Big Sur River, Monterey County
CAP Workbook Threats Assessment Summary Tables
2008

Assessment of Target Viability
Big Sur River, Monterey County

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Indicator Ratings — **Bold = Current** — *Italics = Desired*

	Conservation Target	Category	Key Attribute	Indicator	Poor	Fair	Good	Very Good	Current Indicator Status	Current Rating	Desired Rating	Date of Current Rating	Date for Desired Rating
1	Egg	Landscape Context	Flow during incubation period	Baseflow in relation to avg. annual daily flow	< 25% of avg. annual daily flow	26-50% of avg. annual daily flow		**> 50% of avg. annual daily flow**	perennial flows	Very Good		Apr-07	
1	Egg	Landscape Context	Non-native species	Non-native egg predators	present throughout watershed	present in >50% of watershed	present in < 50% of watershed	absent				Aug-07	
1	Egg	Landscape Context	Water temperature	Mean weekly avg. temperature in redds	< 5 C. and > 13 C.	11.1-13 C.	10.1-11 C.	6-10 C.				Oct-05	
1	Egg	Condition	Substrate quality	Avg. percent fines (<0.85mm) in potential spawning areas	> 17% fines	11-17% fines	5-10 % fines	**< 5% fines**	high quality spawning site	Very Good		Apr-07	
1	Egg	Condition	Substrate quality	Embeddedness	> 75% embedded	50-75% embedded	25-49% embedded	**< 25% embedded**	low embeddedness	Very Good		Apr-07	
2	Fry	Landscape Context	Dispersal	Barriers between redds and rearing habitat	complete barrier	partial barriers common	partial barriers scarse	**no barriers**	no barriers	Very Good		Apr-07	
2	Fry	Landscape Context	Non-native species	Non-native fry predators	present throughout watershed	present > 50% watershed	present < 50% of watershed	absent				Aug-07	
2	Fry	Landscape Context	Sediment supply	Turbidity (no. days turbidity is > 25 NTUs)	> 30 days during fry development period	20-30 days	10-19 days	< 10 days				Apr-07	
2	Fry	Condition	Habitat complexity/refugia	Amount of functional high velocity refuge habitat with flows < 15 cm/sec (boulders, overhanging banks, etc.)	none; watercourse in rearing habitat is channelized	some	common	**abundant**	probably abundant	Very Good		Apr-07	
3	Juvenile	Landscape Context	Dispersal	Barriers between rearing habitat and estuary	present			absent	few partial barriers; one possible complete barrier	Good		Apr-07	
3	Juvenile	Landscape Context	Flow during rearing period	Pool habitat > 3 feet in depth	pools scarse or absent	low abundance of pools	high abundance of pools	**high abundance of pools with muliple "refuge" pools (> 5 ft deep)**	pool probably common to abundant	Very Good		Apr-07	
3	Juvenile	Landscape Context	Non-native species	Non-native juvenile predators	present throughout watershed	present > 50% watershed	present < 50% watershed	absent				Aug-07	

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3	Juvenile	Landscape Context	Summer flow	Percent of unimpaired median summer baseflow (based on long-term mean monthly discharge)	< 70%s	70-90%	> 90%	**100% over all IP-km**	perennial flow	Very Good		Apr-07	
3	Juvenile	Landscape Context	Water temperature	Median weekly average temperature (MWAT) in potential rearing habitat	> 21 C.	18-21 C.	< 18 C.	< 17 C.				Oct-05	
3	Juvenile	Condition	Estuarine inflows	Percentage of unimpaired freshwater inflow to estuary (necessary for maintaining brackish water < 15 ppt salinity)	< 25%	25-49%	50-75%	**> 75%**	perennial flow	Very Good		Apr-07	
3	Juvenile	Condition	Estuarine inflows	Persistence of hypoxic or anoxic saline layer (> 15 ppt) in potential rearing habitat areas between May and onset of winter rains	3 months	1 month	1 week	< 3 days				Jul-06	
3	Juvenile	Condition	Food availability	Species richness	< 25 taxa	25-29 taxa	30-40 taxa	> 40 taxa				Mar-07	
3	Juvenile	Condition	Habitat complexity/refugia	Instream refugia	absent			**present (boulders, overhanging banks, etc.)**	probably abundant	Very Good		Apr-07	
3	Juvenile	Condition	Riparian corridor species composition and structure	Mean percent native, undisturbed composition and structure in 100-foot riparian buffer	< 25%	25-50%	**51-75%**	historic conditions	little disturbed	Good		Mar-07	
4	Smolt	Landscape Context	Dispersal	Number of days when depths are < 0.4 ft anywhere in migration corridor during outmigration period (March through June)	> 10 days	6-10 days	1-5 days	**0 days**	perennial flows	Very Good		Apr-07	
4	Smolt	Landscape Context	Flow for downstream passage March through June	Maximum potential rate of diversion by pumping during April and May (expressed as percent of estimate unimpaired median flow in April)	> 150%	100-150%	50-99%	**< 50%**	perennial flows	Very Good		Apr-07	
4	Smolt	Landscape Context	Passage to ocean	Number of days stream mouth is open with adequate flow during outmigration period (March through June)	< 30 days	30-60 days	60-90 days	> 90 days				Jul-06	

Assessment of Target Viability

Conservation Target	Category	Key Attribute	Indicator	Poor	Fair	Good	Very Good	Current Indicator Status	Current Rating	Desired Rating	Date of Current Rating	Date for Desired Rating
5 Adult	Landscape Context	Dispersal	Accessibility of suitable spawning areas (based on TRT criteria)	accessible sites are clumped in one location or < 25% of all tributaries are accessible	25-50% of all tributaries are accessible	**50-75% of all tributaries are accessible**	> 75% of all tributaries are accessible	few partial barriers; one possible complete barrier	Good		Apr-07	
5 Adult	Landscape Context	Dispersal	Number of days stream mouth is open with adequate flow during entry period (1 November to 1 June)	< 30 days	30-60 days	60-90 days	> 90 days				Jul-06	
5 Adult	Landscape Context	Flow during spawning period (spawning and upstream/downstream passage)	Percent of net discharge (unimpaired flow minus total diversions) occurring between 1 December to 1 June, in all water years	> 10%	6-10%	3-5%	**< 3%**	perennial flows	Very Good		Apr-07	
5 Adult	Landscape Context	Water temperature	Median weekly average temperature in migration corridor	> 17 C.	15-16.9 C.	13-14.9 C.	10-12.9 C.				Oct-05	
5 Adult	Size	Population size	Mean annual adult spawner abundance		TRT criteria for low extinction risk (by watershed)						Mar-03	
6 Multiple Life Stages	Landscape Context	Barriers/diversions	Stream crossings/stream mile	> two/mile			< two/mile	avg 0.44 crossings/mile	Good		Jan-08	
6 Multiple Life Stages	Landscape Context	Channel flow and morphology	Percent of total watercourse length channelized	> 25%	16-25%	5-15%	**< 5%**	< 5%	Very Good		Jan-08	
6 Multiple Life Stages	Landscape Context	Fire regime/vegetation maturity	Percent of watershed affected by high intensity fire within previous 100 yrs	**> 25%**	10-24%	5-9%	< 5%	43%	Poor		Jan-08	
6 Multiple Life Stages	Landscape Context	Floodplain connectivity	Floodplain connectivity	< 50% of response reaches in watershed have inundation of historic floodplains by bankfull flows (connectivity)	50-65% of response reaches in watershed demonstrate floodplain connectivity	66-80% of response reaches in watershed demonstrate floodplain connectivity	**> 80% of response reaches in watershed demonstrate connectivity**	very little development	Very Good		Jan-08	

Assessment of Target Viability

Conservation Target	Category	Key Attribute	Indicator	Poor	Fair	Good	Very Good	Current Indicator Status	Current Rating	Desired Rating	Date of Current Rating	Date for Desired Rating
6 Multiple Life Stages	Landscape Context	Historic vs Current Spawning Habitat	Fraction of historic spawning tributaries currently accessible to spawners	< 15% available	16-50% available	**51-90% available**	>90% available	high accessibility; one possible complete barrier	Good		Apr-07	
6 Multiple Life Stages	Landscape Context	Hydrology	Dry stream reaches	> 75% dry reaches	26-75% dry reaches	1-25% dry reaches	**no dry reaches; perennial surface flows**	perennial flows	Very Good		Apr-07	
6 Multiple Life Stages	Landscape Context	Hydrology	Hydrograph	severely modified			**natural**	natural	Very Good		Apr-07	
6 Multiple Life Stages	Landscape Context	Land use	Distribution of public ownership along main stem of watercourse	< 25% of land bordering main stem of drainage is publicly owned	25-50%	51-75%	**> 75%**	>86% federal and state lands	Very Good		Jan-08	
6 Multiple Life Stages	Landscape Context	Land use	Miles of road per square mile of watershed within 100 meters of watercourse	> 1 mi	0.5-1.0 mi	**0.1-0.49 mi**	< 0.1 mi	avg 0.27 mi/sq. mi.	Good		Jan-08	
6 Multiple Life Stages	Landscape Context	Land use	Miles of roads per square mile of watershed	> 3.0 mi	2.6-3.0 mi	1.6-2.5 mi	**< 1.6 mi**	avg 1.05 mi/sq mi.	Very Good		Jan-08	
6 Multiple Life Stages	Landscape Context	Land use	Percent of watershed area in agricultural use	> 30%	20-29%	10-19%	**< 10%**	< 0.1%	Very Good		Jan-08	
6 Multiple Life Stages	Landscape Context	Land use	Percent of watershed area in agriculture within 100 meters of watercourse	> 20%	11-20%	5-10%	**< 5%**	0.1%	Very Good		Jan-08	
6 Multiple Life Stages	Landscape Context	Land use	Percent of watershed area in public ownership	< 25 % public ownership	25-50%	51-75%	**> 75%**	> 86% federal and state lands	Very Good		Jan-08	
6 Multiple Life Stages	Landscape Context	Land use	Percent of watershed area in urban/residential use	> 25%	10-25%	5-9%	**< 5%**	0.7%	Very Good		Jan-08	
6 Multiple Life Stages	Landscape Context	Water quality	General index of toxicity based on severity of adverse effects on fish	Acute lethal effects (fish kill)	Sublethal effects (reduced growth, altered behavior, etc.)	Toxins detected but no sublethal effects	**No toxins or contaminants detected**	very low total N and P	Very Good		Jan-08	
6 Multiple Life Stages	Landscape Context	Water quality	Percent total impervious surfaces as % of watershed area	>40%	21-40%	5-20%	**< 5%**	< 0.1%	Very Good		Jan-08	
6 Multiple Life Stages	Condition	Estuarine habitat quality	Current lagoon area as percentage of historic total area	< 25%	26-50%	51-75%	**> 75%**	natural; 100%	Very Good		Mar-07	

Assessment of Target Viability

	Conservation Target	Category	Key Attribute	Indicator	Poor	Fair	Good	Very Good	Current Indicator Status	Current Rating	Desired Rating	Date of Current Rating	Date for Desired Rating
6	Multiple Life Stages	Condition	Estuarine habitat quality	Depth, LWD, and other habitat elements (e.g. eelgrass)	depth < 1 meter; LWD and/or overhanging banks absent		depth > 1 meter; LWD and/or overhanging banks present		relatively pristine	Very Good		Jul-06	
6	Multiple Life Stages	Condition	Riparian corridor quality	Riparian canopy cover	< 25% cover	25-49% cover	50-75% cover	> 75% cover	natural riparian corridor; 95%	Very Good		Jan-08	
6	Multiple Life Stages	Condition	Riparian corridor quality	Riparian corridor species composition	< 25% native composition	25-50% native composition	50-75% native composition	> 75% native composition				Mar-03	

Summary of Threats

Click the page-down icon ▼to the right to view more summary tables.

Big Sur River, Monterey County

	Threats Across Targets	Egg	Fry	Juvenile	Smolt	Adult	Multiple Life Stages			Overall Threat Rank
	Project-specific threats	1	2	3	4	5	6	7	8	
1	Natural barriers					Medium	Medium			Medium
2	Recreational facilities and activities (ORV use, campgrounds, etc.)	-	-	Medium	-	-	Medium			Medium
3	Culverts, crossings, and bridges	-	-	-	-	-	Low			Low
4	Roads in watershed and/or within 300 feet of watercourses	-	-	-	-	-	Low			Low
5	Wildland fires (incl. debris flows folbwing fires)	-	-	-	-	-	Low			Low
6	Agricultural effluents	-	-	-	-	-	-			-
7	Artificial lagoon breaching	-	-	-	-	-	-			-
8	Channel and/or estuary maintenance, dredging, and vegetation contol (incl. flood control activities)	-	-	-	-	-	-			-
9	Conversion of watershed lands to low crop agriculture	-	-	-	-	-	-			-
10	Dams and surface water diversions	-	-	-	-	-	-			-
11	Gas, water, and/or other utility pipelines	-	-	-	-	-	-			-
12	Groundwater extraction	-	-	-	-	-	-			-
13	Illegal collecting, poaching, and/or unauthorized angling	-	-	-	-	-	-			-
14	Invasive non-native plants						-			-
15	Levees and channelization	-	-	-	-	-	-			-
16	Livestock Farming & Ranching	-	-	-	-	-	-			-
	Threat Status for Targets and Project	-	-	Low	-	Low	Medium	-	-	Medium *

Overall Viability Summary
Big Sur River, Monterey County

	Threats Across Targets	Egg	Fry	Juvenile	Smolt	Adult	Multiple Life Stages			Overall Threat Rank
	Project-specific threats	1	2	3	4	5	6	7	8	
17	Log jams and other removable barriers									-
18	Logging	-	-	-			-			-
19	Mining & Quarrying	-	-	-	-	-	-			-
20	Non-native species present (incl. hatchery fish)	-	-	-	-	-	-			-
21	Non-point pollution from roads	-	-	-	-	-	-			-
22	Oil & Gas Drilling	-	-	-	-	-	-			-
23	Public ownership in watershed									-
24	Urban development	-	-	-	-	-	-			-
25	Urban wastewater effluents (incl. industrial and commercial effluents)	-	-	-	-	-	-			-

Stress Matrix

Big Sur River, Monterey County

	Stresses (Altered Key Ecological Attributes) Across Targets	Egg	Fry	Juvenile	Smolt	Adult	Multiple Life Stages		
		1	2	3	4	5	6	7	8
1	Altered fire regime/recent fire in watershed	-	-	-	-	-	Very High	-	-
2	Impaired riparian habitat quality	-	-	Medium	-	-	-	-	-
3	Impaired access to rearing and/or spawning habitat	-	-	-	-	-	Medium	-	-
4	Impaired access to spawning areas	-	-	-	-	Medium	-	-	-
5	Altered base flows during incubation	Low	-	-	-	-	-	-	-
6	Impaired substrate quality (sedimentation and embeddedness)	Low	-	-	-	-	-	-	-
7	Dispersal barriers between redds and rearing habitat	-	Low	-	-	-	-	-	-
8	Altered riparian habitat quality	-	-	-	-	-	Low	-	-
9	Impaired estuarine habitat quality	-	-	-	-	-	Low	-	-
10	Impaired habitat complexity/refugia	-	Low	-	-	-	-	-	-
11	Impaired access to estuary	-	-	Low	-	-	-	-	-
12	Impaired flows during rearing period	-	-	Low	-	-	-	-	-
13	Impaired summer base flows	-	-	Low	-	-	-	-	-
14	Altered land use from natural condition	-	-	-	-	-	Low	-	-
15	Impaired estuarine inflows	-	-	Low	-	-	-	-	-
16	Altered hydrograph	-	-	-	-	-	Low	-	-

Stress Matrix

Big Sur River, Monterey County

	Stresses (Altered Key Ecological Attributes) Across Targets	Egg	Fry	Juvenile	Smolt	Adult	Multiple Life Stages		
		1	2	3	4	5	6	7	8
17	Impaired instream habitat complexity/refugia	-	-	Low	-	-	-	-	-
18	Impaired access to ocean	-	-	-	Low	-	-	-	-
19	Impaired water quality	-	-	-	-	-	Low	-	-
20	Impaired floodplain connectivity	-	-	-	-	-	Low	-	-
21	Impaired water temperatures in migration corridor	-	-	-	-	Low	-	-	-
22	Non-native predators	-	-	-	-	-	-	-	-
23	Non-native egg predators	-	-	-	-	-	-	-	-
24	Low adult population size	-	-	-	-	-	-	-	-
25	Impaired water temperature in spawning areas	-	-	-	-	-	-	-	-
26	Impaired access to stream from ocean (stream mouth closed)	-	-	-	-	-	-	-	-
27	Impaired food availability	-	-	-	-	-	-	-	-
28	Impaired water temperature	-	-	-	-	-	-	-	-
29	Altered sediment supply	-	-	-	-	-	-	-	-

Overall Viability Summary

Big Sur River, Monterey County

	Conservation Targets	Landscape Context		Condition		Size		Viability Rank
		Grade	Weight	Grade	Weight	Grade	Weight	
1	Egg	Very Good	1	Very Good	1	-	1	Very Good
2	Fry	Very Good	1	Very Good	1	-	1	Very Good
3	Juvenile	Very Good	1	Very Good	1	-	1	Very Good
4	Smolt	Very Good	1	-	1	-	1	Very Good
5	Adult	Good	1	-	1	-	1	Good
6	Multiple Life Stages	Poor	1	Very Good	1	-	1	Fair
7		-	1	-	1	-	1	-
8		-	1	-	1	-	1	-
Project Biodiversity Health Rank								Good

Detailed Viability Summary

Big Sur River, Monterey County

	Conservation Targets	Key Ecological Attributes				Indicators				Calculated Rank	User Override
		Poor	Fair	Good	Very Good	Poor	Fair	Good	Very Good		
1	**Egg**									**Very Good**	
	Landscape Context				1				1	Very Good	
	Condition				1				2	Very Good	
	Size									-	
2	**Fry**									**Very Good**	
	Landscape Context				1				1	Very Good	
	Condition				1				1	Very Good	
	Size									-	
3	**Juvenile**									**Very Good**	
	Landscape Context			1	2			1	2	Very Good	
	Condition			1	2			1	2	Very Good	
	Size									-	
4	**Smolt**									**Very Good**	
	Landscape Context				2				2	Very Good	
	Condition									-	
	Size									-	
5	**Adult**									**Good**	
	Landscape Context			1	1			1	1	Good	
	Condition									-	
	Size									-	
6	**Multiple Life Stages**									**Fair**	
	Landscape Context	1		2	5	1		3	12	Poor	
	Condition				2				3	Very Good	
	Size									-	
7										-	
	Landscape Context									-	
	Condition									-	
	Size									-	
8										-	
	Landscape Context									-	
	Condition									-	
	Size									-	