencies so that multiple objectives of different processes can be met and the WRD benefits from corollary data collected by its partners. The SWRCB WRD shows little technical capacity, other than that provided by consultants, and no track record of extensive field data collection. There is no commitment to a schedule for monitoring and the effectiveness monitoring section of the Policy shows bureaucratic reluctance. DWR shows a similar lack of capacity with regard to ground water monitoring and regulation. Consequently, the State should solicit emergency help from the U.S. Geological Survey to assess water supply and surplus availability (see Conclusion for discussion on the need to re-organize WRD and DWR). *(Patrick Higgins, Consulting Fisheries Biologist/Sierra Club Redwood Chapter)*

**Response:** Comment noted. The State Water Board currently does not have the funding or staffing to implement an effectiveness monitoring program.

**Comment 17.0.5:** The cost of monitoring associated with Policy implementation is not estimated nor are sources of funding identified. The institutional barriers that might impede successful adaptive management are well described above. The attempt to pass off monitoring costs to diverters (watershed groups) in exchange for their helping shape water management is unacceptable. The WRD needs to calculate staffing costs and define a partnership structure with other agencies that will satisfy data needs for adaptive management. If 500 or 1,000 illegal dams are removed, we would have the potential to make a difference on the problem and would also frame an interesting and valid adaptive management exercise. *(Patrick Higgins, Consulting Fisheries Biologist/Sierra Club Redwood Chapter)*

**Response:** See response to 17.0.4.

**Comment 17.0.6:** Regardless of how data collection and agency coordination are structured, there needs to be a common database for sharing results, trend monitoring and implementation of adaptive management. KRIS projects submitted with these comments supply a great deal of useful data, including GIS information. The SWRCB Water Rights Division should consider using this tool, already subsidized with over \$1 million in public money, especially since the KRIS software allows easy cost-effective updating capacity for trend monitoring. If Policy implementation involves partnerships with private parties or groups, all raw data, computer codes for models and other related information must be available to the scientific community and to the public in electronic form. Without full transparency, no model



or study output is scientifically valid (Collison et al., 2003) and history shows that public trust resources, such as salmon and steelhead, cannot be fully protected without the ability of the public to participate in oversight. Band (2008) envisions using the data collected in the field to increase the predictive capacity of the flow model: "An integrated GIS-spatial watershed model that incorporates natural runoff production, stream routing and all water diversions and return flows should be developed . . . As part of an adaptive management approach, the modeling system would provide a formal set of expectations of different water resources policies in the watersheds." (*Patrick Higgins, Consulting Fisheries Biologist/Sierra Club Redwood Chapter*)

**Response:** See response to 17.0.4.

**Comment 17.0.7:** The State Water Board should work with USGS to set up gauges for year around flow measurement region wide, and share all data in the public domain (*Patrick Higgins, Consulting Fisheries Biologist/Sierra Club Redwood Chapter*)

**Response:** See response to 17.0.4.

**Comment 17.0.8:** The State Water Board, Department of Water Resources, CDFG and NOAA Fisheries need to create a participatory data management system that has all data for the region, including spatial data, and can be used for adaptive management. (*Patrick Higgins, Consulting Fisheries Biologist/Sierra Club Redwood Chapter*)

**Response:** See response to 17.0.4.

**Comment 17.0.9:** The State Water Board should state whether and on what basis the Policy, as amended, will lead to sound decision-making and the avoidance of cumulative effects when processing new water right permits and petitions, given the absence of information about unauthorized diversions, unreported riparian and pre-1914 diversions, diversions from jurisdictional subterranean streams, and diversions to groundwater. The State Water Board should prepare a work plan to test, validate, and if necessary re-evaluate this conclusion as part of the Policy Effectiveness Monitoring and Review program. (*Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society*)

**Response:** See response to 17.0.4.

**Comment 17.0.10:** Amend Section 10 of the Policy (Policy Effectiveness Monitoring) to specify that the effectiveness of Sections 2.3.5 and 4.4 will be a subject of the Five-Year Policy Effectiveness Review. Amend Sections 4.4.2 and 4.4.3 to state that any permits for newly constructed dams on Class II or III waters shall contribute mitigation funding to the Policy Effectiveness Monitoring and Review program to support this aspect of the Five-Year Review. (*Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society*)

**Response:** Terms and conditions of a permit may require mitigation monitoring plan subject to the approval of the Deputy Director of the Division of Water Rights. These approved plans may require compliance and effectiveness monitoring when appropriate.

**Comment 17.0.11:** Amend the Policy Effectiveness Monitoring section of the Draft Policy to include the following: (1) the State Water Board "shall" develop and implement a Policy Effectiveness Monitoring Program, rather than it "may." Make conforming amendments to Section 10 consistent with this change. (2) Five years from the effective date of the Policy, and

every five years thereafter, the State Water Board will review the policy and determine whether it should be revised, consistent with Water Code section 13143 ("State policy for water quality control shall be periodically reviewed and may be revised."). (3) Rename Section 10 "Policy Effectiveness Monitoring and Review," from "Policy Effectiveness Monitoring." (4) The State Water Board will develop the Policy Effectiveness Monitoring and Review Program within one year of the adoption of this policy. (5) The State Water Board "will consider" consider the recommendations contained in Chapter 10 and Appendix K of R2 Resource Consultants (2007a) when implementing this program, rather than "may refer to." (6) The State Water Board shall require mitigation payments with new permits to fund the Policy Effectiveness and Review Program. (7) Permits shall provide representatives of the Policy Effectiveness Monitoring and Review Program access to permittee property as necessary, pursuant to procedures set forth in the program. (8) The State Water Board will make all reports of diversions and stream flows available in a publicly accessible online form within two years. (9) The State Water Board will provide for online electronic reporting of diversions and stream flows within two years. (10) The State Water Board will provide for real-time electronic reporting of diversion and stream flow information and online public access within four years. (*Joshua Basofin, Defenders of Wildlife; Don McEnhill, Russian Riverkeeper; and Linda Sheehan, California Coastkeeper Alliance; Patrick Higgins, Consulting Fisheries Biologist/Sierra Club Redwood Chapter; Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; Alan Levine, Coastal Action Group; Jane Nielson, Sonoma County Water Coalition; Thomas Weseloh, California Trout Keeper of the Streams*)

**Response:** (1), (2), (3), (4), (5) Comment noted.

(6) It might be possible to impose a special regulatory fee on permittees in the policy area to cover the costs of a policy effectiveness and review program, but doing so would not increase the total amount of revenue available to the Division of Water Rights to fund all of its programs. The revenue collected through water right fees are deposited in the Water Rights Fund, and must conform to the revenue levels in the annual Budget Act. (Wat. Code, § 1525, subd. (d)(3).) Accordingly, the revenue levels set in the Budget Act would need to be increased in order to fund a new policy effectiveness and review program without reducing the amount of money available to fund existing programs.

(7) Permits terms already require the permittee to allow representatives of the State Water Board, and others that might be authorized by the State Water Board, reasonable access to the project works.

(8), (9), and (10) The State Water Board has an on-line database called EWRIMS that contains information on existing authorized diversions and pending water right applications. The State Water Board is in the process of adding functionality to the EWRIMS on-line database to allow on-line viewing of Permittee Progress Reports and Reports of Licensee, which contain monthly diversion and use amounts. The State Water Board does not have plans to provide live streaming of data over the internet.

**Comment 17.0.12:** We understand that the Division of Water Rights has a chronic funding and staffing shortfall. To implement a Policy Effectiveness Monitoring Program, we therefore propose a mechanism to fund the program. Permittees can fairly be asked to support the purpose, as part of their ongoing mitigation and monitoring obligation. (See Joint Principles, p. 6.) Many stakeholders also stand ready to support additional state funding for that purpose.

(Id.) Note: Unlike our colleagues on the joint comment letter, we also believe that enforcement penalties are sometimes necessary, and we believe that where such penalties are assessed, payment to a supplemental environmental program to fund policy effectiveness monitoring would be a commendable alternative. *(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society)*

**Response:** It might be possible to impose a special regulatory fee on permittees in the policy area to cover the costs of a policy effectiveness and review program, but doing so would not increase the total amount of revenue available to the Division of Water Rights to fund all of its programs. The revenue collected through water right fees are deposited in the Water Rights Fund, and must conform to the revenue levels in the annual Budget Act. (Wat. Code, § 1525, subd. (d)(3).) Accordingly, the revenue levels set in the Budget Act would need to be increased in order to fund a new policy effectiveness and review program without reducing the amount of money available to fund existing programs.

Like water right fees, administrative civil liability collected by the Board for water right violations is deposited in the Water Rights Fund. (Wat. Code, § 1551, subd. (b).) The collection of administrative civil liability serves to reduce the amount of revenue the Board must collect through water right fees, but it does not increase the total amount of revenue available to the Division of Water Rights to fund all of its programs. The State Water Board's budget is established by the annual Budget Act, and the Board cannot simply collect more revenue, by raising fees or imposing enforcement penalties," in order to fund new programs.

**Comment 17.0.13:** Evaluate the potential for the Policy Effectiveness Monitoring and Review Program to assist permittees with the installation and upkeep of monitoring and reporting equipment so that the water user is responsible only for buying the devices, providing access, calling the Program if the instrument goes down, and ensuring that data is reported as required (if Program staff does not do this as well). *(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society)*

**Response:** See response to 17.0.4.

**Comment 17.0.14:** Consult with stakeholders and other resource agencies in the design of the policy effectiveness monitoring and review program and to evaluate the potential for universities or other entities to participate in the maintenance and upkeep of this program *(Brian Johnson, Trout Unlimited and Richard Roos-Collins, Peregrine Chapter of the National Audubon Society)*

**Response:** See response to 17.0.4.

**Comment 17.0.15:** A Policy Effectiveness Monitoring and Review program should be established, funded, and implemented in the policy. Emphasis should be placed on collecting data through field monitoring to evaluate the effectiveness of the policy and whether the policy may need to be modified. Effectiveness monitoring should focus on evaluating the effectiveness of every aspect of the policy. Five years from the effective date of the policy, and every five years thereafter, the SWRCB should review the policy and determine whether it should be revised. We agree that permittees should provide funding for the Policy Effectiveness Monitoring and Review program as part of their ongoing mitigation and monitoring requirements, and we also support additional state funding for that purpose. WB/ESH do not support funding the program through enforcement penalties. *(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine*

*Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** Comment noted. The State Water Board currently does not have the funding or staffing to implement such a program. Water Code section 13143 states that state policies for water quality control shall be periodically reviewed and may be revised.

**Comment 17.0.16:** Regional monitoring and analysis and policy effectiveness review are necessary to validate flow and watershed approach elements of the draft policy. Stream gauges (USGS preferred) should be set up on a regional basis. Water Right holders should be required to participate and grant access to program staff. Program staff should be responsible for gauge set up and maintenance. *(Brian Johnson, Trout Unlimited; Peter Kiel, Ellison, Schneider & Harris LLP; Richard Roos-Collins, Peregrine Chapter of the National Audubon Society; and Robert Wagner, Wagner & Bonsignore Consulting Civil Engineers)*

**Response:** See response to 17.0.4.

**Comment 17.0.17:** DFG supports the proposed maximum cumulative diversion criteria only if the effectiveness monitoring and adaptive management components recommended in the Task 3 Report are in place. *(Donald Koch, State of California Department of Fish and Game)*

**Response:** See response to 17.0.4.

**Comment 17.0.18:** In Policy Section 10.0 (Policy Effectiveness Monitoring), the State Water Board should make the commitment to support effectiveness monitoring by either 1) committing to perform the monitoring itself, or 2) requiring permit and license holders to collectively fund the needed monitoring as part mitigation monitoring required by the permitting processes to ensure that instream flow protection goals are met. *(Donald Koch, State of California Department of Fish and Game)*

**Response:** Permit terms will be added to permits issued after June 2007 which may include CEQA/Public Trust mitigation monitoring and compliance monitoring. The State Water Board may add periodic effectiveness review of the mitigation measures to ensure the goals of the State Water Board Policy are being met.

**Comment 17.0.19:** It is acknowledged that there is some uncertainty in determining a protectiveness threshold for channel and riparian maintenance flow needs. We suggest that effectiveness monitoring be used to determine if protectiveness is being accomplished, particularly to determine if additional diversion is possible. Regional Board staff agrees that monitoring is an excellent tool to measure the effectiveness of the Policy and the degree to which site-specific or regional changes can be made. However, in the face of scientific uncertainty Regional Board staff prefer to err on the side of resource-protectiveness and suggest modifying the Policy to allow additional diversion only after monitoring data are developed that support such changes. *(Catherine Kuhlman, State of California Regional Water Quality Control Board, North Coast Region)*

**Response:** Comment noted. The State Water Board is required to balance competing uses of water. The Draft Policy's maximum cumulative diversion criteria was selected as part of the balancing of instream resource protection and diversion needs.

**Comment 17.0.20:** Policy Page 31 section 10.0 Policy Effectiveness Monitoring and Appendix K - I generally agree with information in Appendix K regarding monitoring and the adaptive management framework. Researchers and natural resource managers alike, agree on the merits of this approach because management actions and policies can be directly evaluated as research hypotheses. A monitoring program that is specifically designed to address research hypotheses can be used to evaluate the effectiveness of management actions. In addition to monitoring stream hydrology, geomorphology, and habitat, it is very important that demographic parameters of salmonids (i.e., numbers of redds/spawning individuals and juveniles, and survival rates) are also estimated. Without demographic data, natural resource agencies cannot reliably examine the response of salmonid populations to the policy, and consequently may not be able to effectively adapt and manage potential influencing factors. On any given stream, multiple factors may interact to affect stream health. A model selection approach utilizing information criteria such as the Akaike Information Criterion (Burnham and Anderson 2002), would aid in the analysis of the relative importance of different factors. (*Elliott Matchett*)

**Response:** See response to 17.0.4.

**Comment 17.0.21:** Considering the limitation of available resources across the agencies, I believe that a partnership and cooperation between agencies will be necessary for effective effectiveness monitoring. Though the impetus for multi-agency collaboration may be to provide protective instream flows, hypotheses and research should not be limited to factors within the Division's jurisdiction, and should include factors (e.g. land use) regulated by other agencies, too. Agencies should also cooperate with academic researchers and private companies working on related projects to increase the number of project locations with detailed information of natural resources (e.g., species surveys). For the purpose of obtaining greater information of, e.g. hydrology, geomorphology, and biology of watersheds, a standardized data recording and reporting process should be developed. From this process of integrating agency information, a "watershed case file" for each watershed could be maintained through time (McCammon et al. 1998). Watershed case files could in turn be used to facilitate future analysis and understanding of factors affecting individual watersheds and the entire policy area. (*Elliott Matchett*)

**Response:** See response to 17.0.4.

**Comment 17.0.22:** Because the policy flow requirements are specifically based on anadromous salmonid protection, it may be especially important for monitoring and evaluating effectiveness in protecting several other factors of stream condition. Factors that were not indicated in the draft, but that could be monitored include undercut banks, gravel bars, tree debris, water chemistry, algae growth, estuarine conditions, and populations of other biota (including species with known locations based on CDFG's Rarefind software). Collection of data using GIS or other methods could also be used to evaluate terrestrial factors that interact with stream flow (e.g., land use). Terrestrial factors could adversely affect stream health and may be best addressed with land and not flow management. (*Elliott Matchett*)

**Response:** It is unlikely that measures of terrestrial factors would be reflected in effects of the Policy or could be used to modify the Policy criteria. It should be noted that any parameter measured as part of effectiveness monitoring should have the clearest linkage possible to evaluating effects of the draft Policy. If a linkage cannot be articulated in clear, concrete terms, then it is unlikely that a decision can be made upon which to change policy criteria. It is one thing to measure something, it is another to make a decision based on the measurement, and

this principle should guide development of any monitoring plan.

**Comment 17.0.23:** The Commenter wants the Policy revised to include a valid system for identifying and evaluating structures and activities that impair river functions supportive of fish populations, and a system for functional improvements with defined measures of success. *(Jane Nielson, Sonoma County Water Coalition)*

**Response:** Comment not completely understood; the efforts implied would likely be expensive and it is unclear what decisions could be made based on the data. For example, what types of structures and activities does the commenter mean, what are the specific types of functions referred to, and what specifically is meant by a system of functional improvements?

**Comment 17.0.24:** To effectively reverse the precipitous decline of native fish populations, the draft Policy must set standards by which progress (or lack of it) can be judged. We suggest that the best standards to use are critical outcomes - the sizes of returning populations, number of redds, hatchling populations, timely rivermouth openings on smaller streams to let smolts reach the sea, and the like. The Policy also must contain a prioritized set of actions to be implemented if the outcomes fail to show significant improvement within the first two years *(Jane Nielson, Sonoma County Water Coalition)*

**Response:** It should be noted that any parameter measured as part of effectiveness monitoring should have the clearest linkage possible to evaluating effects of the draft Policy. If a linkage cannot be articulated in clear, concrete terms, then it is unlikely that a decision can be made upon which to change policy criteria. It is one thing to measure something, it is another to make a decision based on the measurement, and this principle should guide development of any monitoring plan.

It is difficult to link changes in production to one action (e.g., instream flow protection) when there are multiple confounding factors. In addition, the characteristic generational lifecycle of salmon and steelhead is on the order of 5 years, and populations may exhibit adaptations to changed environmental conditions over a minimum of 4-5 generations. The variables suggested in Appendix K of the Task 3 report are ones that are more likely to be of utility in assessing the effectiveness (i.e., protectiveness) of Policy elements.

**Comment 17.0.25:** At the February 6, 2008 Staff Workshop, it was asked what constitutes success of the program the draft policy is intended to implement? How will it be measured? How will we know if the massive investment will have made a difference? The candid answer: "We don't know." Staff explained that there are too many factors involved to be able to measure the effectiveness of the program. On the Russian River, two large dams were constructed, eliminating hundreds of miles of spawning streams. Fish populations plummeted. Now private landowners are being directed to try to remedy the situation by implementing questionable projects, costing unknown millions of dollars, with no way to measure the effect of the program. Surely this is a perfect example of government regulations run amuck. *(Alec Rorabaugh)*

**Response:** The Scientific Basis Report (R2, 2008) evaluated effects of changed hydrology on passage and spawning habitat availability using data collected in validation sites, in addition to more general considerations of the benefits of protecting instream flows. The issue is not that the Draft Policy will improve habitat conditions, but simply that habitat conditions will not deteriorate beyond conditions already imposed by existing permitted diversions. Effectiveness of the Policy would ultimately need to be determined through monitoring. Staff note that

anadromous fish populations are influenced by many other factors besides flow. Thus, there is no certainty that numbers of salmon and steelhead will increase upon implementation of the Draft Policy. However, the opportunity for populations to increase will most certainly be less without the Draft Policy.

There are numerous case studies that demonstrate the benefits of restoring and managing instream flows. Studies on Putah Creek have shown this (e.g., Marchetti and Moyle 2001. Effects of flow regime on fish assemblages in a regulated California stream, *Ecological Applications* 11(2): 530-539). For a much greater range of case studies, see: Locke, A., and nine others. 2008. *Integrated approaches to riverine resource stewardship: Case studies, science, law, people, and policy*. Instream flow Council, Cheyenne WY.

**Comment 17.0.26:** The policy advocates for an "adaptive management approach" as a means of updating the policy's regulatory framework over time. This adaptive approach is warranted and necessitates the development of an integrated watershed framework by which to monitor and assess environmental, economic and social feedback. The detailed monitoring program envisioned is an imperative element of the policy's success, and needs to provide meaningful feedback to inform future regulatory adjustments and assess whether the overall policy goals are being accomplished. Over time, as site-specific studies and monitoring data become available (or are used to request variances from the policy criteria), understanding of local watershed function and change will increase, and should substantially reduce the environmental uncertainties inherent in the policy's science and proposed regulatory actions. This adaptive management approach and the policy's ultimate success hinges upon the Water Board's commitment to staffing resources and sustained funding and towards this effort. *(Brad Wagenknecht, Napa County Board of Supervisors)*

**Response:** Comment noted.

**Comment 17.0.27:** The policy's proposed adaptive management approach relies upon considerable knowledge and understanding of local watershed geology and hydraulics. That level of detailed environmental information is not readily available for many of the watersheds in Napa County. The policy's implementation should consider the necessary infrastructure (flow gages, monitoring sites, and trained personnel) needed to understand, measure and comply with the proposed regulatory actions. Additionally, the Water Board should identify who will be responsible for funding, installing, and maintaining such infrastructure. *(Brad Wagenknecht, Napa County Board of Supervisors)*

**Response:** See response to 17.0.4.