SHR-2-263
Qpanel

DWR - 1027

TESTIMONY OVERVIEW

- Will Cover -Changes in Water Quality (Salinity) and Water Levels Between CWF H3+ and NAA – Plotted with H3 and H4 and BA H3+
  - Compliance with Fish and Wildlife D-1641 Water Quality Objectives
  - Monthly Average Water Quality Results and Compliance with M&I and Ag D-1641 Water Quality Objectives
  - Water Level Probabilities

2

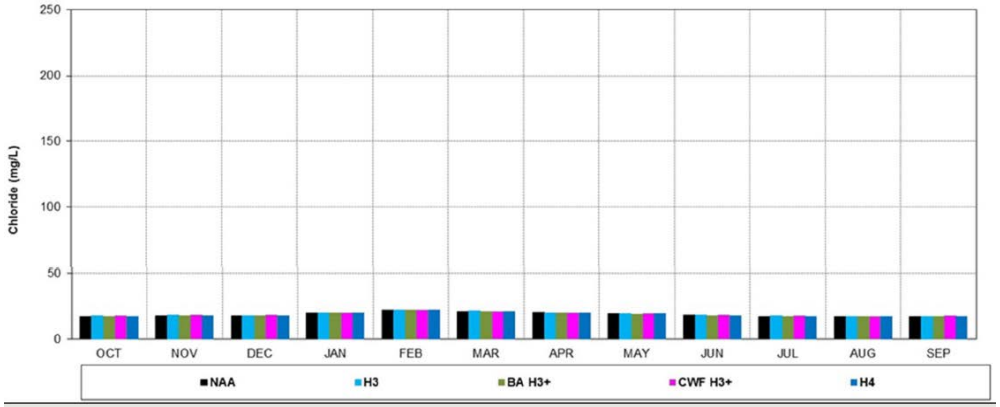
DWR - 1027

FIGURE L2: LOCATION OF THE SEGMENT OF THE SAN JOAQUIN RIVER BETWEEN JERSEY POINT AND PRISONERS POINT – D-1641 WATER QUALITY OBJECTIVES FOR FISH AND WILDLIFE BENEFICIAL USES

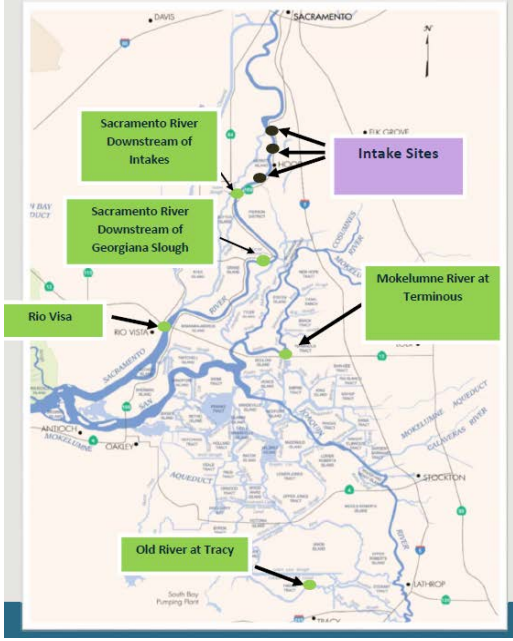
13

DWR - 1027

FIGURE CL3: MONTHLY AVERAGE CHLORIDE CONCENTRATION AT BARKER SLOUGH

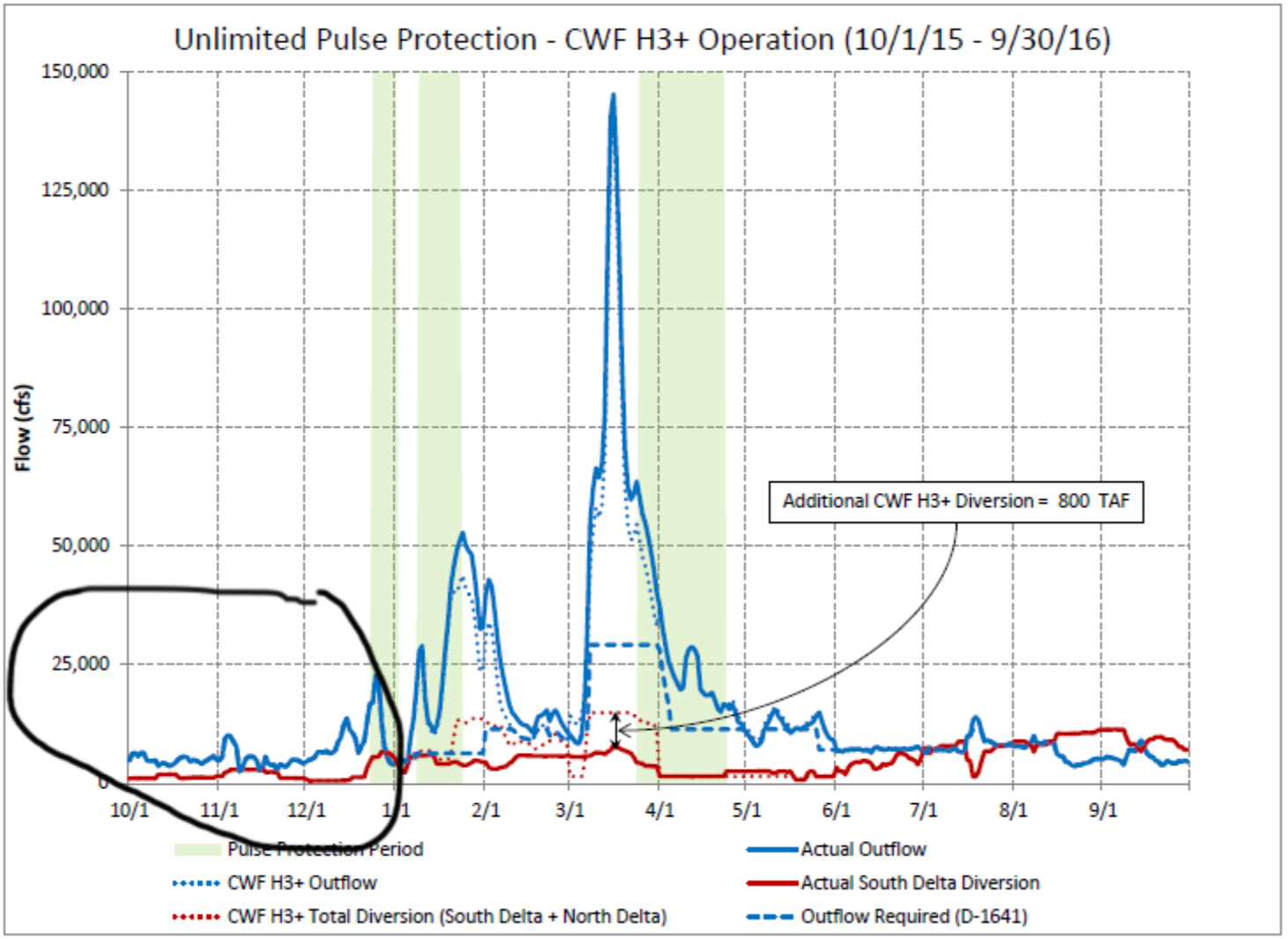


Model results are used for comparative purposes and not for predictive purposes



DWR - 1027

FIGURE L4: LOCATIONS OF WATER LEVEL RESULTS


Unlimited Pulse Protection - CWF H3+ Operation (10/1/15 - 9/30/16)
Flow (cfs)
150,000
125,000
100,000
75,000
50,000
25,000
0
10/1
11/1
12/1
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
Additional CWF H3+ Diversion = 800 TAF
Pulse Protection Period
CWF H3+ Outflow
CWF H3+ Total Diversion (South Delta + North Delta)
Actual Outflow
Actual South Delta Diversion
Outflow Required (D-1641)

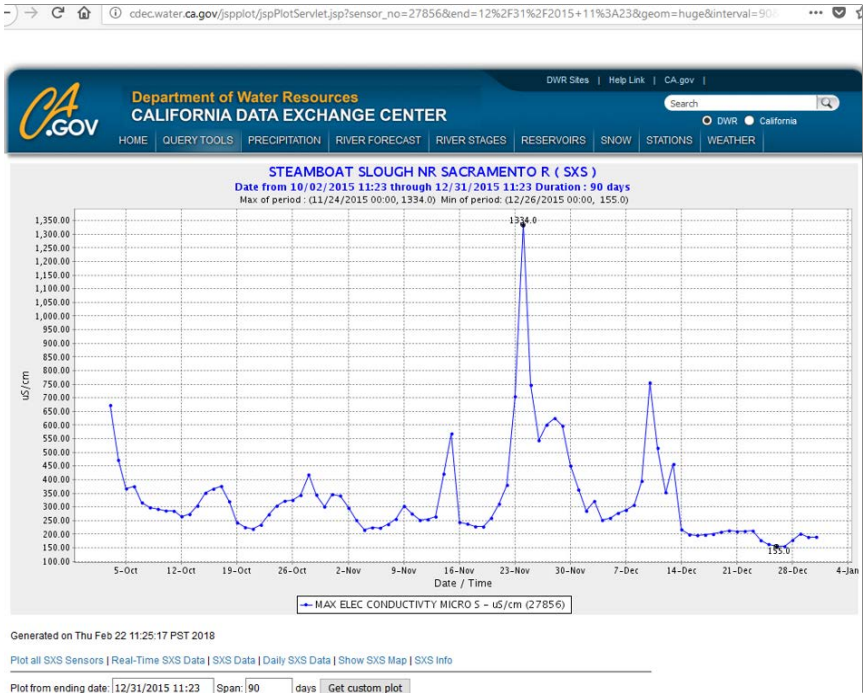
Questions: Pannel 2 SHR-2-_____

compare this to DWR-1032

Blue dots don't show the whole time period ... why not?
Dashed blue line doesn't indicate outflow required by D-1641 ... why not?

Note the below salinity impact on lower Steamboat Slough adjacent to Snug Harbor. Is it Dwr position that this level of salinity meets water quality standards for human use?

Will the revised Delta Flow Criteria under CFW operations increase or decrease incidents of high salinity on Steamboat Slough, and incidents increase what is the expected impact to fish, humans, agriculture in this area?



1. Impacts to navigation from barge travel:
- Barge clearance in the narrow waterways?
- Barge wake damage when traveling against the tide?
- Delayed navigation by other vessels due to bridge opening and closing. Which bridges affected specifically?
  Costs to others from delay by CWF barges?

2. Is DWR aware of, or modeled for, the Impacts to recreational, commercial and residential properties from increases in salinity due to excessive diversions of Sacramento River water, resulting in insufficient fresh water flows in natural waterways like Steamboat Slough?

3. What about the impacts to areas downstream of the lower Steamboat Slough monitoring Station? How does this impact recreational facilities and waterfront homes at places like Hidden Harbor, Vieira's, Long Island, Isleton? Will DWR/USBR agree to fund the costs associated with damage from excessive freshwater diversions and also the damages from pulse flows made necessary because of CWF restoration requirements?

-impacts to boat motor and bottom maintenance
-impacts to dock maintenance
-impacts to drinking water wells
-impacts to landscape irrigation
-impacts to navigation due to water weeds
-impacts to navigation due to silting

snugharbor.net/images-2014/news/unaccountedwater-update.jpg

DWR CORRECTS WATER BALANCE TABLE ... MAYBE

Data compiled by N. Suard, Esq.
posted online 3/27/14

Location of flow study based on the first chart posted by DWR:
http://www.snugharbor.net/images-2014/bdcp/flows/unaccounted_diversions.pdf

In January 2014 it was noticed by Delta landowners that a chart online providing the estimated Delta outflow and in-Delta water uses indicated substantially low Delta outflow. In addition, there appeared to be "missing water". I hired a certified Quickbooks person to enter the numbers as shown in the top chart, as if those numbers were dollars instead of thousands of acre feet of water. The result was that there appeared to be MISSING water and the CCWD diversions may be counted twice as both independent export amount and as a portion of the in-Delta consumptive use figure. North Delta landowner focus on flows has been heightened in the last few years because DWR or USBR has been greatly reducing flows on Steamboat Slough, in particular, except for when the salmonid migration studies with pulse flows are going on. The above chart was provided to several North Delta water engineers and agency people with a request that others review the data.

Without notice to others, DWR revised the chart and posted it online on 3/19/2014, after revising the data in late February. It will take more time to analyze the new numbers, but the first posting shows how even for very important data like Delta outflow there is inconsistency when DWR reports data and then makes corrections without acknowledging the correction.

SCREEN PRINT OF DWR CHART ONLINE BEFORE DWR UPDATE

http://www.waterplan.water.ca.gov/docs/cwpu2013/ae/water_portfolio-inflow_outflow_delta.pdf

Delta Water Balance Estimates[1] (TAF)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Sacramento River Inflow	29015	21770	18360	10517	13104	18304	17129	16747	28039	11010	9557	9867	12777
Yolo Bypass Inflow	8996	1635	2961	366	708	1122	3121	707	13034	248	417	317	659
Eastside Tributaries Inflow	2096	1399	1078	372	462	534	445	1173	9679	1979	n	1231	2461
San Joaquin River Inflow	8456	3568	2846	1732	1396	1365	1373	3777	7341	1596	1234	865	1829
North Bay Aqueduct Exports	39	37	47	45	47	42	52	48	43	61	55	46	43
Contra Costa Water District Diversions at Rock Slough and Old River	160	133	126	104	121	138	120	119	116	112	135	107	94
State Water Project Exports at Banks Pumping Plant or Clifton Court Intake	2134	2439	3692	2635	2900	3458	3251	3625	3527	2954	1527	1636	2496
Central Valley Project Exports at Tracy	2474	2262	2487	2332	2505	2685	2722	2679	2628	2679	2018	1884	2141
Delta Consumptive Use[2]	1691	1691	1693	1691	1691	1691	1693	1691	1691	1691	1693	1691	1666
Delta Precipitation	1423	734	956	764	758	739	753	1089	1059	477	600	662	789
Delta Outflow	43487	22542	18155	6944	9163	14050	14922	15403	43805	6216	1529	6713	2461

1 Data from DAYFLOW Program; NOTE: includes DAYFLOW corrections through 01-07-2004 (http://ep.water.ca.gov/dayflow)
2 Content Required by Water Code Section 10004.6

SCREEN PRINT OFDWR CHART CORRECTED BY DWR AND POSTED 3/19/2014

http://www.waterplan.water.ca.gov/docs/cwpu2013/ae/water_portfolio-inflow_outflow_delta

Delta Water Balance Estimates[1] (TAF) — Note: Draft Information. The final Water Plan assumptions and estimates will be included in Volume 5, the Technical Guide.

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Sacramento River Inflow	29,015	21,770	18,360	10,517	13,104	18,304	17,128	16,747	27,592	10,970	9,557	9,867	12,777
Yolo Bypass Inflow	8,416	1,629	2,961	366	708	1,122	3,128	707	10,939	248	417	317	659
Eastside Tributaries Inflow	2,090	1,399	1,078	372	462	534	445	1,173	2,338	383	295	366	633
San Joaquin River Inflow	8,491	3,568	2,846	1,732	1,396	1,365	1,373	3,777	7,341	1,596	1,234	865	1,829
North Bay Aqueduct Exports	39	38	47	45	47	42	52	48	43	61	55	46	43
Contra Costa Water District Diversions at Rock Slough and Old River	160	133	126	104	121	138	120	119	116	112	135	107	94
State Water Project Exports at Banks Pumping Plant or Clifton Court Intake	2,134	2,439	3,692	2,635	2,900	3,458	3,251	3,625	3,527	2,954	1,527	1,636	2,496
Central Valley Project Exports at Tracy	2,474	2,263	2,487	2,332	2,505	2,685	2,722	2,679	2,628	2,679	2,018	1,884	2,141
Delta Consumptive Use (2	1,751	2,039	2,017	1,863	1,837	1,791	1,991	2,096	1,88	1,700	1,793	1,784	1,865
Delta Precipitation (2 (3	2,033	1,088	1,271	936	903	839	976	1,233	1,249	525	700	755	988
Delta Outflow	43,487	22,542	18,147	6,944	9,163	14,050	14,914	15,070	41,264	*6,216	*6,675	*6,713	*10,247

1) Data from DAYFLOW Program; 7-1-2012 (http://www.water.ca.gov/dayflow)
2) Content Required by Water Code Section 10004.6
3) Delta only without Suisun Marsh

Corrected chart posted online 3/19/14 with no reference to the fact it is a correction of the previous posting by DWR

Document Properties
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Keywords:
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PDF Version: 1.5 (Acrobat 6.x)
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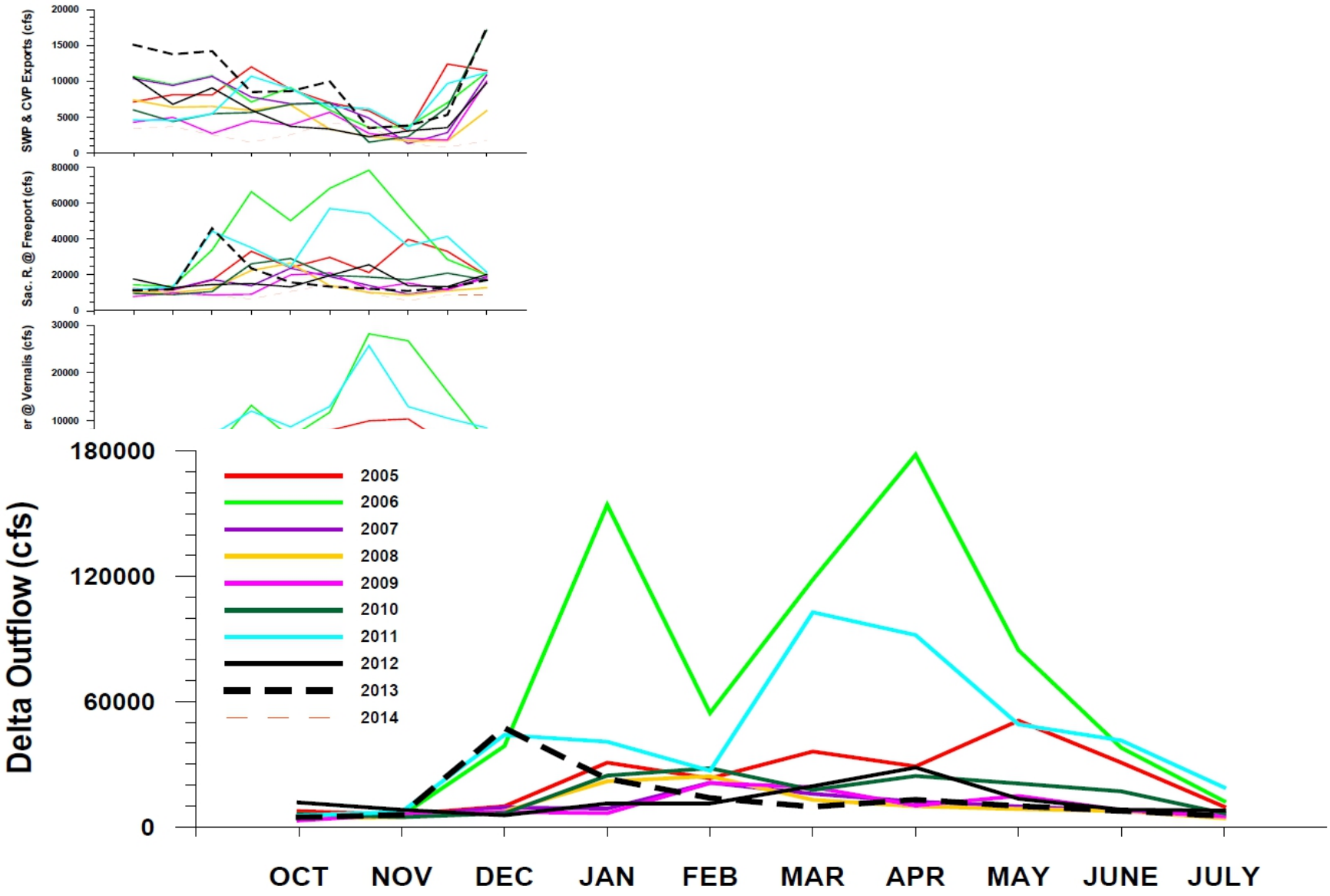
Figure15. Monthly averages of Delta hydrology from October to July, water years 2006 through 2015.

Item 6 2015 10 09...



NRDC-104.pdf - Adobe Acrobat Pro DC

File Edit View Window Help

Home Tools 20180130_cwf_... 4-16-09 App_3.D_Constr... MainReport(2).pdf NRDC-60(1).pdf NRDC-60(2).pdf 20171030_rev a... Natural Flows_D... NRDC-103.pdf NRDC-104.pdf Sign In

6 / 35 111%

DRAFT

NRDC-104-30-16

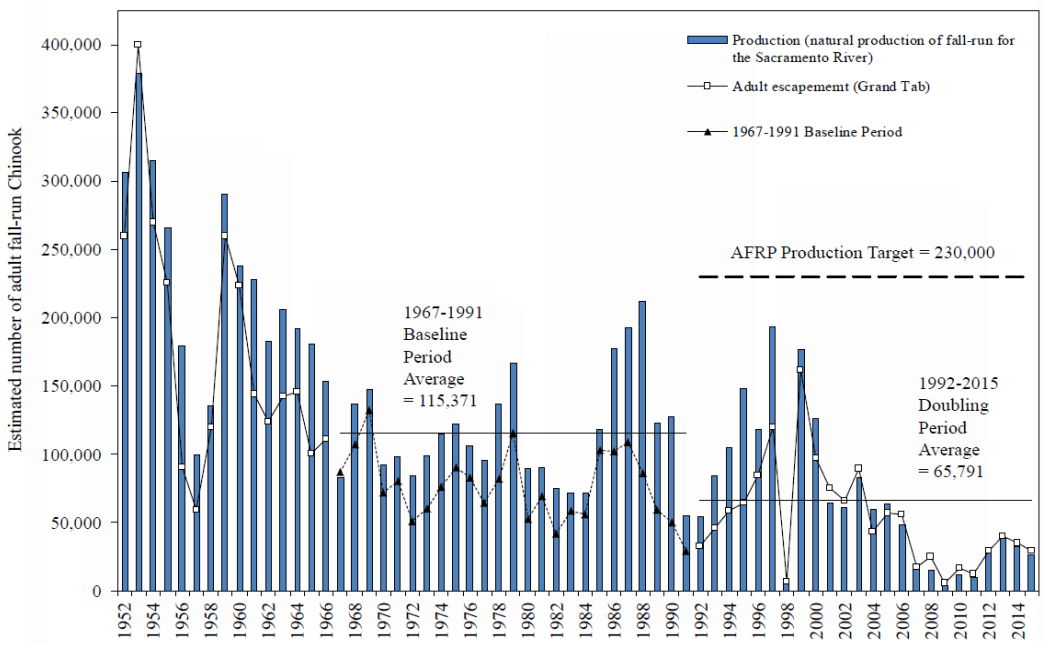


Figure 6. Estimated yearly adult natural production, and in-river adult escapements for the entire mainstem Sacramento River fall-run Chinook salmon. 1952-1966 and 1992-2015 numbers are from CDFG Grand Tab (Apr 11, 2016). 1967-1991 Baseline Period numbers are from Mills and Fisher (CDFG, 1994).

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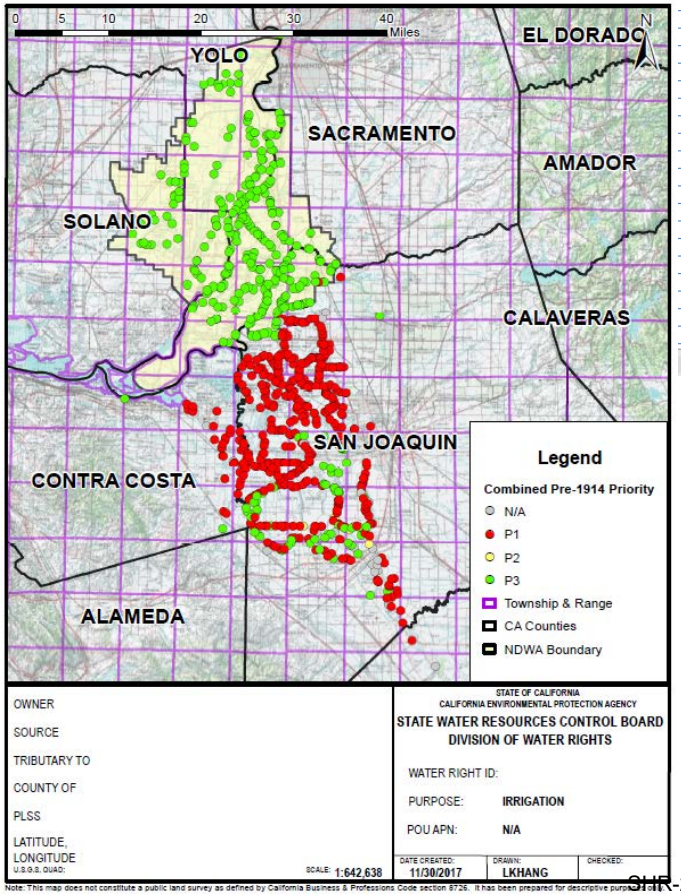
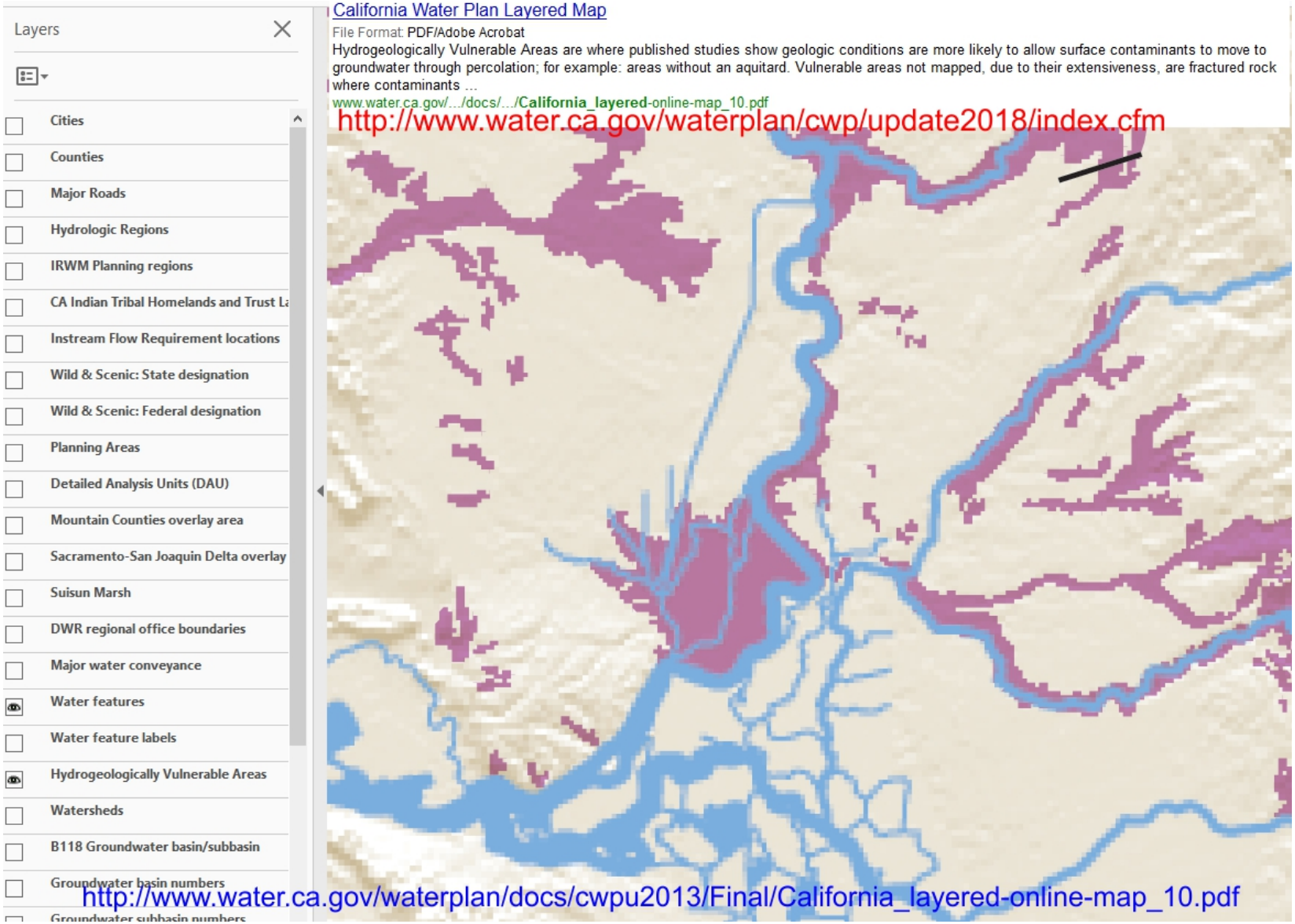
11:03 AM 3/1/2018

	APP_ID	PRIMARY_OWNER	BENEFICIAL_USE	NET_ACF	FACE_VALU	AREA	M	HYDROLOGIC_UNIT	HUC_12		WR_TYPE	STATUS_T	RIPARIAN	PRE_1914
3239	A019351	SONOMA COUNTY WATER AGENCY	Domestic, Industrial, Municipal, Recreational	0.0	375316.0	RUSSIAN		RUSSIAN RIVER	180101100902	180	Appropriative	Permitted		
3240	A022431	SONOMA COUNTY WATER AGENCY	Recreational	0.0	600.0	RUSSIAN		RUSSIAN RIVER	180101100702		Appropriative	Licensed		
3241	A026624	SONOMA COUNTY WATER AGENCY	Power	0.0	209953.5	RUSSIAN		RUSSIAN RIVER	180101100504		Appropriative	Permitted		
3242	A027362	SONOMA COUNTY WATER AGENCY	Domestic, Irrigation	27.0	113.0	RUSSIAN		RUSSIAN RIVER	180101100902		Appropriative	Permitted		
3243	A025830	SONOMA COUNTY MUTUAL WATER COMPANY	Domestic	0.0	2.3	RUSSIAN		RUSSIAN RIVER	180101100802		Appropriative	Licensed		
3244	A013975	SONOMA COUNTY AGRICULTURE PRESERVATION & OPEN S	Domestic, Recreational	0.0	0.5	RUSSIAN		RUSSIAN RIVER	180101100702		Appropriative	Licensed		
3245	A015720	SONJA LOBBAN	Irrigation, Recreational	11.0	24.5	RUSSIAN		RUSSIAN RIVER	180101100706		Appropriative	Licensed		
3246	A026820	SOLANO SOLA LLC	Recreational, Stockwatering	0.0	30.0	SACRAMENTO		VALLEY PUTAH-CACHE	180201630501		Appropriative	Licensed		
3247	A026821	SOLANO SOLA LLC	Recreational, Stockwatering	0.0	33.0	SACRAMENTO		VALLEY PUTAH-CACHE	180201630501		Appropriative	Licensed		
3248	A026822	SOLANO SOLA LLC	Recreational, Stockwatering	0.0	30.0	SACRAMENTO		VALLEY PUTAH-CACHE	180201630501		Appropriative	Licensed		
3249	S015470	SOLANO LAND TRUST	Stockwatering	0.0		SACRAMENTO		VALLEY PUTAH-CACHE	180201630302		Statement of Div ar	Claimed	Y	
3250	A025176	SOLANO IRRIGATION DISTRICT	Power	0.0	816706.0	SACRAMENTO		UPPER ELMIRA	180201620503		Appropriative	Permitted		
3251	A011199	SOLANO COUNTY WATER AGENCY	Domestic, Fish and Wildlife Preservation and Enhancem	428300.0	948337.0	SACRAMENTO		UPPER ELMIRA	180201620503		Appropriative	Licensed		
3252	A012578	SOLANO COUNTY WATER AGENCY	Domestic, Irrigation	80000.0	58899.0	SACRAMENTO	Y	VALLEY PUTAH-CACHE	180201620503		Appropriative	Licensed		
3253	A024632	SOL L LABRUZZO	Fire Protection, Irrigation, Recreational, Stockwatering	7.0	3.0	SACRAMENTO		MARYSVILLE	180201590501		Appropriative	Licensed		
3254	A025091	SOL L LABRUZZO	Fire Protection, Irrigation, Recreational, Stockwatering	7.0	8.7	SACRAMENTO		MARYSVILLE	180201590501		Appropriative	Licensed		
3255	A017280	SOBAREA RANCHES LLC	Irrigation, Recreational, Stockwatering	32.0	36.0	SACRAMENTO		TEHAMA	180201570701		Appropriative	Licensed		
3256	S017332	SNUG HARBOR RESORTS, LLC	Irrigation	5.0		LEGAL DELTA		SACRAMENTO DELTA	180201630606		Statement of Div ar	Claimed	Y	Y
3257	S017335	SNUG HARBOR RESORTS, LLC	Irrigation	5.0		LEGAL DELTA		SACRAMENTO DELTA	180201630606		Statement of Div ar	Claimed	Y	Y
3258	S017338	SNUG HARBOR RESORTS, LLC	Irrigation	5.0		LEGAL DELTA		SACRAMENTO DELTA	180201630606		Statement of Div ar	Claimed	Y	Y
3259	S017341	SNUG HARBOR RESORTS, LLC	Dust Control	8.3		LEGAL DELTA		SACRAMENTO DELTA	180201630606		Statement of Div ar	Claimed	Y	Y
3260	S014808	SNOW MOUNTAIN HYDRO LLC	Power	0.0										
3261	S014809	SNOW MOUNTAIN HYDRO LLC	Power	0.0										
3262	S014810	SNOW MOUNTAIN HYDRO LLC	Power	0.0										
3263	S014811	SNOW MOUNTAIN HYDRO LLC	Power	0.0										
3264	S014812	SNOW MOUNTAIN HYDRO LLC	#N/A	0.0										
3265	S018145	SNODGRASS PARTNERS, LLC	Irrigation	119.0										
3266	A013658	SMITH RANCHES AND WOOD ORCHARD	Irrigation	180.0										
3267	S018783	SMITH FAMILY RANCH, INC.	Irrigation	152.0										Y
3268	A015123	SMITH FAMILY LIVING TRUST	Recreational, Stockwatering	0.0										
3269	A013003	SMITH COMPANY A GENERAL PARTNERSHIP	Irrigation	207.3										
3270	S020856	SMITH AND KAREN CUNNINGHAM	Stockwatering	0.0										
3271	S022470	SMITH ADOBE RANCH FAMILY, LP ET AL	Irrigation	605.0										Y
3272	A024984	SMITH & SMITH RANCH, A PARTNERSHIP	Fire Protection, Irrigation, Recreational, Stockwatering	1.0										
3273	A027152	SMITH & SMITH RANCH, A PARTNERSHIP	Fire Protection, Irrigation, Recreational, Stockwatering	1.0										
3274	S008682	SMITH & SMITH RANCH, A PARTNERSHIP	Domestic	0.0										
3275	S010761	SMITH & SMITH RANCH, A PARTNERSHIP	Irrigation	0.0										
3276	S010762	SMITH & SMITH RANCH, A PARTNERSHIP	Irrigation	0.0										
3277	A017957	SLOUGHOUSE PROPERTIES	Stockwatering	0.0										
3278	A017958	SLOUGHOUSE PROPERTIES	Stockwatering	0.0										
3279	A017959	SLOUGHOUSE PROPERTIES	Stockwatering	0.0										

2010-2013 Demand | Legend | Change Log | APP_ID Adjustments



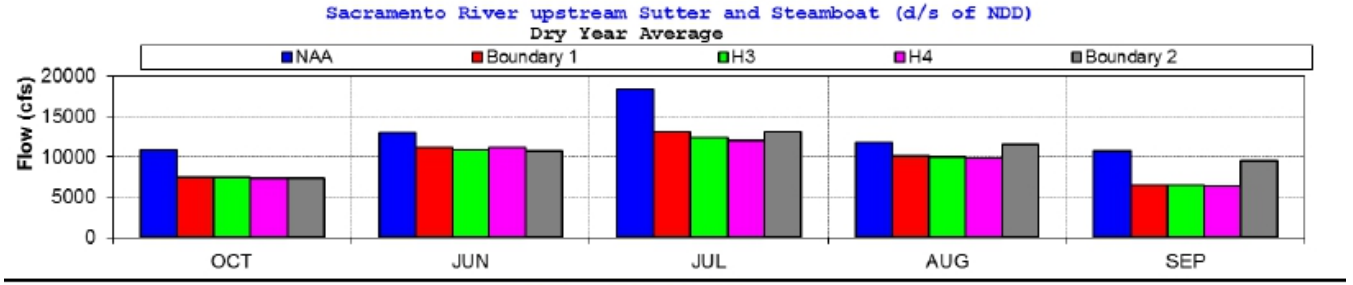
www.waterboards.ca.gov/waterrights/water_issues/programs/drought/analysis/docs/Demand_Database_2015-02-20.xlsx

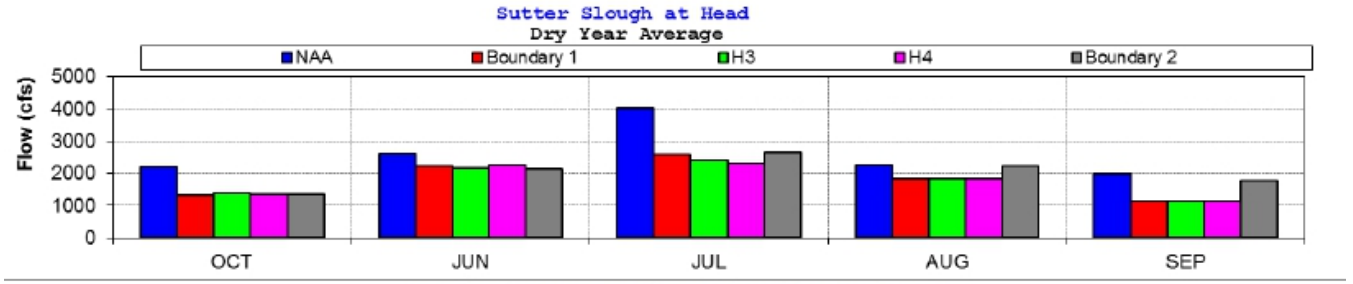

Layers
Cities
Counties
Major Roads
Hydrologic Regions
IRWM Planning regions
CA Indian Tribal Homelands and Trust La
Instream Flow Requirement locations
Wild & Scenic: State designation
Wild & Scenic: Federal designation
Planning Areas
Detailed Analysis Units (DAU)
Mountain Counties overlay area
Sacramento-San Joaquin Delta overlay
Suisun Marsh
DWR regional office boundaries
Major water conveyance
Water features
Water feature labels
Hydrogeologically Vulnerable Areas
Watersheds
B118 Groundwater basin/subbasin
Groundwater basin numbers
Groundwater subbasin numbers
California Water Plan Layered Map
File Format: PDF/Adobe Acrobat
Hydrogeologically Vulnerable Areas are where published studies show geologic conditions are more likely to allow surface contaminants to move to groundwater through percolation; for example: areas without an aquitard. Vulnerable areas not mapped, due to their extensiveness, are fractured rock where contaminants ...
www.water.ca.gov/.../docs/.../California_layered-online-map_10.pdf
http://www.water.ca.gov/waterplan/cwp/update2018/index.cfm
http://www.water.ca.gov/waterplan/docs/cwpu2013/Final/California_layered-online-map_10.pdf

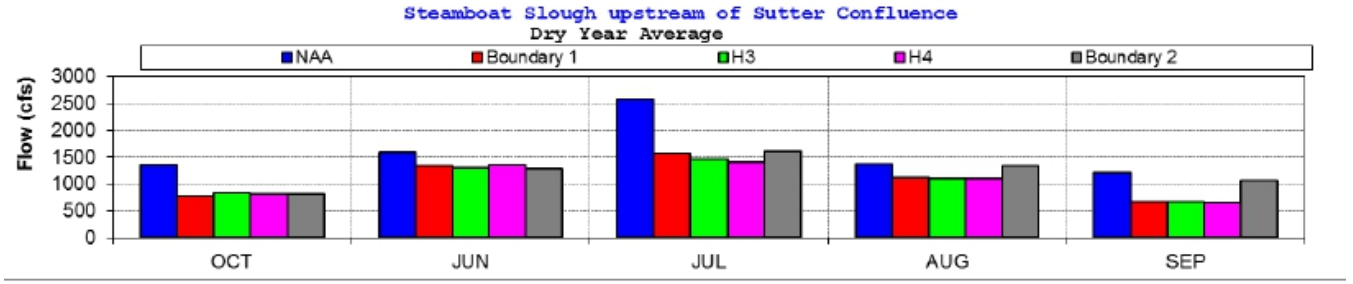
Dry Year Average (Sac Valley 40-30-30 Index) Current Climate

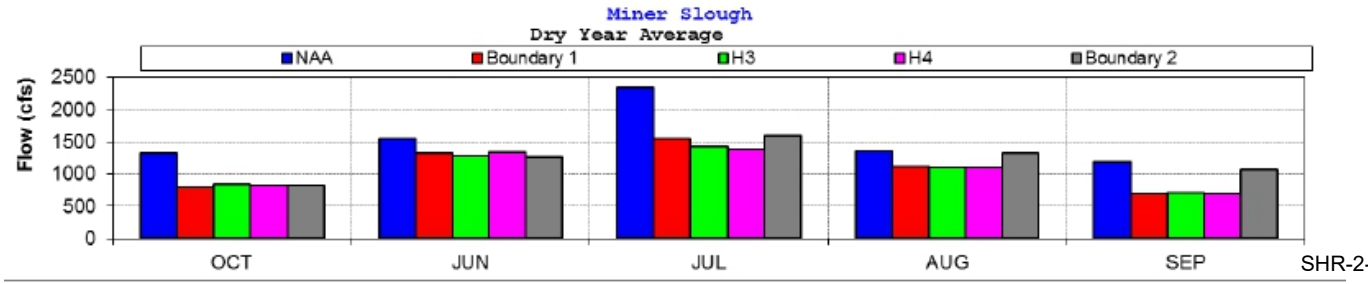
SHR-350

The information provided represents the monthly average flows at the locations you requested. The actual flows reflecting the effects of natural tide, could be significantly different from those shown in the figures.



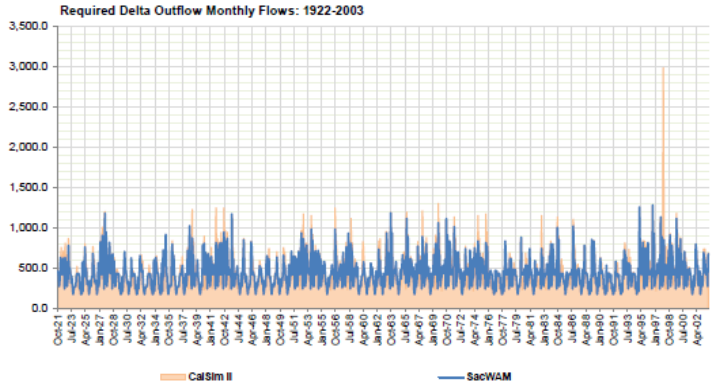


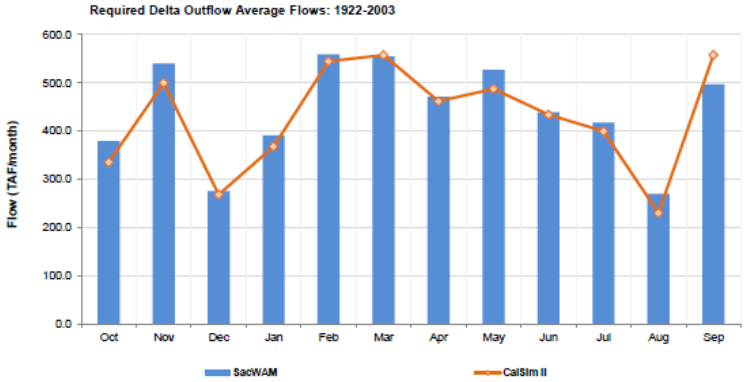


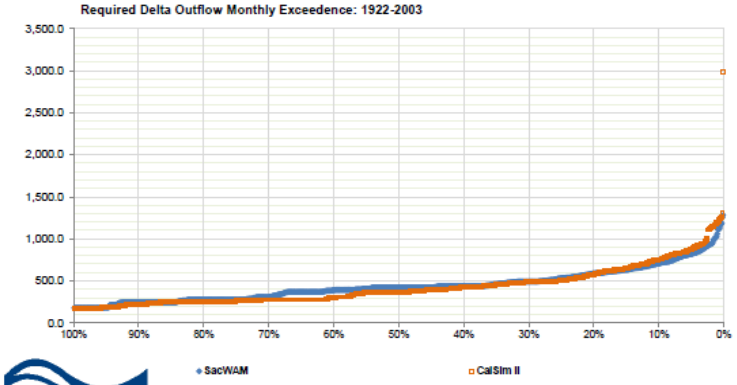


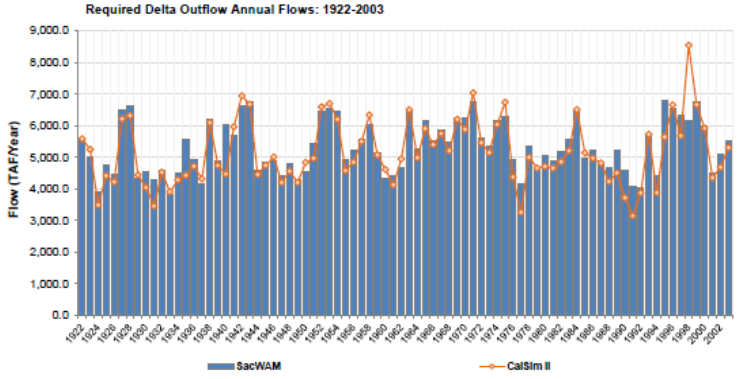
Required Delta Outflow

CalSim II 5,146 TAF/yr, SacWAM +3%









CalSim 3.0 Hydrology Development Project

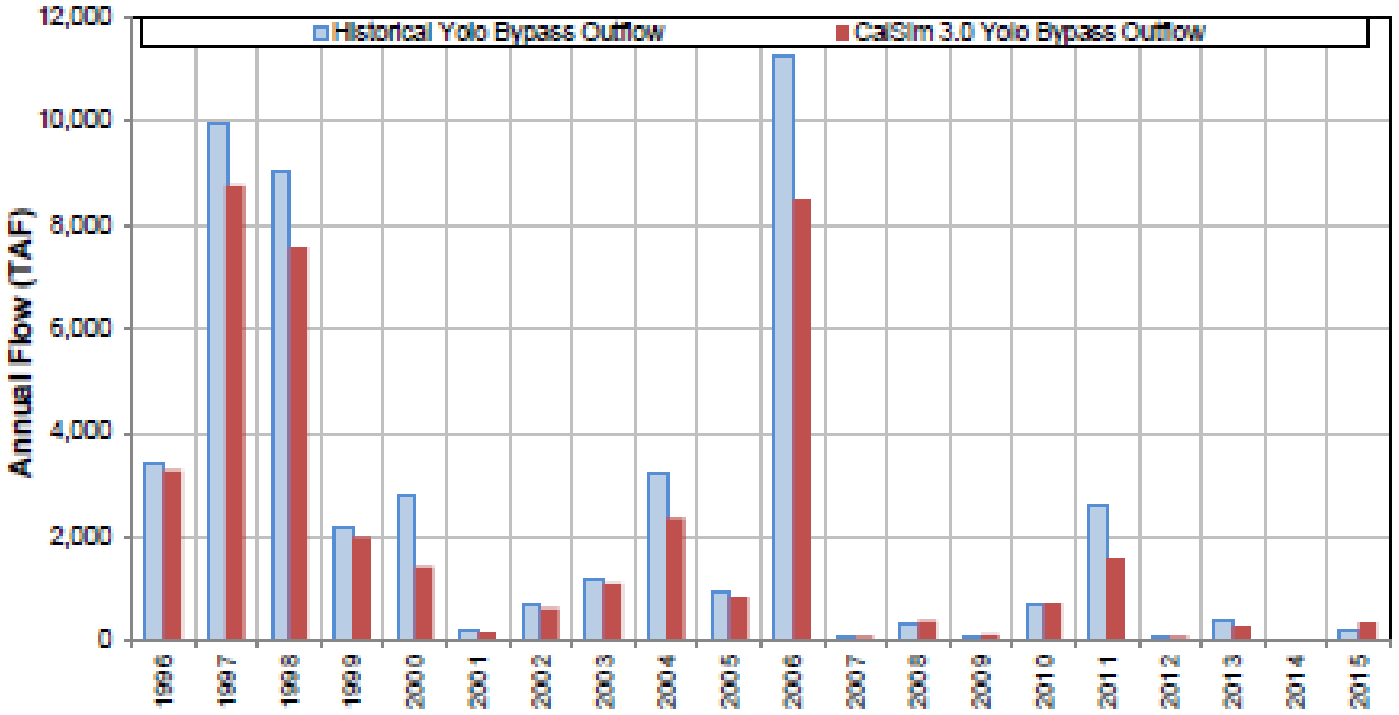


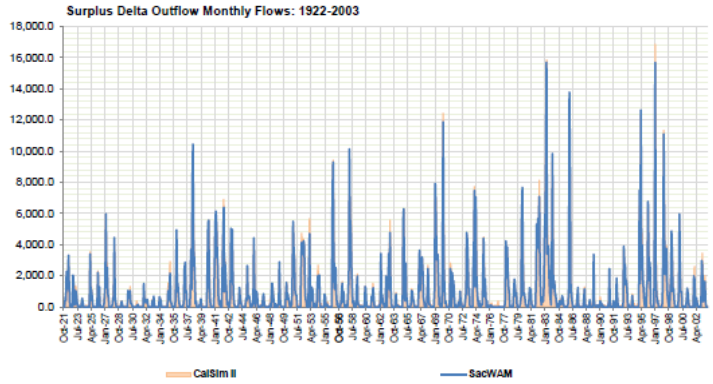
Figure 19-9. Historical and CalSim 3.0 Yolo Bypass Outflow – Annual Time series Water Years 1996-2015

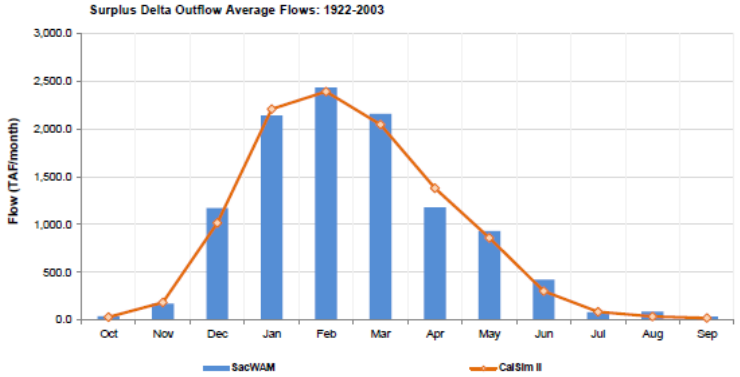
http://baydeltaoffice.water.ca.gov/modeling/hydrology/CalSim3/documentation/ReleaseReady112917/MainReport.pdf

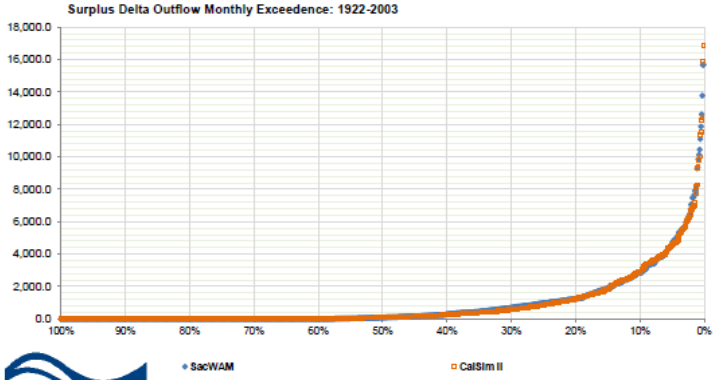
https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/sacwam/docs/20161004_presentation_1.pdf

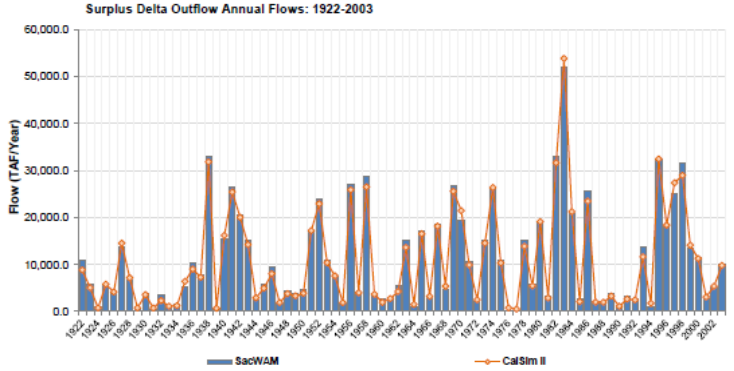
Surplus Delta Outflow

CalSim II 10,554 TAF/yr, SacWAM +4%



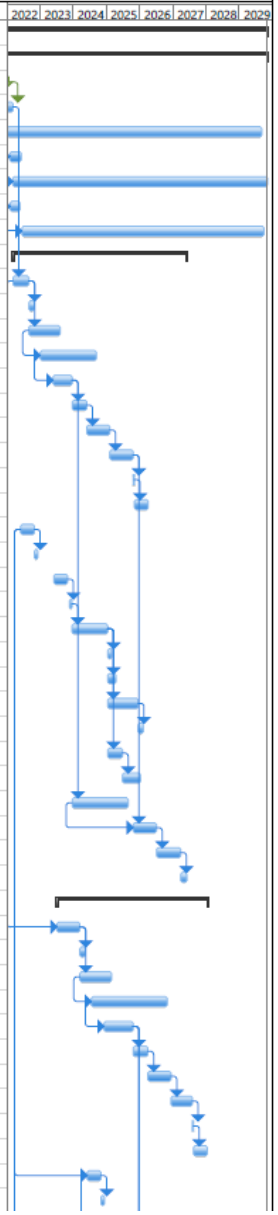


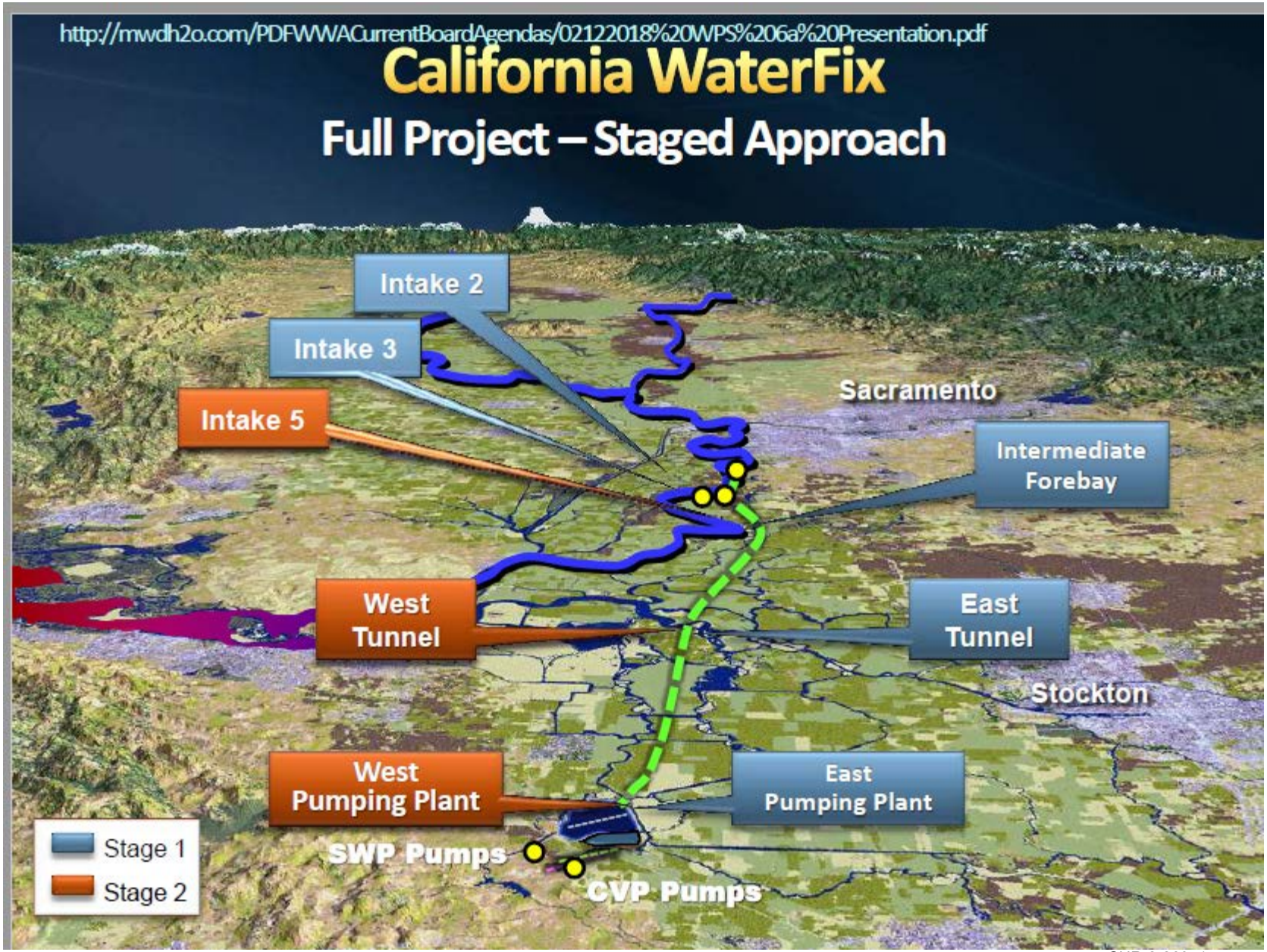




North Delta Diversion Construction Schedule

ID	Task Name	Duration	Start	Finish
1	**Intakes**	**2046 days?**	**Mon 1/3/22**	**Mon 11/5/29**
2	**General task**	**2046 days**	**Mon 1/3/22**	**Mon 11/5/29**
3	Intakes NTP	0 days	Mon 1/3/22	Mon 1/3/22
4	Contractor Mobilization	48 days	Mon 1/3/22	Wed 3/9/22
5	Contractor Staff	2000 days	Tue 1/4/22	Mon 9/3/29
6	Erect Temp contractor Facilities	90 days	Wed 2/2/22	Tue 6/7/22
7	Operate Temp Facilities	2000 days	Tue 3/8/22	Mon 11/5/29
8	Erect Batch Plant	76 days	Tue 2/8/22	Tue 5/24/22
9	Operate Batch Plant	1900 days	Thu 6/16/22	Wed 9/26/29
10	**Intake 5**	**1365 days**	**Thu 3/10/22**	**Wed 6/2/27**
11	Initial Site Work	124 days	Thu 3/10/22	Tue 8/30/22
12	Substation & Electrical Distribution	43 days	Wed 8/31/22	Fri 10/28/22
13	Construct Slurry Wall (Land side)	248 days	Wed 8/31/22	Fri 8/11/23
14	Construct Well Point dewatering	440 days	Wed 1/4/23	Tue 9/10/24
15	Remove peat and excavate subgrade	150 days	Wed 5/24/23	Tue 12/19/23
16	Improve soil	116 days	Wed 12/20/23	Wed 5/29/24
17	Consrut box conduits under new road	180 days	Thu 5/30/24	Wed 2/5/25
18	Construct new highway 160 slope	183 days	Thu 2/6/25	Mon 10/20/25
19	reroute traffic	10 days	Tue 10/21/25	Mon 11/3/25
20	Construct Diaphram Wall	109 days	Tue 11/4/25	Fri 4/3/26
21	Construct sheet pile coffer dam (in water window)	109 days	Wed 6/1/22	Mon 10/31/22
22	excavate/ dewater cofferdam	27 days	Tue 11/1/22	Wed 12/7/22
23	Drilled casing (in water window)	109 days	Thu 6/1/23	Tue 10/31/23
24	Pour tremmie concrete at intake	20 days	Tue 11/21/23	Mon 12/18/23
25	Construct intake structure	280 days	Tue 12/19/23	Mon 1/13/25
26	Intake 5:Gates	32 days	Tue 1/14/25	Wed 2/26/25
27	MEP	65 days	Tue 1/14/25	Mon 4/14/25
28	Fish Screens	240 days	Tue 1/14/25	Mon 12/15/25
29	Finish Out	40 days	Tue 12/16/25	Mon 2/9/26
30	Construct soil improvements	116 days	Tue 1/14/25	Tue 6/24/25
31	Construct remaining box conduits	142 days	Wed 6/25/25	Thu 1/8/26
32	Install dewatering systmem on land side	440 days	Wed 12/20/23	Tue 8/26/25
33	Construct Sediment basin soil improvements on	184 days	Tue 10/21/25	Fri 7/3/26
34	Construct landside facilities	190 days	Mon 7/6/26	Fri 3/26/27
35	Finish paving	48 days	Mon 3/29/27	Wed 6/2/27
36	**Intake 3**	**1187 days**	**Thu 7/6/23**	**Fri 1/21/28**
37	Initial Site Work	180 days	Thu 7/6/23	Wed 3/13/24
38	Substation & Electrical Distribution	43 days	Thu 3/14/24	Mon 5/13/24
39	Construct Slurry Wall (Land side)	248 days	Thu 3/14/24	Mon 2/24/25
40	Construct Well Point dewatering	596 days	Thu 7/18/24	Thu 10/29/26
41	Remove peat and excavate subgrade	228 days	Thu 12/5/24	Mon 10/20/25
42	Improve soil	116 days	Tue 10/21/25	Tue 3/31/26
43	Consrut box conduits under new road	182 days	Wed 4/1/26	Thu 12/10/26
44	Construct new highway 160 slope	167 days	Fri 12/11/26	Mon 8/2/27
45	reroute traffic	10 days	Tue 8/3/27	Mon 8/16/27
46	Construct Diaphram Wall	109 days	Tue 8/17/27	Fri 1/14/28
47	Construct sheet pile coffer dam (in water window)	109 days	Mon 6/3/24	Thu 10/31/24
48	excavate/ dewater cofferdam	27 days	Fri 11/1/24	Mon 12/9/24




http://mwdh2o.com/PDFWWACurrentBoardAgendas/02122018%20WPS%206a%20Presentation.pdf
California WaterFix
Full Project – Staged Approach
Intake 2
Intake 3
Intake 5
Sacramento
Intermediate Forebay
West Tunnel
East Tunnel
Stockton
West Pumping Plant
East Pumping Plant
SWP Pumps
CVP Pumps
Stage 1
Stage 2

CA WaterFix Water Supply Analysis

Summary of Changes with Stage 1 -- 6,000 cfs [1]

- 6,000 cfs facility protects approximately 0.9 MAF
- Stage 1 – based on current information, SWP contractors will be the primary funder and will receive commensurate water supply benefit
- SWP deliveries are roughly unchanged between 9,000 cfs and 6,000 cfs (approximately 2.8 maf)

(1) Preliminary modeling analysis based on 6,000 cfs north of Delta H3+ modeling criteria

https://www.californiawaterfix.com/staged-project-implementation/

CALIFORNIA WATERFIX
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PROJECT IMPLEMENTATION

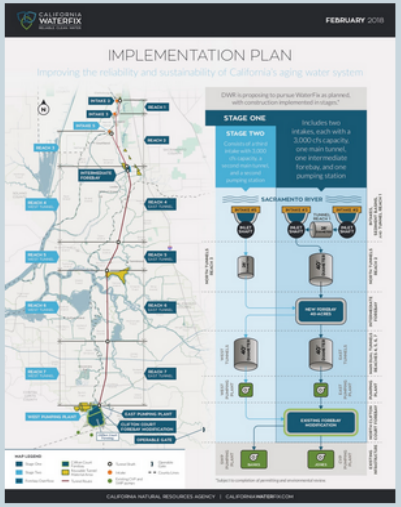
DWR is proposing to pursue WaterFix as planned, but also explore an option to stage implementation.* This approach is directly responsive to the stated needs of the participating agencies, and would align the project with current funding commitments. It would also allow us to take significant steps toward improving environmental conditions. Below are links to several supporting items:

MEMO FROM DWR DIRECTOR TO PUBLIC WATER AGENCIES

Q & A

PRESS STATEMENT

PRELIMINARY MODELING DATA

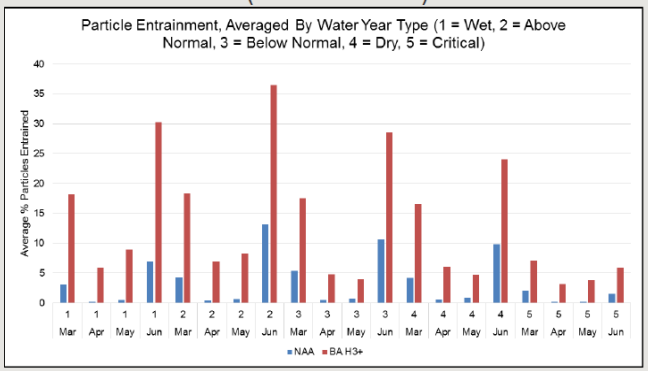


Download the Project Map

*Subject to completion of permitting and environmental review.

DWR-1092

ENTRAINMENT OF PARTICLES RELEASED AT SACRAMENTO (DSM2-PTM)



The above plot is of H3+ modeling DSM2-PTM results from the CWF BA, and summarized by ICF for this testimony, showing particles entrained at the NDD, south Delta export facilities, and the North Bay Aqueduct comparing NAA to BA H3+ operations, to inform potential Striped Bass entrainment

DWR - 1029

NDD SCREENING AND HABITAT RESTORATION MITIGATING POTENTIAL RESTRICTED ACCESS TO UPSTREAM AREAS

- **NDD fish screens design**
  - 1.75-mm opening (prevents entrainment of smelts > 21-22 mm)
  - 0.2 ft/s approach velocity (USFWS-recommended criterion) to limit screen contact injury potential
  - Suite of pre- and post-construction studies
- **NDD upstream of main smelt range**
- **Potential passage restriction → ~1,750 acres mitigation**

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DWR 1022 and DWR 1035 reference map:
Why is velocity running past the fish
Screens so important?

What is the purpose of the fish screens?

During those pulse flows the velocity
Is substantially higher so how do the
Fish screens function during those
Times?

Has DWR and USBR applied for fish
Take permits for operation of the
Fish screens?

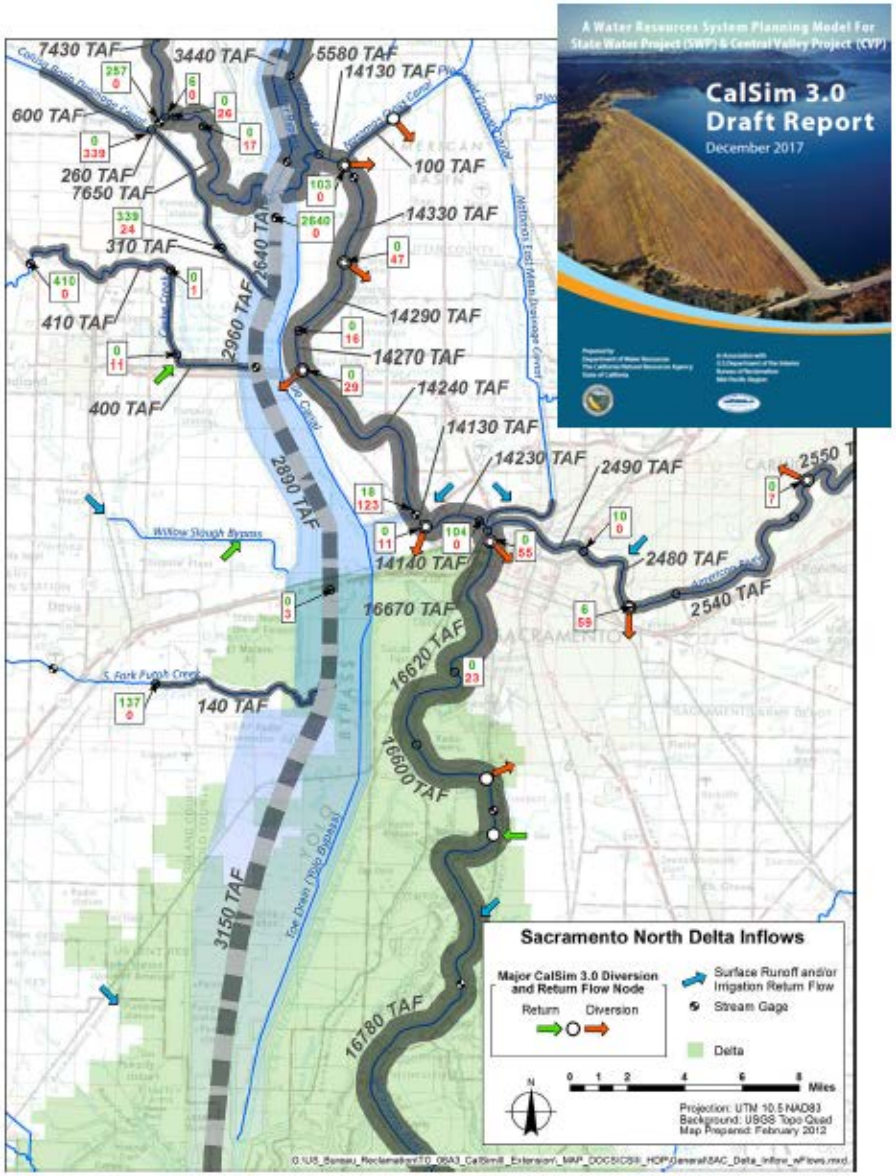

Figure 19-2. Historical Average Annual Inflows to the Delta for Water Year 1990-2009

http://mwdh2o.com/PDFWWACurrentBoardAgendas/02122018%20WPS%206d%20Presentation.pdf

State Water Project

GOAL:
Stabilize SWP supplies

2040 TARGET:
1.21 MAF average

2017 Supplies: 1.75 MAF