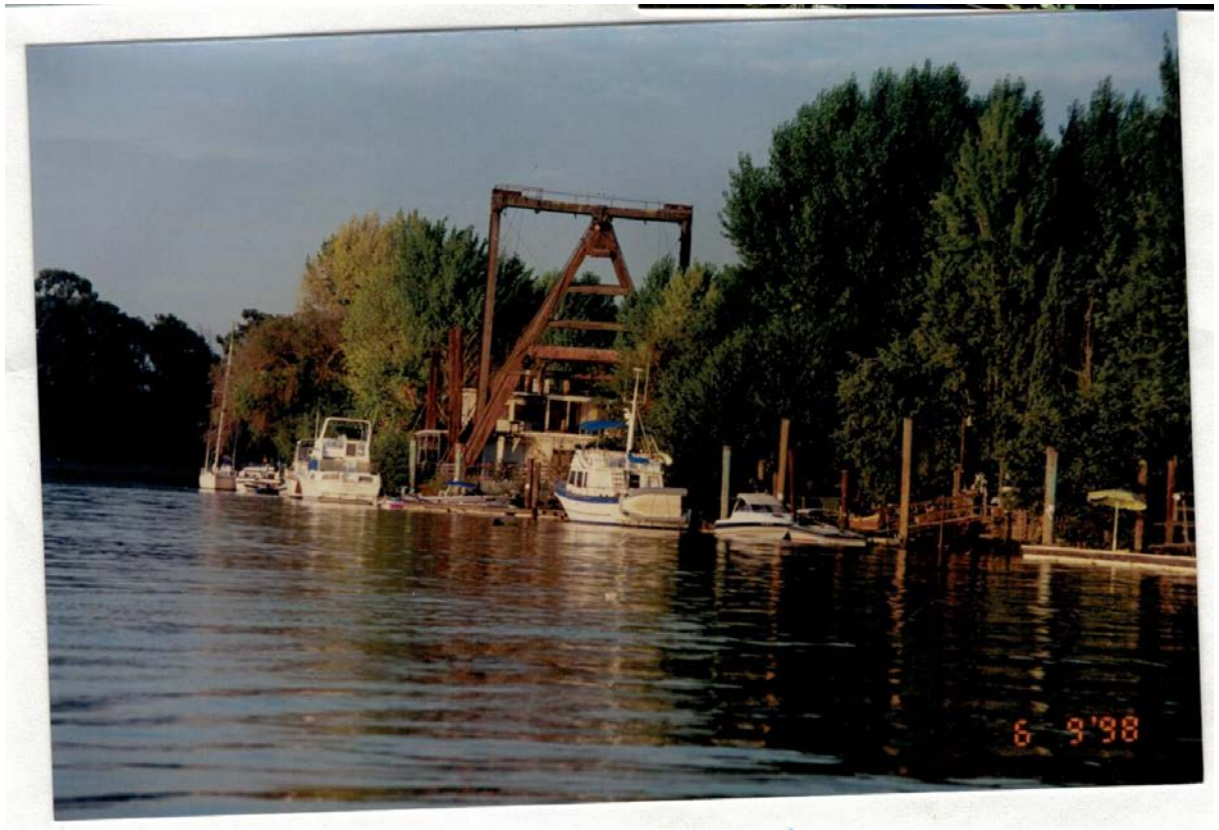
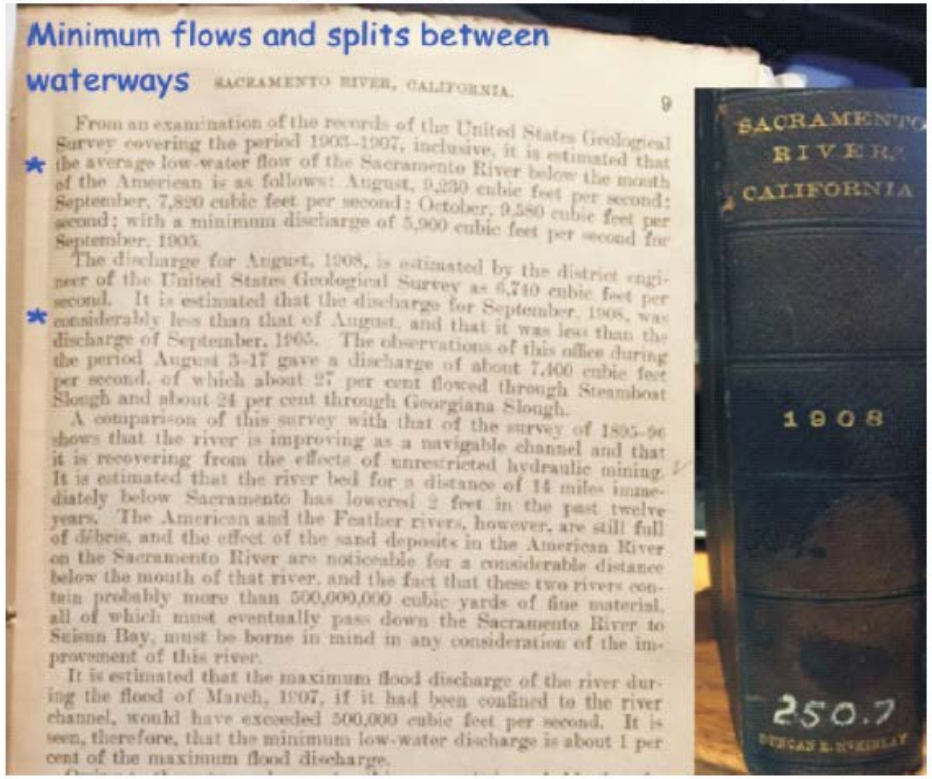
SHR-2- 264
Questions regarding impacts to recreation
From construction and operation of
Proposed tunnels and intakes



SHR-6

1908 Sacramento River, California official survey for US Congress and report of findings compiled by USGS from 1903-1907: At the driest time of year of a dry year, the minimum Sacramento River constant "average low water" outflow is more than 7,400 cfs, with 27% flow into Steamboat Slough (1,998) and 24% through Georgiana Slough.
Alternate flow observation: 7,377 cfs at Courtland, with 1,802 cfs split between Steamboat and Sutter Sloughs.
(Note that fresh water < 1 ppt for the entire reach of the Sacramento River)



Book of maps is available for view upon request by contacting N. Suard, Esq.
All maps and descriptions were also professionally scanned and uploaded to the following locations for easy access to viewers:
Https://archive.org/details/MapsCADelta (Sacramento River and Steamboat Slough)
Https://archive.org/search.php?query=1908%20san%20joaquin%20river%20survey

SHR-2-212.pdf 6 / 12

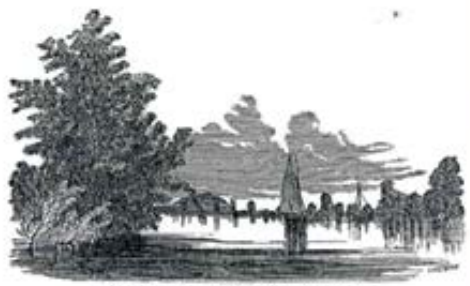
Sketches and Steamboat Slough description from:

***Scenes of Wonder and Curiosity in California* (1862) by James M. Hutchings**

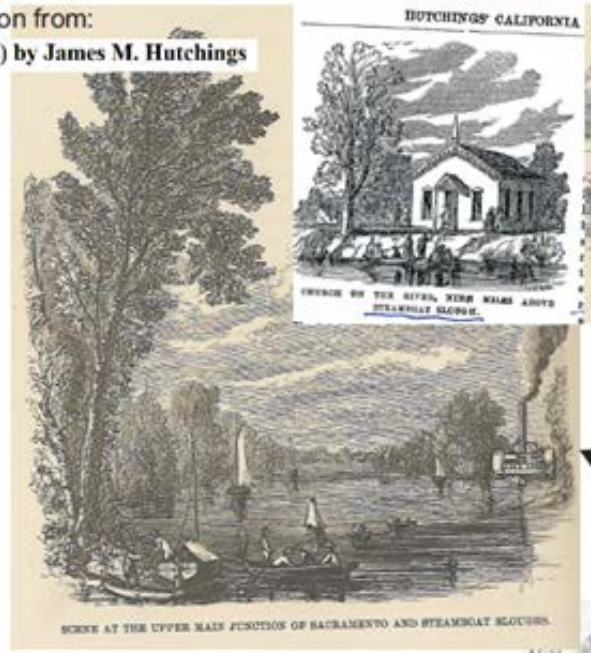
STEAMBOAT SLOUGH.

A short distance above the Hog's Back we arrived at the junction of Sutter Slough with Steamboat Slough, and there enter the narrowest part of the stream. As this slough is deep and navigable, and moreover is about nine miles nearer for sailing throughthan by the main, or "old river," nearly all vessels upward bound take this route; while those on the downward trip (excepting steamboats) generally take the main river, inasmuch as the wind is more favorable for their return to San Francisco.

As we pass through Steamboat Slough, we are impressed with the narrowness of the channel for such large vessels, the luxuriant foliage of the trees that adorn its banks, and the snug little cabins,nearly shut out from sight by wild vines and trees, that are seen at intervals on its margin. Indeed the scenery, as you steam up or down the river, is picturesque in no slight degree. Here and there, as you turn with the sudden windings of the stream, you room upon the little boats of fishermen, and sloops, with their sails furled like the folded wings of a sea-bird, waiting for the wind. The improvements of the husbandman are everywhere seen along the shorecottages half hidden among the dropping branches of the sycamores, outhouses, haystacks, orchards, and gardenswith their product of squashes and cabbages piled in huge heaps; and here and there a school-house or church gives a cheerful domestic character to the scene. The landscape is diversified by the gnarled oaks, with vines clinging about them for support, and their branches covered with dark masses of mistletoe.



VIEW FIVE MILES ABOVE STEAMBOAT SLOUGH.



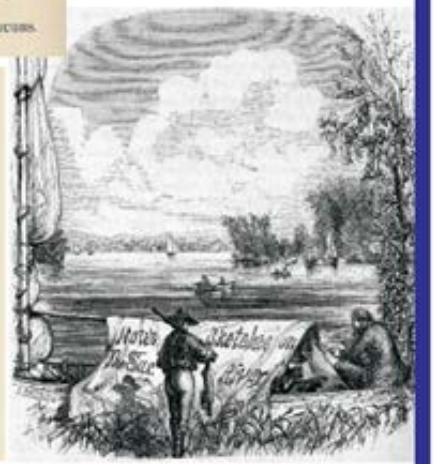
SCENE AT THE UPPER MAIN JUNCTION OF SACRAMENTO AND STEAMBOAT SLOUGHS.

HUTCHINGS' CALIFORNIA

CHURCH ON THE RIVER, NINE MILES ABOVE STEAMBOAT SLOUGH.

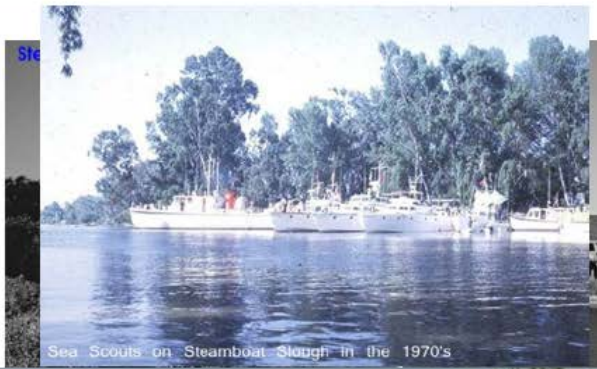
Boat exiting north end
Of Steamboat Slough

SALMON FISHING, PAYING OUT THE SEINE.



SHR-2-231

Steamboat Slough & Ryer Island scenes 1940s to 1989's

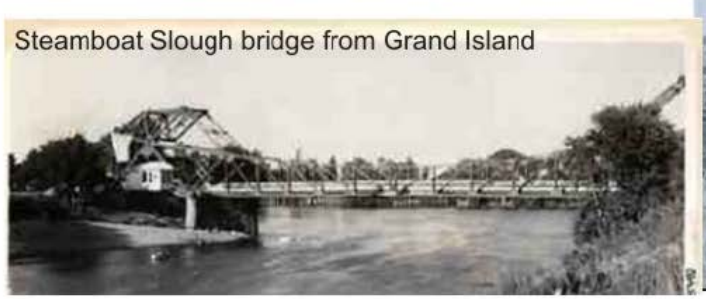


Sea Scouts on Steamboat Slough in the 1970's

Snug Harbor in the 1980's

SPARAGUS KING Ryers Island Sacramento River (Italian-Americans

Steamboat Slough bridge from Grand Island



SHR-2-233-1

April 27, 2003

San Francisco Chronicle B15

Ocean views and other wonders of Bay Area campsites

Tom Stienstra
Outdoors

Can you imagine waking up in your sleeping bag, poking your head out your tent and being greeted by a spectacular waterfront beach, the water lapping gently at the shore.

Then hearing a light scratching noise, quickly turning to scan the surrounding landscape, and spotting a dozen elk just 40 yards off, pawing at the ground, nibbling at fresh greenery.

Can you imagine doing this at a campsite in the Bay Area?

This is no dream. There's a place where fantasies like this come true. This scene can happen virtually any morning at the campsites along the west shore of Tomales Bay at Point Reyes National Seashore, where there are a series of boat-in camps set along sandy coves, ideal to reach by kayak or canoe.

Of the 50 campgrounds in the Bay Area, this is the best of them. Other camps feature redwoods forests, backpacking trail sites, ocean bluffs, stunning views, launch points for boating, and hidden spots within eyeshot of San Francisco. In most cases, reservations are required.

For the coming spring and summer season, here are my ratings:

1. Tomales Bay boat-in, Point Reyes National Seashore: There are 20 dispersed campsites nestled along the shore of Tomales Bay, from Tomales Point on south to just north of Indian Beach (at Tomales Bay State Park). This setting is gorgeous and quiet, and with Inverness Ridge to the west, sheltered from coastal winds. Opportunities for sea kayaking and canoeing are unparalleled in the region. Boaters must bring portable toilets. (415) 663-8054.

2. Kirby Cove, Marin Headlands: This is a drop-dead beautiful campsite set amid a small grove of eucalyptus and cypress. It is small and hidden, with space for just four tents, with a jaw-dropping view of the Golden Gate Bridge, San Francisco Headlands and

7. Butano walk-in, Butano State Park: The reward here is a campsite secluded in dense redwoods in the coastal Santa Cruz Mountains, set on the threshold of excellent hiking. Very short walks are required to the best sites. (800) 444-7275.

8. Steep Ravine, Mount Tamalpais State Park: Ten primitive cabins are set on a bluff at Rocky Point, overlooking the ocean. That is why this is the most popular campsite in California, with reservations cleaned out within 10 minutes on the first day of each month. An additional half dozen walk-in sites are exposed to coastal winds. (800) 444-7275.

9. Del Valle Regional Park: This is the best drive-to family campground in the Bay Area. The park features a recreation lake, boat ramp, boat rentals, swimming, fishing, biking and hiking and a wilderness trailhead. (510) 562-2267.

10. Snug Harbor, Sacramento River Delta: The best privately operated park by far in the Bay Area. The place sparkles and features park model cabins, RV and tent campsites, boat launch, docks, and waterfront sites, with boat rentals available nearby. (916) 775-1455.

SNUG HARBOR!

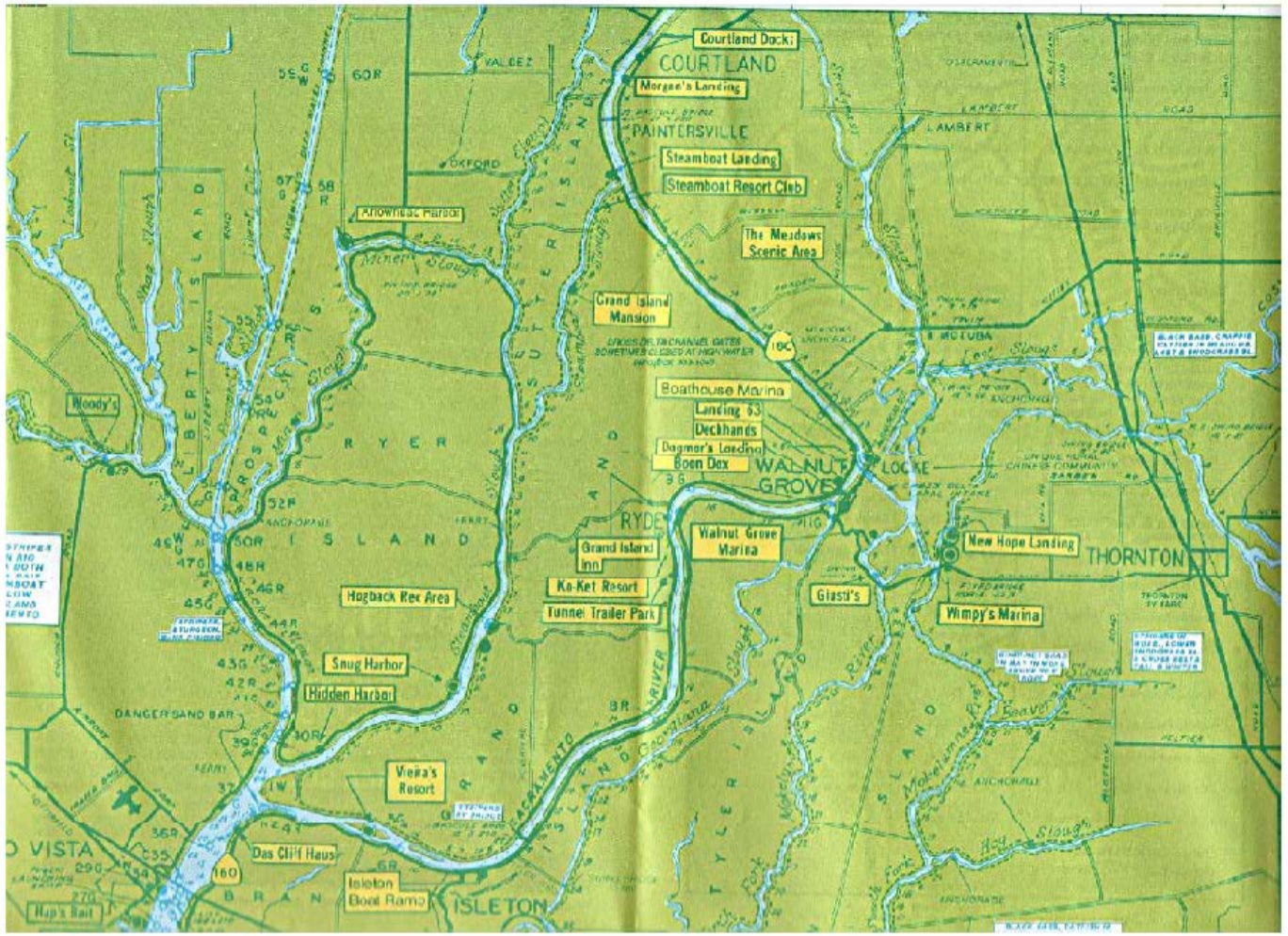
Others Bay Area campgrounds of significant note:

▶ **Marin:** Sky Camp, Coast Camp and Glen Camp at Point Reyes National Seashore, (415) 663-8054; Samu-

SHR-264 3

SHR-2-249(1).pdf 5 / 33

Portion of 2003 Hal Schell Map of the Delta, used as reference map



SHR-2-21F.pdf

Recreation Visitor and User Days. The Delta's proximity to the Bay Area and Sacramento region and its diversity of recreation settings and experiences makes it a popular recreation destination. Approximately 7 million people currently visit the Delta for recreation annually.[v] By 2020, visitation is forecasted to reach 8 million visitor days.[vi] According to a 1996 survey of recreation in the Delta conducted by the Department of Parks and Recreation (DPR), 23.5% of registered boat owners and 23.0% of licensed anglers in California recreated in the Delta in 1995.[vii] The majority of Delta boaters and anglers come from nearby counties, but a sizable fraction come from much further distances. In 1995 Los Angeles County alone accounted for 7.3% and 3.6% of Delta boater and angler user days, respectively. Table 1 lists the top 10 counties of origin for Delta boating and fishing recreation.[viii]

Table 1: Top 10 Counties of Origin for Delta Boating and Fishing Recreation

RANK	BOATERS	PERCENT	RANK	ANGLERS	PERCENT
1	Contra Costa	12.5	1	Sacramento	10.7
2	Sacramento	9.9	2	San Joaquin	10.0
3	Alameda	8.6	3	Alameda	8.0
4	Santa Clara	7.9	4	Santa Clara	8.0
5	Los Angeles	7.3	5	Solano	7.6
6	San Joaquin	6.9	6	San Mateo	3.8
7	Stanislaus	3.7	7	Placer	3.6
8	Marin	3.4	8	Lost Angeles	3.6
9	Solano	3.1	9	Stanislaus	3.1
10	San Mateo	3.0	10	Sonoma	2.0
	Subtotal	66.3		Subtotal	60.4

Context Memorandum: Recreation

Iteration 1: June 12, 2007

People recreating in the Delta typically engage in more than one recreational activity. In recreational surveying, a user-day is counted for each activity a visitor participates in over the course of a day. Thus if a person visiting the Delta spent part of the day fishing and part of the day pleasure cruising, that would be counted as two user days of recreational activity. Surveys show that the Delta currently supports over 12 million user days of recreational activity annually.[ix] Table 2 shows the estimated number of user days occurring in the Delta, as derived from surveys of boaters and anglers.[x]

Table 2: Estimated Delta Boating and Fishing User Days

ACTIVITY	ESTIMATED NO. OF GROUPS	AVG. NO. OF DAYS PER YEAR	TOTAL GROUP DAYS	AVG. NO. OF PERSONS PER TRIP	ESTIMATED TOTAL USER DAYS PER YEAR
Boating	186,000	26.1	4,854,600	2.97	14,418,162
Fishing	169,200	24.0	4,060800	2.91	11,816,928

*User day estimates for boating and fishing cannot be added together because this would result in double counting. Double counting would occur because most boaters also fished and many anglers also boated.

2006: 14 million user days per year, over one billion in recreation dollars added by Delta, supporting 14,000 jobs Delta-related In the state. Study does not appear to include the recreation uses by the estimated 500,000 persons living within the legal Delta region, as the survey was focused on persons visiting the Delta from out of area (SHR 2-22 refers to 12 million recreation users in the Delta per year SHR 2-26 is another report on Fishing and boating))

SHR-2-21F.pdf

Context Memorandum: Recreation

Iteration 1: June 12, 2007

dollars (adjusted to 2006 dollars).[xix] Delta recreation also benefits the rest of California's economy. In addition to money spent inside the Delta, the DPR survey found that Delta boaters and anglers spent on average $126 and $163, respectively, per trip on businesses outside the Delta. Estimated recreation expenditures in 1995 by Delta boaters and anglers benefiting businesses located outside the Delta were in excess of 270 million. Total Delta boater and angler recreation expenditures benefiting California businesses were estimated to exceed half a billion dollars in 1995. Table 6 provides a breakdown of Delta recreation expenditures estimated by the DPR survey.

Table 6: Delta Recreation Expenditures in 1995

Activity / Expenditure	Average Expenditure Per Trip (2006 $)		Estimated Expenditures for All Trips in 1995 (2006$)		Total Annual (2006 $)
	Inside Delta	Outside Delta	Inside Delta	Outside Delta	
	Dollars	Dollars	1000 Dollars	1000 Dollars	1000 Dollars
Boating					
Lodging	31.55	16.62	56,306	29,660	85,966
Food	50.25	31.71	89,690	56,588	146,278
Supplies	68.26	53.08	121,824	94,731	216,555
Recreation	32.83	24.90	58,591	44,433	103,024
Total Boating	**182.89**	**126.31**	**326,411**	**225,412**	**551,823**
Fishing					
Lodging	39.76	43.23	66,499	72,306	138,805
Food	39.27	37.24	65,682	62,282	127,964
Supplies	41.07	54.30	68,685	90,828	159,513
Recreation	26.70	27.97	44,664	46,783	91,447
Total Fishing	**146.80**	**162.74**	**245,530**	**272,199**	**517,729**

*Note that total expenditures for boating and fishing cannot be added together. Adding them would result in double counting because many registered boaters are licensed anglers and vice-versa. The total annual expenditure estimates therefore provide a lower-bound estimate of recreation spending in the Delta.

An economic impact analysis using the DPR survey data done by UC Berkeley economists in 1998 concluded that Delta recreation had a sizeable impact on the Delta economy.[xx] Using regional economic models of the Delta and California, this study estimated that Delta recreation contributed $587 million (2006 dollars) to the Delta economy in 1995 and supported approximately 8,000 jobs in the Delta. These figures represent about 1.7% of income and 3.2% of employment in the Delta in 1995.

For the state as a whole Delta recreation contributed just over one billion dollars (2006 dollars) to the California economy and supported approximately 14,000 jobs.

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Context Memorandum: Recreation

Iteration 1: June 12, 2007

Sacramento and Yolo Counties, and the FWS Stone Lakes Refuge. There are also public recreation facilities operated by the East Bay Regional Park District, San Joaquin County, and DWR, as well as a number of cities, including Antioch, Pittsburg, Rio Vista, West Sacramento, Sacramento, and Stockton.

Figure 1 shows the location of public and private recreation locations in the Delta.

Table 3: Favorite Recreation Activities Among Delta Boaters and Anglers

MAJOR BOATING AND FISHING ACTIVITIES

RANK	BOATERS	PERCENT	RANK	ANGLERS	PERCENT
1	Fishing from boat	77	1	Fishing from boat	88
2	Cruising	76	2	Fishing from shore	74
3	Swimming from boat	71	3	Fishing in tournament	14
4	Water skiing	61			
5	Sleeping in boat	49			
6	Sailing	15			
7	Hunting from boat	5			

TOP TEN ACTIVITIES AFTER BOATING AND FISHING

RANK	BOATERS	PERCENT	RANK	ANGLERS	PERCENT
1	Sightseeing	45	1	Sightseeing	52
2	Viewing wildlife	41	2	Boating	49
3	Fishing from shore	40	3	Viewing wildlife	49
4	Picnicking	34	4	Swimming	40
5	Hiking	32	5	Hiking	39
6	Swimming from shore	30	6	Picnicking	37
7	Attend special events	28	7	Nature photography	25
8	Nature photography	21	8	Attend special events	25
9	RV camping	20	9	RV camping	23
10	Visit historical/cultural sites	18	10	Visit historical/cultural sites	23

DWR testimony estimates impacts to Boating recreation but what about All the other recreation activities?

SHR-2-23

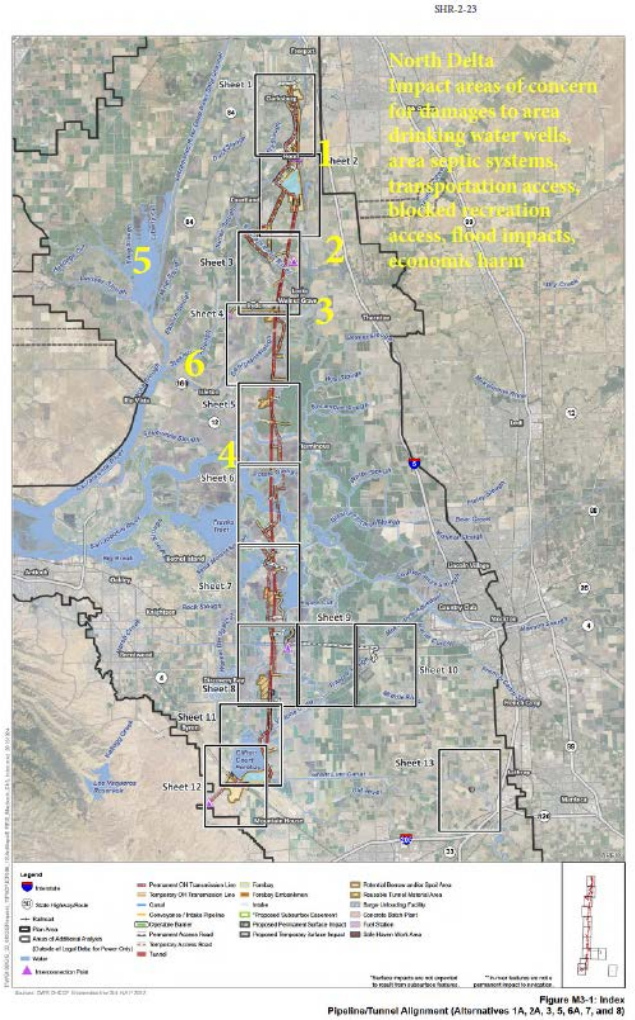


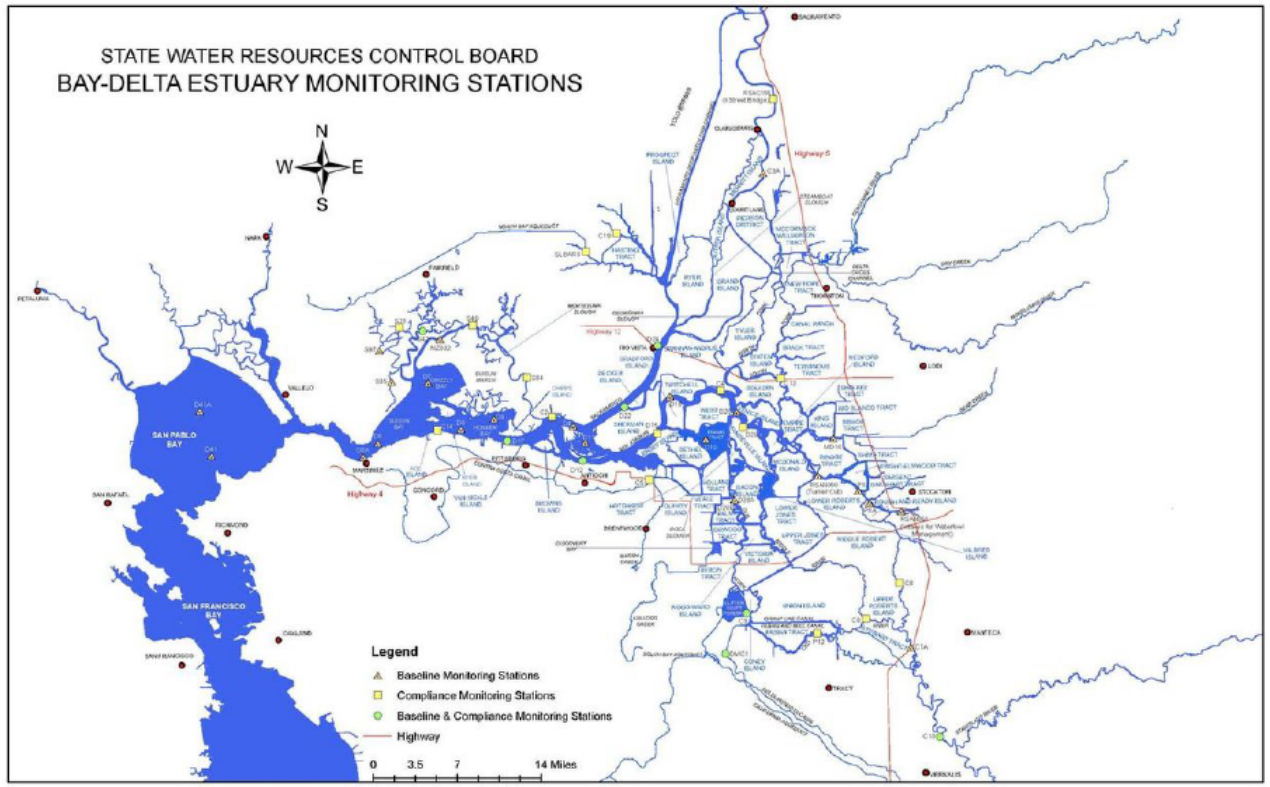
Figure M3-1: Index
Pipeline/Tunnel Alignment (Alternatives 1A, 2A, 3, 5, 6A, 7, and 8)

Add to the above biking, farm foraging and wine tasting!

3.3 Environmental Setting

SHR-2-102.pdf

Figure 1 is a map of the Bay-Delta Estuary that was included in the 2006 Bay-Delta Plan. The map depicts the location of monitoring stations used to collect baseline water quality data for the Bay-Delta Estuary and stations used to monitor compliance with water quality objectives set forth in the Bay-Delta Plan.



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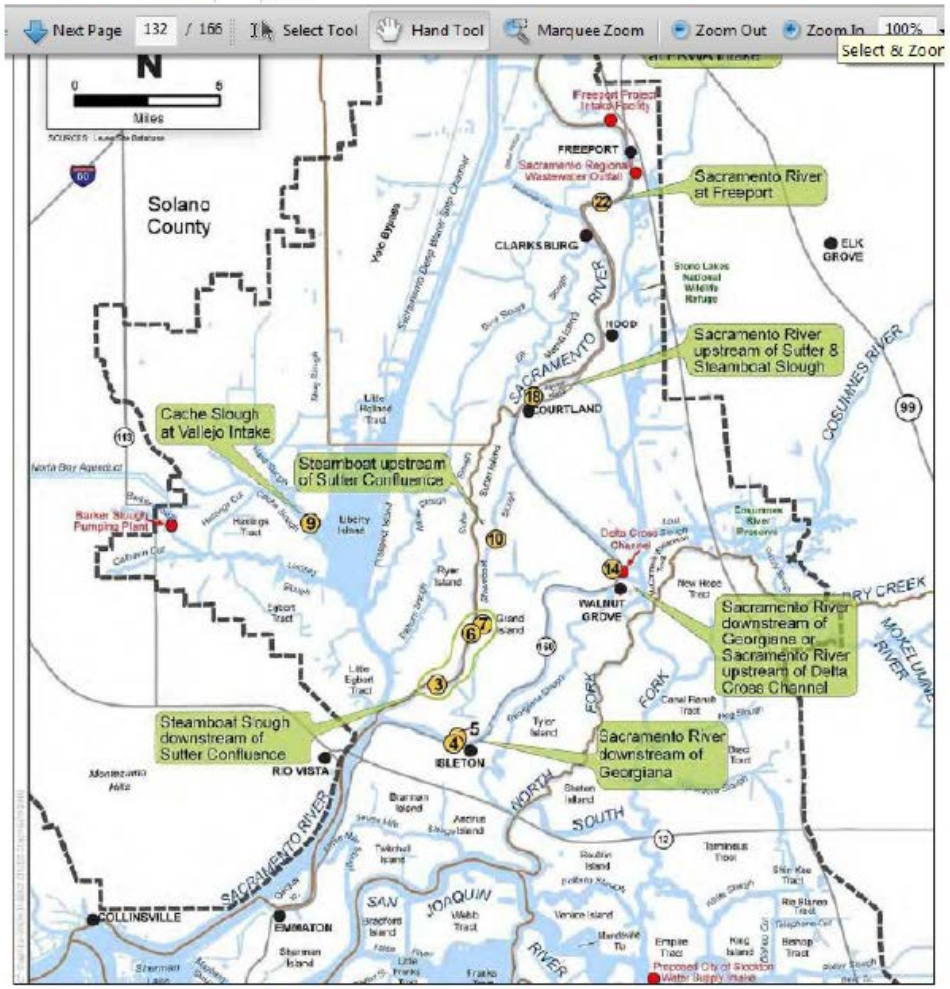

Figure 5C.4-27. Bench Habitat Analysis Sites

10-sediment insertion and bench test resulted in raising bed of waterway
6,7 Large trees placed in waterway near banks to capture sediment & reduce waterway navigation and use in this area
3 bench built up and planted with tules but was infested with egeria densa which is not suitable for salmonids. Also causes flood control issues as bench reduces water outflow in high flow times.

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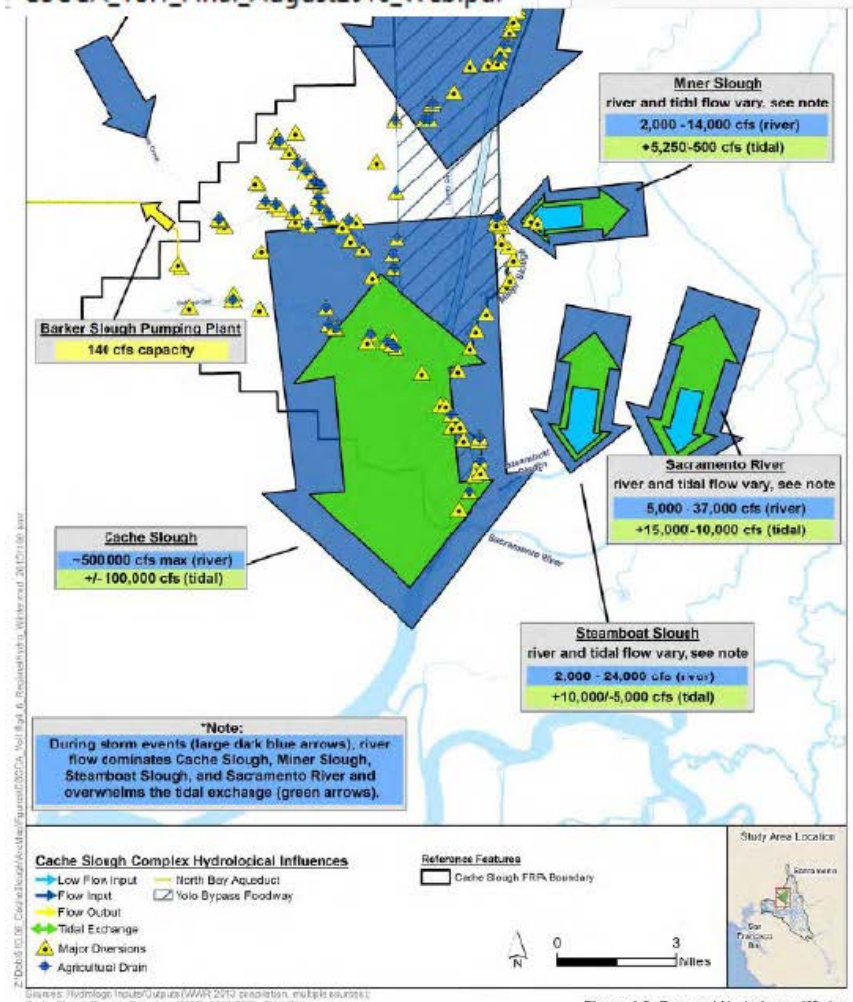
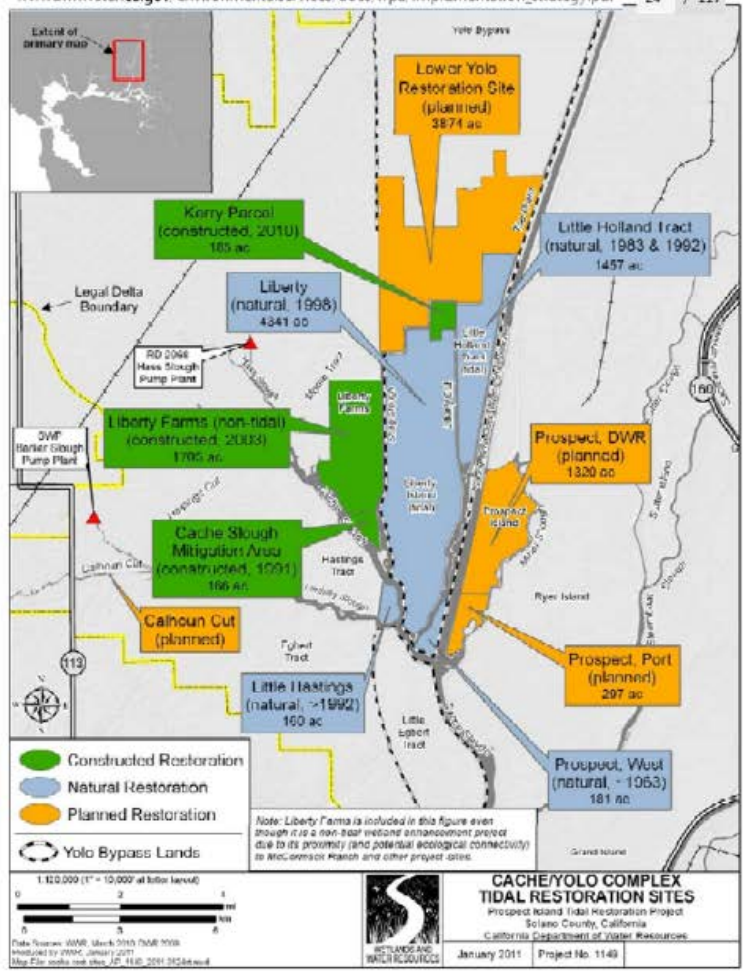


Figure 4-6: Regional Hydrology - Winter
Cache Slough Complex Conservation Assessment

www.dwr.water.ca.gov/environmentalservices/docs/frpa/implementation_strategy.pdf 24 / 117



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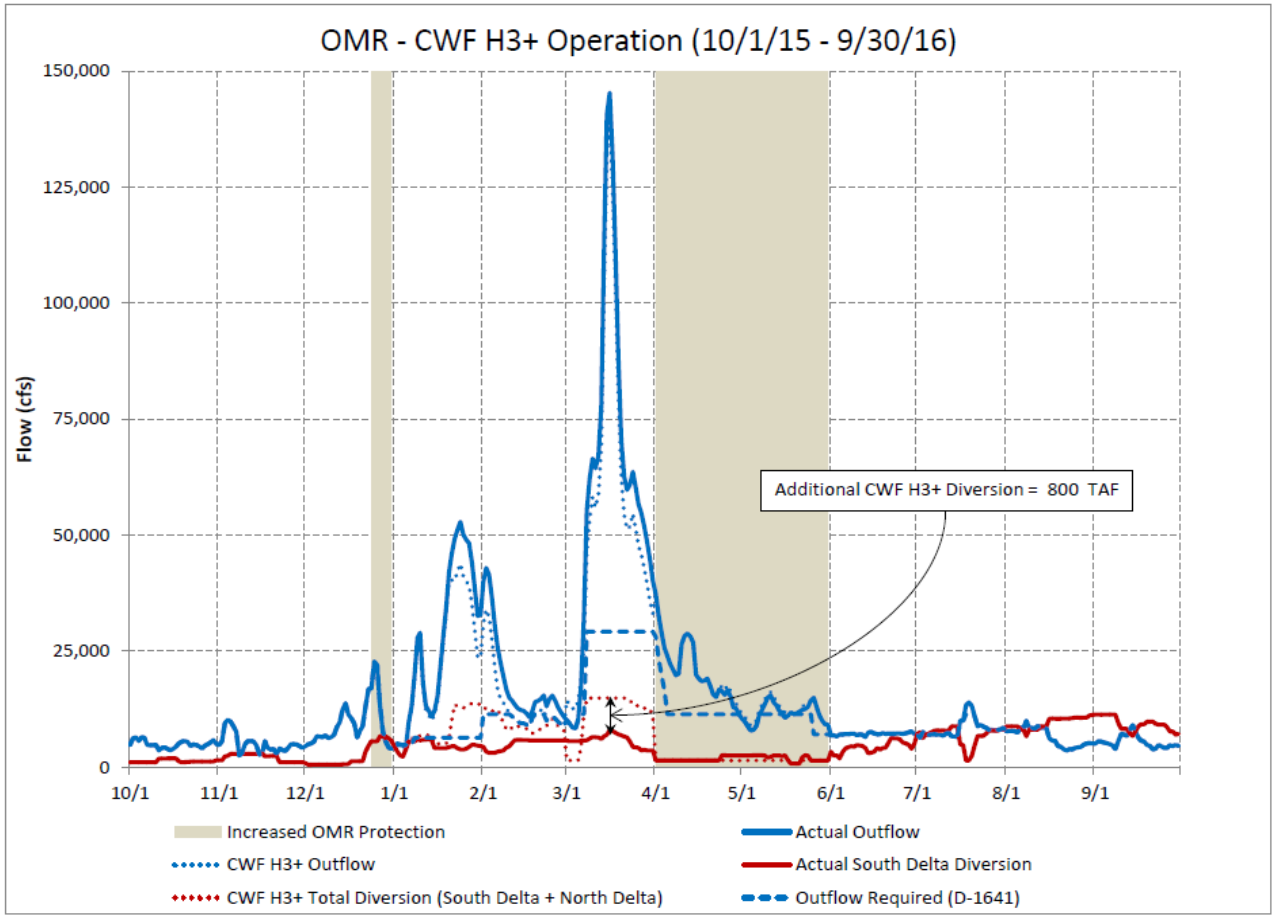


CWF H3+ Operations Criteria

The Table included below summarizes the new and existing water operations criteria for CWF H3+ operational scenario adopted in the July 2017 CWF Certified Final EIR (SWRCB-109, SWRCB-108). This information is also found within Table 3.3-1 located in Revised BA (DWR-1142), Table 3.3-1 of NMFS CWF BO Appendix A2 (SWRCB-106), and Table 6.1-2 in the USFWS CWF BO (SWRCB-105).

The exact definition of the CWF H3+ spring outflow criteria is provided in the Section 5.3.2.3.2 *Effects of Spring Outflow* of the CWF ITP application (DWR-1036 page 5-28). The Table below reflects the CWF H3+ spring outflow criteria that was proposed, modeled, adopted by DWR in the Certified Final EIR, and included in the NMFS CWF BO and USFWS CWF BO.

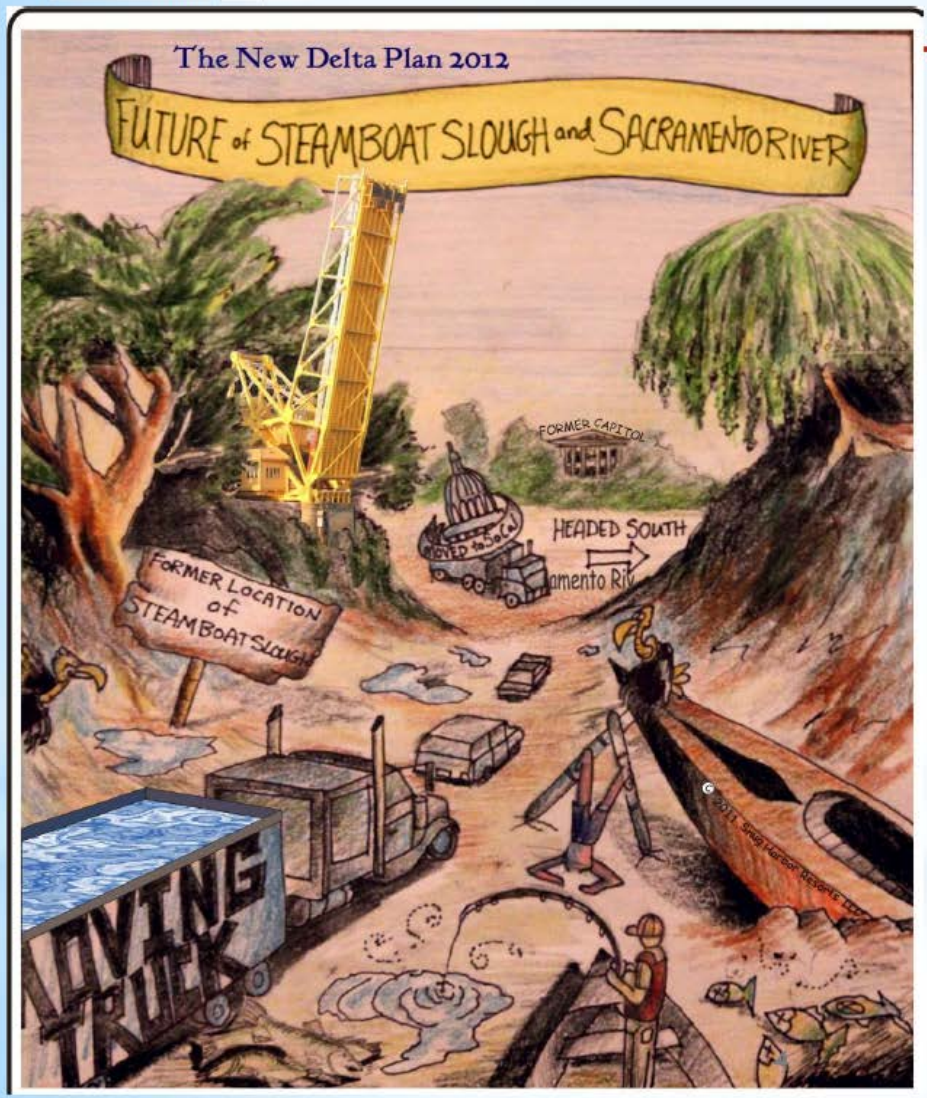
Parameter	Criteria	Source of the Criteria
New Criteria Included in the Proposed Action		
North Delta bypass flows [28]	• Bypass Flow Criteria (specifies bypass flow required to remain downstream of the North Delta intakes): o October, November: Minimum flow of 7,000 cfs required in river after diverting at the North Delta intakes. o December through June: see below o July, August, September: Minimum flow of 5,000 cfs required in river after diverting at the North Delta intakes. • Pulse Protection: o Low-level pumping of up to 6% of total Sacramento River flow at Freeport such that bypass flow never falls below 5,000 cfs. No more than 300 cfs can be diverted at any one intake. o Low level pumping maintained during the pulse protectionperiod. o Pulse is determined based on the real- time monitoring of juvenile fish movement as described in Section 3.3.3.1 *North Delta Diversion* o If the initial pulse begins and ends before Dec 1, the bypass flow criteria for	• New operational criteria used in CWF H3+ • These criteria are included within the NMFS and USFWS biological opinions, and CDFW Incidental Take Permit for California WaterFix

[27] In coordination with NMFS, USFWS, and CDFW, several updates to CWF operational criteria were made during the ESA and CESA consultation processes. An analysis was performed (model results submitted to USFWS on 5/5/17) to determine if the updated operational criteria would result in additional effects outside of those analyzed in this BA. The modeling results confirmed the effects of the operational updates are within the range analyzed in the BA. As a result, the PA effects analysis in Chapters 5 and 6 are representative of potential project effects and no additional analysis is necessary.

[28] Sacramento River flow upstream of the intakes to be measured flow at Freeport. Bypass flow is the Sacramento River flow quantified downstream of the Intake # 5. Sub-daily north Delta intakes' diversion operations will maintain fish screen approach and sweeping velocity criteria

SHR-2-105 reviews impacts from the low flows of the last 10 years, and questions who
Has been responsible for flow reporting because there has been substantial mistakes in reports

SHR-2-105.pdf 4 / 39

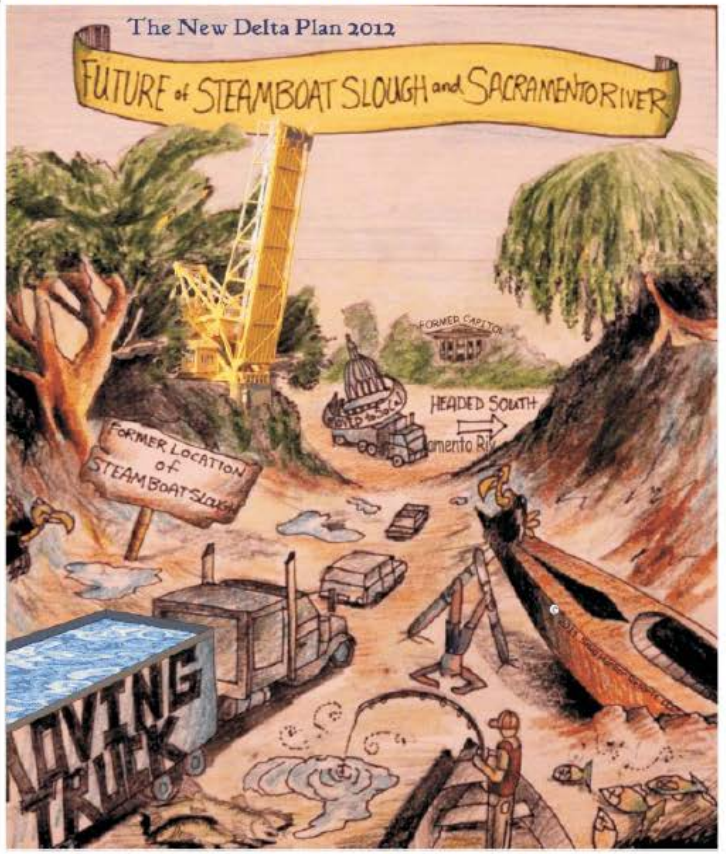


* Over the last 10 years, it is the Delta that has been left with a "computed" surplus or what was left behind from the export pumps and new north-of-the-Delta diversion intakes.

5/15/2014

SUMMARY OF THE 2015 BARRIERS PROPOSALS, AND POSSIBLE LONG TERM IMPACTS FROM BARRIER INSTALLATON: WHO BENEFITS, WHO SUFFERS THE CONSEQUENCES

DRAFT



Barriers for Delta waterways have been proposed for various reasons over the years. The next few pages review barrier proposals from 1998 to 2015, with a focus on function, who benefits from the proposed barriers, and who suffers the negative impacts from proposed barriers.

They can change the names but its all the same game-flow

Graphics and data compiled by N. Suard, Esq, a Delta land and business owner located on Steamboat Slough. Presentation April 3, 2015

2.4.2 Delta Hydrodynamics

Human management of water and changes to the physical structure of the Delta have significantly changed the timing, magnitude, and flow paths through the Delta, with adverse effects on fish and wildlife. During the summer-fall dry season, the Delta channels essentially serve as a conveyance system for moving water from reservoirs in the north to the CVP and SWP export facilities, which are operated jointly under the Coordinated Operations Agreement, as well as the smaller CCWD facility, for subsequent delivery to farms and cities in the San Joaquin Valley, southern California, and/or other areas outside the watershed (Kimmerer 2002a).

The CVP Delta facilities consist of the C.W. "Bill" Jones Pumping Plant (formerly Tracy Pumping Plant), Tracy Fish Collection Facility, and Delta-Mendota Canal (DMC). Along with these facilities, Reclamation directs the operation of the DCC to improve the transfer of water from the Sacramento River to the pumping plant (Reclamation 2009). The design capacity of the Jones Pumping Plant is 4,600 cfs, but until 2012 a variety of factors, including subsidence in the DMC, limited the maximum pumping rate to approximately 4,200 cfs. In April 2012, an intertie (two 108-inch-diameter pipes) was completed from the SWP to the CVP. The intertie allows up to 900 cfs to gravity flow from the California Aqueduct to the DMC. Completion of the intertie is expected to have some effects on the tidal elevations at the DMC intake and smaller effects on tidal elevations, flows, and velocities in south Delta channels (Reclamation 2009). Water is pumped by the Jones Pumping Plant into the

**Scientific Basis Report in Support of
New and Modified Requirements for Inflows from the Sacramento River and its Tributaries and Eastside Tributaries to the Delta, Delta Outflows, Cold Water Habitat, and Interior Delta Flows**

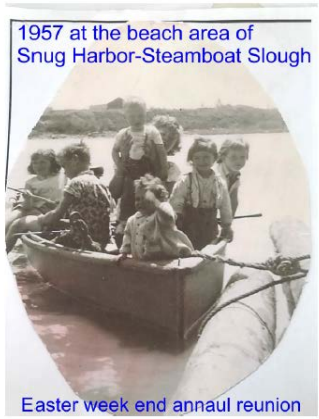
Prepared By:

State Water Resources Control Board
California Environmental Protection Agency
P.O. Box 100
Sacramento, CA 95812-0100

With Assistance From:

ICF
630 K Street, Suite 400
Sacramento, CA 95814

Snug Harbor access and Caltrans SHR-2-215



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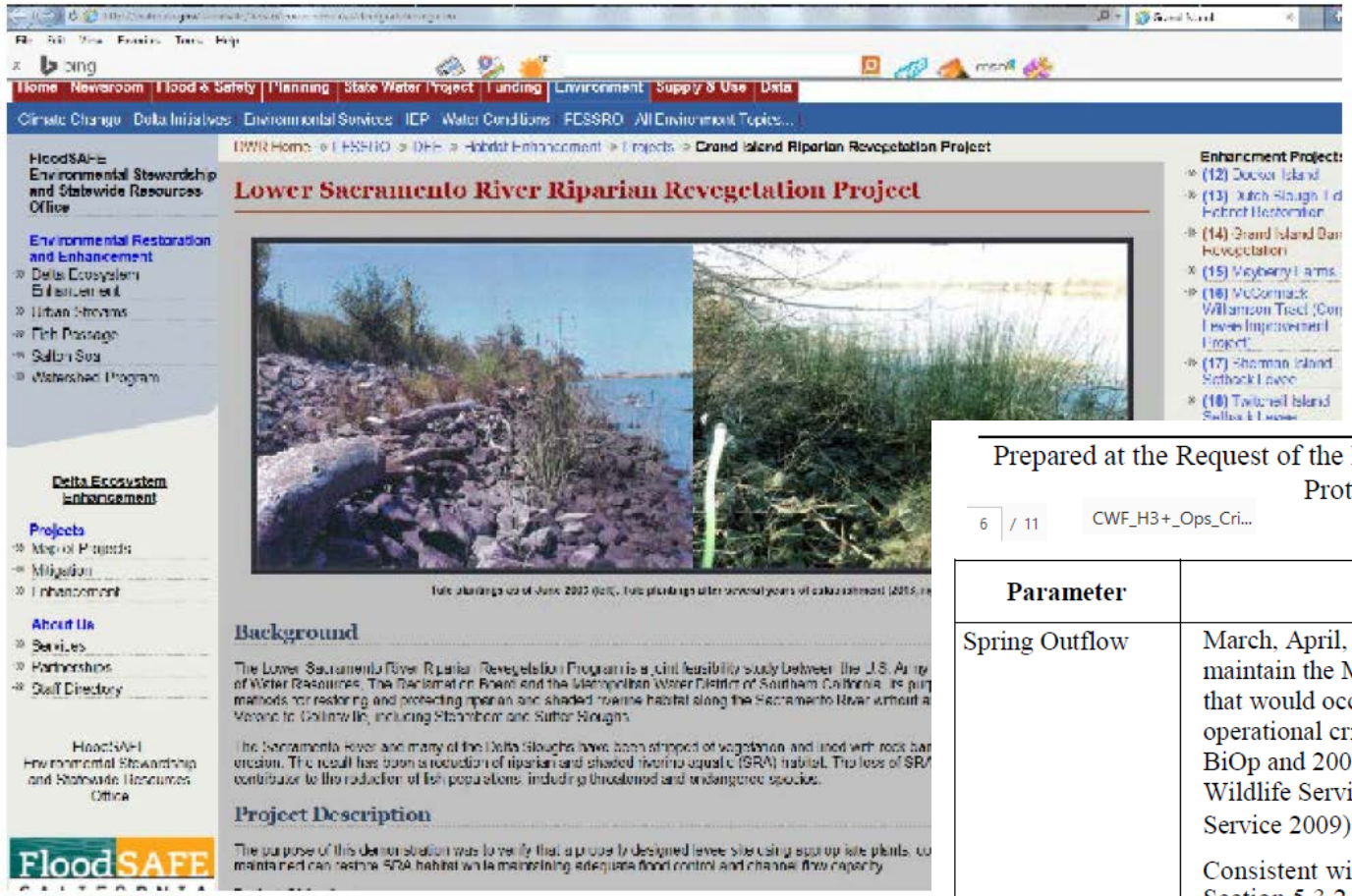

Prepared at the Request of the Hearing Officers in the CA WaterFix Water Rights Change Petition based upon Protestant Comments on Wednesday, February 28, 2018.

6 / 11 CWF_H3+_Ops_Cri...

Parameter	Criteria	Source of the Criteria
Spring Outflow	March, April, May: Initial operations will maintain the March–May average delta outflow that would occur with existing facilities under the operational criteria described in the 2008 USFWS BiOp and 2009 NMFS BiOp (U.S. Fish and Wildlife Service 2008; National Marine Fisheries Service 2009).[39] Consistent with description provided in the Section 5.3.2.3.2 *Effects of Spring Outflow* of the CWF 2081(b) ITP application (DWR-1036), March outflow targets are determined based on the Eight River Index and achieve the targets with export curtailments down to a minimum of 1,500-cfs exports; the March outflow target is capped at 44,500 cfs at an Eight River Index of 4,217 TAF and greater (Table 5.3-1 of the CWF 2081(b) ITP application and Table 6.1-4 of USFWS CWF BiOp). For Apr-May, the 2009 NMFS BiOp action IV.2.1 (San Joaquin River i-e	• New operational criteria used in CWF H3+ • Further modified in CDFW Incidental Take Permit for California WaterFix Condition of Approval 9.9.4.3; and, subject to the clarification letter provided by CDFW to DWR dated Oct 18, 2017 (https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/exhibit107/docs/20171018cdfw_clarificationmemo.pdf).

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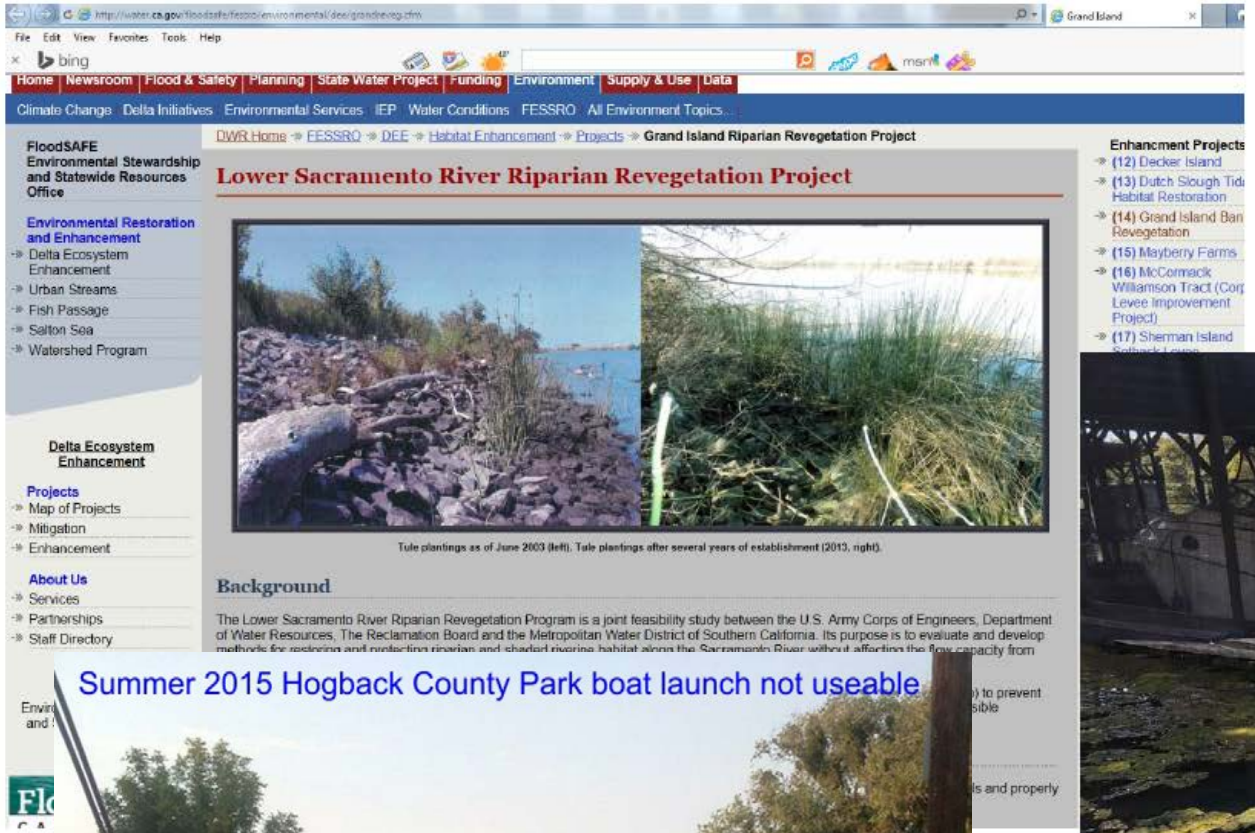
July 2017 low tide on the Sacramento River in Walnut Grove. Even though it was a record rain winter, DWR is still diverting so much flow away from the Delta that the river is at drought levels each low tide for part of the month


Prospect Island water hyacinth farm, for distribution of the plant to areas of the North Delta
GOPR0870

SHR-2-251.pdf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Delta Ecosystem Enhancement
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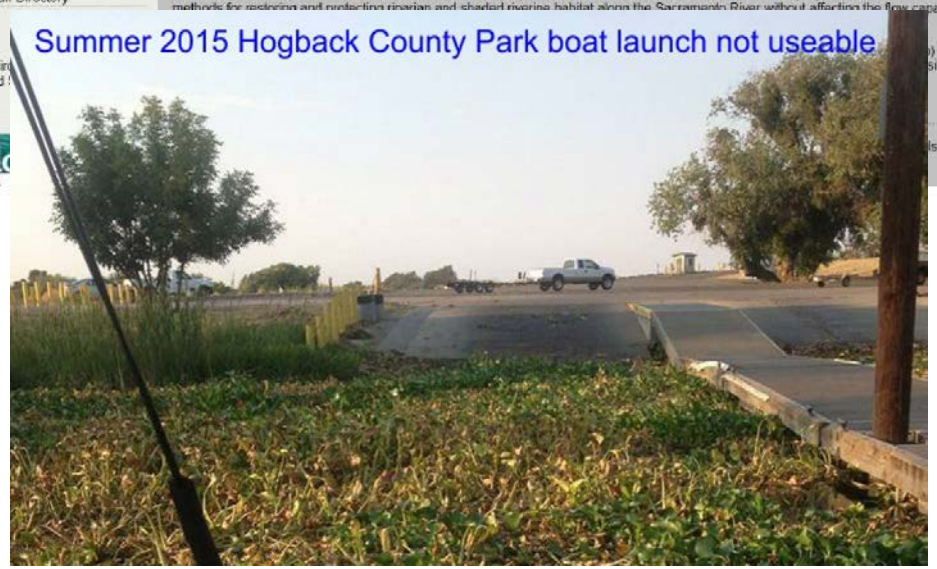
DWR Home » FESSRO » DEE » Habitat Enhancement » Projects » Grand Island Riparian Revegetation Project
Lower Sacramento River Riparian Revegetation Project
Tule plantings as of June 2003 (left). Tule plantings after several years of establishment (2013, right).
Background
The Lower Sacramento River Riparian Revegetation Program is a joint feasibility study between the U.S. Army Corps of Engineers, Department of Water Resources, The Reclamation Board and the Metropolitan Water District of Southern California. Its purpose is to evaluate and develop
Enhancment Projects
(12) Decker Island
(13) Dutch Slough Tid Habitat Restoration
(14) Grand Island Ban Revegetation
(15) Mayberry Farms
(16) McCormack Williamson Tract (Cor Levee Improvement Project)
(17) Sherman Island


Summer 2015 Hogback County Park boat launch not useable


TRIPLE 7

SHR-2-105.pdf 30 / 39

Bending of the
bolts to break a
to crack at mud

* Current Impacts from the low water flows on the Sacramento River into the Delta: dry docking marinas

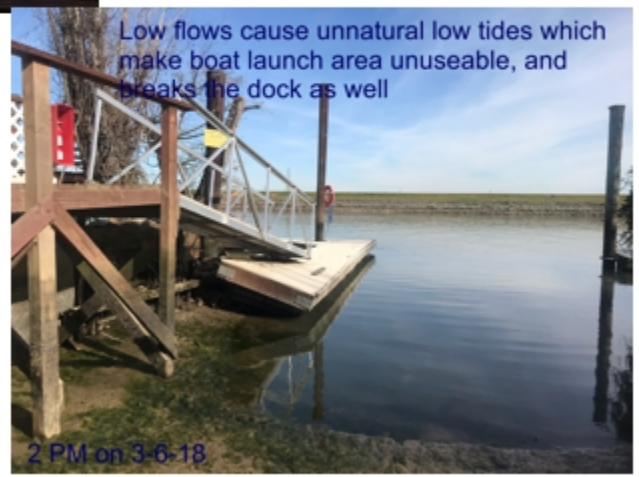
30 9/19/2014

9/19/2013 View of the open water on Prospect Island where the "restoration" area is full of water hyacinth. Within a week or two, someone had moved the water weeds into Miner's Slough and then down into the open waters of Cache Slough-just in time to annoy the salmon and striper fishermen for the Rio Vista derby!

cdec.water.ca.gov/dynamicapp/QueryF?s=SXS&d=06-Mar-2018+17:33&span=12hours

Lower Steamboat Slough gage

03/06/2018 07:30	-1,292
03/06/2018 07:45	39
03/06/2018 08:00	1,347
03/06/2018 08:15	3,018
03/06/2018 08:30	4,538
03/06/2018 08:45	5,696
03/06/2018 09:00	6,720
03/06/2018 09:15	7,377
03/06/2018 09:30	7,622
03/06/2018 09:45	7,922
03/06/2018 10:00	8,121
03/06/2018 10:15	8,241
03/06/2018 10:30	8,303
03/06/2018 10:45	8,350
03/06/2018 11:00	8,452
03/06/2018 11:15	8,449
03/06/2018 11:30	8,454
03/06/2018 11:45	8,428
03/06/2018 12:00	8,382
03/06/2018 12:15	8,398
03/06/2018 12:30	8,356
03/06/2018 12:45	8,320
03/06/2018 13:00	8,245
03/06/2018 13:15	8,155
03/06/2018 13:30	8,035
03/06/2018 13:45	7,853
03/06/2018 14:00	7,685
03/06/2018 14:15	7,348
03/06/2018 14:30	6,900
03/06/2018 14:45	6,439
03/06/2018 15:00	5,751
03/06/2018 15:15	5,022
03/06/2018 15:30	4,151
03/06/2018 15:45	3,220
03/06/2018 16:00	2,466
03/06/2018 16:15	1,940
03/06/2018 16:30	1,489
03/06/2018 16:45	955



cdec.water.ca.gov/dynamicapp/QueryF?s=SSS&d=06-M

Upper Steamboat Slough gage

03/06/2018 07:45	5.72	235
03/06/2018 08:00	5.78	426
03/06/2018 08:15	5.79	889
03/06/2018 08:30	5.78	1,600
03/06/2018 08:45	5.75	2,040
03/06/2018 09:00	5.69	2,410
03/06/2018 09:15	5.62	2,850
03/06/2018 09:30	5.54	3,160
03/06/2018 09:45	5.47	3,360
03/06/2018 10:00	5.39	3,490
03/06/2018 10:15	5.32	3,620
03/06/2018 10:30	5.24	3,720
03/06/2018 10:45	5.16	3,830
03/06/2018 11:00	5.09	3,860
03/06/2018 11:15	5.00	3,920
03/06/2018 11:30	4.92	3,920
03/06/2018 11:45	4.84	4,020
03/06/2018 12:00	4.76	4,030
03/06/2018 12:15	4.68	4,070
03/06/2018 12:30	4.60	4,090
03/06/2018 12:45	4.52	4,090
03/06/2018 13:00	4.44	4,120
03/06/2018 13:15	4.36	4,110
03/06/2018 13:30	4.29	4,120
03/06/2018 13:45	4.21	4,130
03/06/2018 14:00	4.13	4,120
03/06/2018 14:15	4.06	4,130
03/06/2018 14:30	3.99	4,070
03/06/2018 14:45	3.92	4,090
03/06/2018 15:00	3.86	4,070
03/06/2018 15:15	3.80	4,030
03/06/2018 15:30	3.76	4,020
03/06/2018 15:45	3.73	3,970
03/06/2018 16:00	3.72	3,850
03/06/2018 16:15	3.73	3,620
03/06/2018 16:30	3.76	3,450
03/06/2018 16:45	3.82	3,240
03/06/2018 17:00	3.88	2,920

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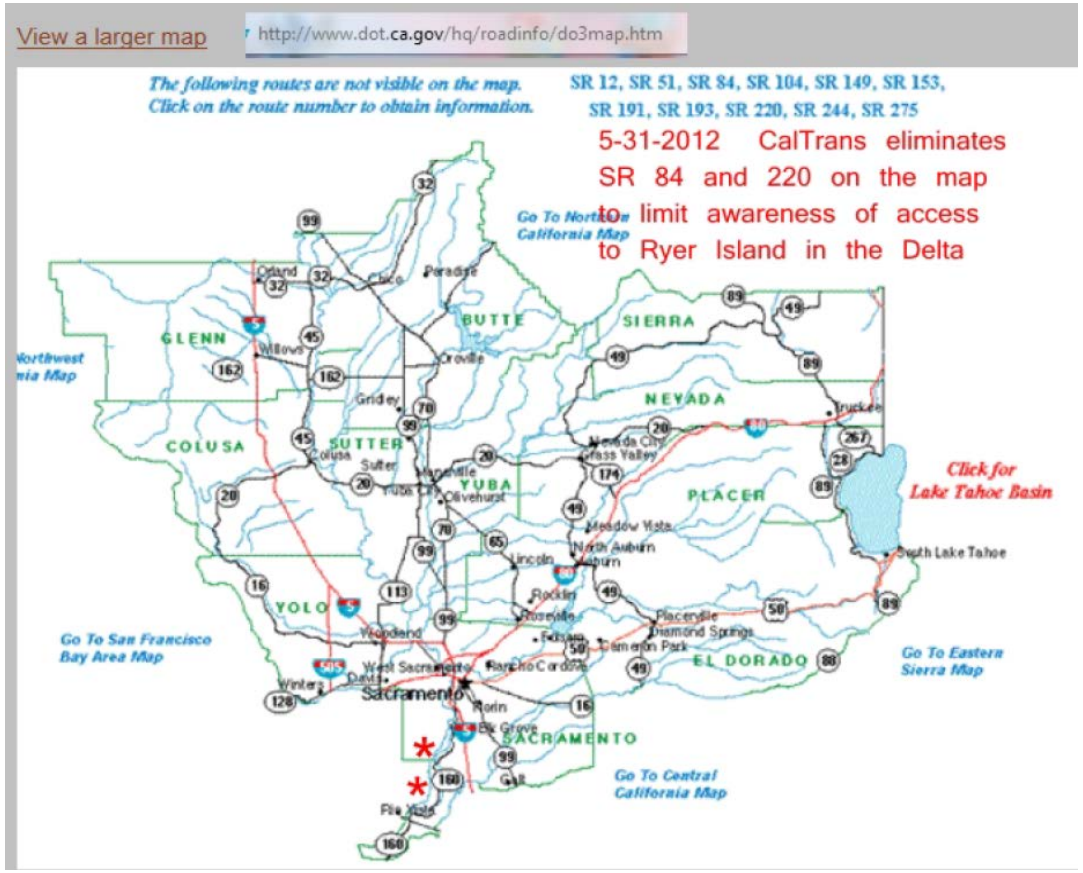

Roads/Transportation

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- Detour roads needed for all intakes, temporary access roads constructed from each intake pumping plant to Sacramento River levee, and permanent roads build for intake site perimeter access road. ***EIR/EIS, page 3C-60.***
- Indirect effects on existing land uses may also arise from changes in access to parcels of land. For example, the removal of access for agricultural vehicles and machinery could jeopardize the ability of that land to continue serving productive agricultural uses. The loss os access would not be considered an adverse effect under this impact. ***EIR/EIS, Land Use Chap, page 13-116.***
- All construction related trucks are expected to generate eight trips per day. ***EIR/EIS, Transportation Chap 19, page 19-35.***
- Level of Service (LOS) thresholds are exceeded on a total of 16 roadway segments for at least 1 hour during the 6:00 am to 7:00 pm analysis period. LOS is a qualitative measure of traffic operating conditions. See Table 19-3. ***EIR/EIS, Transportation Chap 19, page 19-7.***
- Potential construction site access routes do not currently have adequate engineered pavement sections to withstand construction traffic, particularly heavy vehicles. ***EIR/EIS, Transportation Chap 19, page 19-13.***
- Construction associated with Alt 4 would cause LOS thresholds to be exceeded for at least 1 hour during the 6:00 am to 7:00 pm analysis period on a total of 33 roadway segments, which is 10 more segments than have at least one hour exceeded under existing conditions. ***EIR/EIS, Transportation Chap 19, page 19-40.***
- Figure 19-3 shows the study roadway segments that could experience substantial roadway effects. The highest concentration of roadway segments below applicable LOS threshold occurs on state roadways, including SR-12, I-80, SR-4, and I-205. Standards will also be exceeded on several local roadways, including all segments studied in West Sacramento. ***EIR/EIS, Transportation Chap 19, page 19-163.***
- Mitigation Measures TRANS-1a thru 1c collectively include requirements to avoid or reduce circulation effects, notify the public of construction activities, provide alternate

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Did SR 84 get renamed 160? Also note that a "detour" in the Delta can Mean adding 2-4 hours to your travel time due to bridge use and limits On weight allowed on the ferrys. For construction projects located on the East side of the Sacramento River, ALL construction traffic should be required to come from the east, not through the Delta, and not use SHR 84 or 160 or whatever new name and number CalTrans plans to use.

CalTrans sign in Walnut Grove by the bridge, confusing people trying to get to Rio vista from Hwy 5 when Hwy 12 was blocked in the Delta

http://www.dot.ca.gov/dist4/publicaffairs/docs/rte12160mapfront.pdf

2-4-14: Ferry at SR still broken and, by way, when did SR 84 become 160?

Rte 12/160 Detours

REPAIR CONTRACT FOR 3-MILE SLOUGH BRIDGE NIGHTLY CLOSURES OF STATE ROUTE 160 IN APRIL NO THROUGH TRAFFIC ON 160 RIO VISTA – ANTIOCH CLOSURE INFORMATION

Beginning Thursday, April 1 and continuing through Friday, April 30, State Route 160 (Highway 160) will be closed each night to all through traffic between Rio Vista and Antioch from 9:00 p.m. to 5:00 a.m. the following morning. Only local traffic will be allowed on SR 160 south of Rio Vista or north of the Antioch Bridge. The nightly closures of Route 160 will be in effect every night in April and under all weather conditions to facilitate the necessary repairs to the 3-Mile Slough Bridge.

TRAFFIC DETOURS

Changeable message signs have been strategically placed throughout the detour routes in both directions to assist in guiding motorists through the detour to destination points ending in Antioch and Rio Vista. These message signs will provide advanced closure notice prior to April 1, and then activated nightly through April to direct traffic during the closure of the 3 Mile Slough Bridge on Highway 160 between Rio Vista and Antioch. Please keep in mind that these detours could add more than 90 minutes to your travel time.

Traffic from the Rio Vista area with destination points in and around Antioch, will be detoured via State Route 12 west to and onto westbound Interstate 80 and west on I-80 to and south onto I-680 at the Cordelia Junction (I-80/I-680 interchange). Continue south on I-680 across the Benicia-Martinez Bridge and then east onto State Route 4 (about 3.8 miles south of Bridge), at the I-680/Route 4 Interchange in Concord. Continue east on Route 4 to destination points and detour end in Antioch. Traffic from the Antioch area with destination points in and around Rio Vista, will be detoured via Route 4 west to and then north onto I-680 and continue north on I-680 to and onto I-80 east at the I-80/I-680 interchange (Cordelia Junction). From I-80 east take Route 12 east, and continue east on SR 12 to destination points and detour and just east of Rio Vista at the Routes 12/160 intersection.

*Wrong location for Brannan Island

LEGEND

Caltrans

5-31-2012 Another intentionally misleading map from CalTrans

Hwy 12 Detour Route (Ruta de Desvio)

10

Delta Water Availability/Quality Impacts

Delta Flows

- BDCP will fundamentally change the hydrodynamics of the Delta. *Chap 5, page 5.3-2.*
- The Sacramento River diversions into the proposed north Delta intakes along the Sacramento River between Freeport and Hood are the primary cause of BDCP changes in Delta flows. *Chap 5, page 5.3-7.*
- The BDCP is expected to result in changes in flows primarily as a result of the change in export location (new north Delta intakes) and its associated specified changes in monthly Delta operational objectives, namely, required salinity objectives, outflow objectives, export/inflow objectives, OMR flow objectives, and maximum exports. *Chap 5C.1-1.*
- Reduces some Sacramento River flows. *Chap 5, page 5.3-2.*
- Overall, there would be minimal upstream changes but some substantial shifts in how water moves through the Delta. *Chap 5, page 5C.0-1.*
- Restoration of 65,000 acres of tidal marsh (CM4) could result in changes in turbity and tidal excursion in specific Delta locations and subregions. *Chap 5, page 5C.0-2.*
- In the North Delta, flow patters will be altered by the increased diversions to the Yolo Bypass (CM2) and operations of the new north Delta intake facilities (CM1). *Chap 5, page, 5.3-2.*
- The average modeled annual inflow at Freeport for the evaluated starting operations was reduced by about 650,000 af compared to existing conditions, primarily as a result of the increased Fremont Weir Spills (CM2). *Chap 5, 5.3-3.*
- The months with the greatest changes in Freeport flows for the high outflow scenario cases are increased flows in April and May, with reduced flows in June and July, caused by reduced reservoir storage from high spring releases and the goal of maintaining the existing biological condition carryover storage. The months with the major changes in Freeport flows for the low outflow scenario cases were reduced flow in September of about half of the years, with smaller reduction in November in fewer years. The Freeport median flows in January, February, and March for the evaluated starting ops cases were about 3,000 cfs less than existing conditions flows, reflecting the increased spills at the Fremont Weir into the Yolo Bypass (CM2). The Freeport median flows for the evaluated starting ops cases in July and August were reduced by about 3,000 cfs compared to existing conditions flows because of changes in upstream reservoir releases. The evaluated starting ops north Delta intakes allowed higher exports in April, May, and June and subsequently allowed reduced reservoir releases and reduced exports in July and August. *Chap 5, page 5.3-4.*
- The general effect of each intake is the reduction of the downstream flow by about 3,000 cfs (when operated at capacity). *Chap 5, page 5.3-6.*
- The evaluated starting ops outflows were slightly less than existing outflows because the north Delta intakes allowed higher exports in some months when the reverse OMR flow restrictions were limiting south Delta exports. The monthly median outflows in Oct thru Dec were generally controlled by the required Delta outflow in most years; higher outlflows (more than 15,000 cfs) were simulated in only a few years. *Chap 5, page 5.3-16.*
- The highest monthly outflows were simulated in January thru March with many years having more than 50,000 cfs outflow in at least one month. Median outflow for the

about 1.5 feet. The flows were always positive, but the tidal variation was reduced from 6,000 cfs to about 5,000 cfs. *Chap 5, page 5.3-37.*

- A decrease of 6,000 cfs in the Sacramento River could result in as much as a 3-foot reduction in river stage, although understanding of how notch flows would affect river stage is incomplete. *Chap 5, page 5C.5.4-6.*

*** The tunnels call for 9000 cfs export, so would that result in a 4.5 foot reduction in river stage? If operated at capacity, or 15,000 cfs, doesn't that equate to -6.5 or worse reduction in tide?

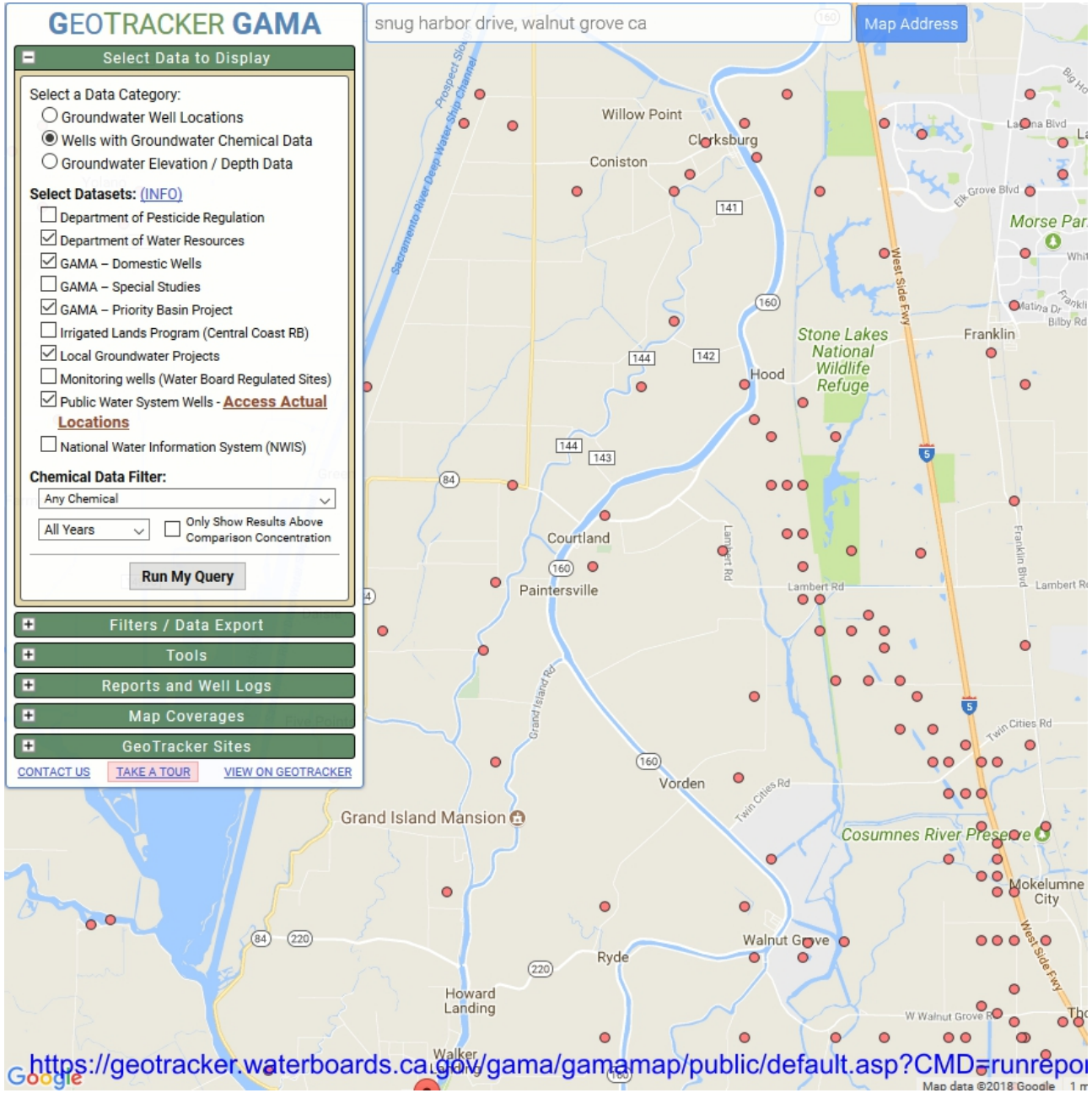
Salinity

- There may be changes in salinity in some Delta locations caused by tidal flow missing effect from restoration actions and sea level rise. *Chap 5, page 5.3-3.*
- Delta outflow is the primary driver of salinity in the Delta and of the X2 position. *Chap 5, page 5.3-16.* If there is no freshwater outflow in summer months on the lower Sacramento between Walnut Grove and Viera's, nor on Steamboat and Sutter Sloughs, how much salinity will encroach into these historically freshwater areas?
- In addition to flows from new north Delta intakes, BDCP habitat restoration may modify hydrodynamics in the Delta. These hydrodynamic changes in turn can change salinities, DO, turbidity, and flows. *Chap 5, page 5C.1-1.*
- Because Delta outflow is the major factor determining salinity in the Delta channels, these salinity objectives are satisfied by increasing Delta outflow (normally by reducing exports). The D-1641 salinity objectives are assumed to apply to the EBC and the BDCP cases (ELT and LLT). *Chap 5, page 5C.2-4.*

Pumping/Water Ops

New North Delta Intakes

- Operations result in changes in flow and potentially changes in water quality, habitat, and predation. *Chap 4, page 4-20.*
- The general effect of each north Delta intake is the reduction of the downstream flow by about 3,000 cfs (when operated at capacity). *Chap 5, page 5.3-6.*
- Always a downstream "bypass flow" requirement (e.g. 5,000 cfs in July thru Sept; 7,000 cfs in October thru Nov; and 10,000 cfs December thru June). *Chap 5, page 5.3-7.*
- There *almost always* will be a net downstream tidal flow (sweeping velocity) below the operating north Delta intakes [*doesn't say when or how often or why there won't be downstream tidal flow below intakes*]. *Chap 5, page 5.3-7.* Imagine that the lowest of the intakes on the Sacramento River is operated full blast which then has the effect of pulling the water down river, creating greater velocity at the upper pumps. This is one way all freshwater could be diverted from the Sacramento River north of Walnut Grove. Require that the intake pumps be surface pumps, not bottom pumps, to assure fresh water is left on the Sacramento River?
- Modeling of the intakes included a downstream sweeping velocity criteria of 0.4 foot per second. *Chap 5, page 5.3-7.* How many cfs is this and why the change to a different reporting method?
- Major north Delta diversions could not begin until the Sacramento River flow was greater than a threshold of about 10,000-15,000 cfs. *Chap 5, page 5C.2-5.*


GEOTRACKER GAMA
snug harbor drive, walnut grove ca
Map Address
Select Data to Display
Select a Data Category:
Groundwater Well Locations
Wells with Groundwater Chemical Data
Groundwater Elevation / Depth Data
Select Datasets: (INFO)
Department of Pesticide Regulation
Department of Water Resources
GAMA – Domestic Wells
GAMA – Special Studies
GAMA – Priority Basin Project
Irrigated Lands Program (Central Coast RB)
Local Groundwater Projects
Monitoring wells (Water Board Regulated Sites)
Public Water System Wells - Access Actual Locations
National Water Information System (NWIS)
Chemical Data Filter:
Any Chemical
All Years
Only Show Results Above Comparison Concentration
Run My Query
Filters / Data Export
Tools
Reports and Well Logs
Map Coverages
GeoTracker Sites
CONTACT US
TAKE A TOUR
VIEW ON GEOTRACKER
Willow Point
Clarksburg
Coniston
Hood
Courtland
Paintersville
Vorden
Grand Island Mansion
Ryde
Howard Landing
Walnut Grove
Mokelumne City
Franklin
Stone Lakes National Wildlife Refuge
Cosumnes River Preserve
Morse Par
Elk Grove Blvd
West Side Fwy
Twin Cities Rd
Lambert Rd
Franklin Blvd
Grand Island Rd
Sacramento River Deep Water Ship Channel
https://geotracker.waterboards.ca.gov/gama/gamamap/public/default.asp?CMD=runrepo
Google
Map data ©2018 Google

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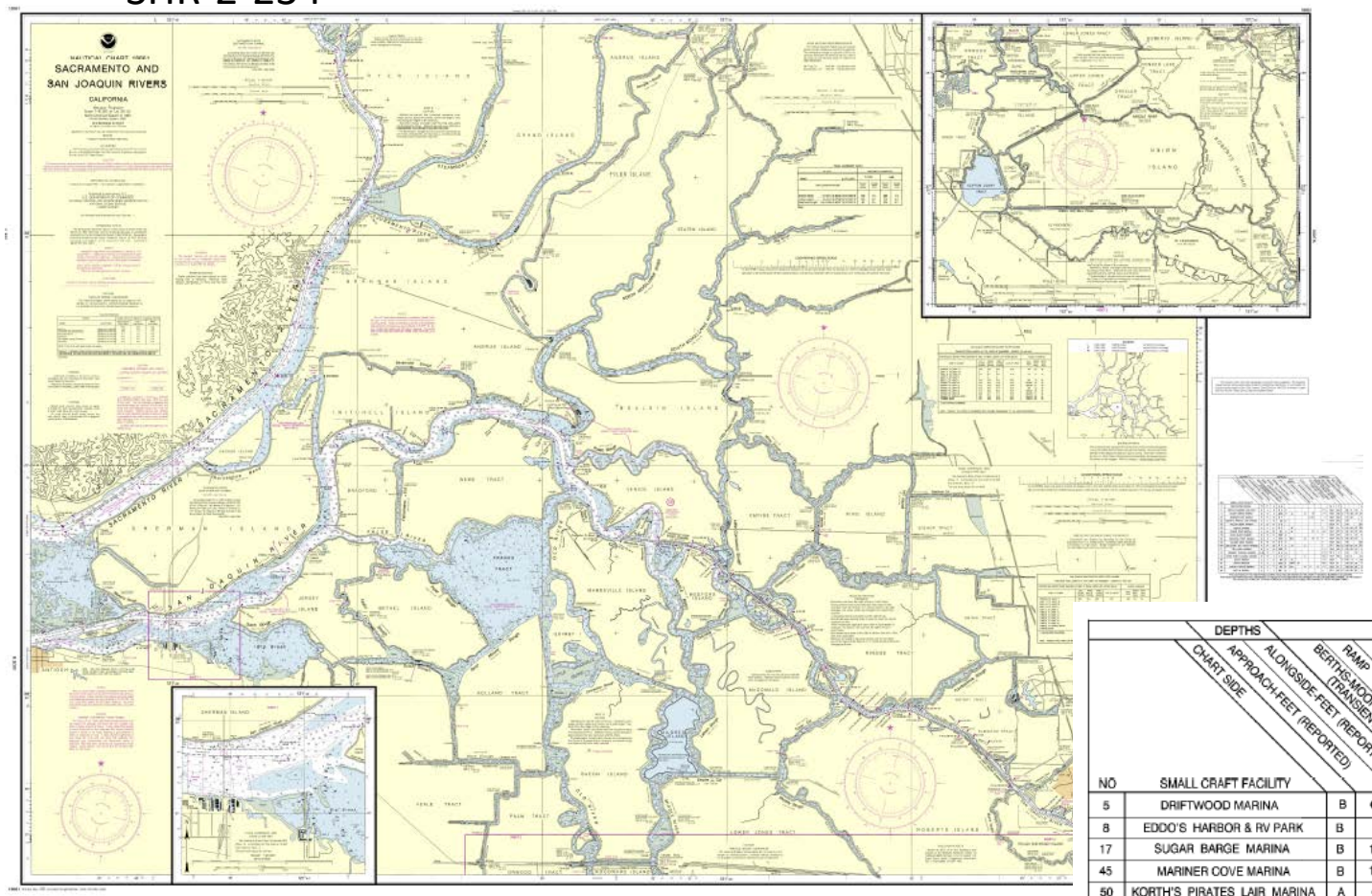

NO	SMALL CRAFT FACILITY	DEPTHS: CHART SIDE	DEPTHS: APPROACH-FEET (REPORTED)	DEPTHS: ALONGSIDE-FEET (REPORTED)	SERVICES: BERTHS-MOORINGS-ELECTRICITY (TRANSIENTS)	SERVICES: RAMP	SERVICES: REPAIRS	SERVICES: MARINE RAILWAY-FEET	SERVICES: LIFT CAPACITY-TONS	SERVICES: BOAT RENTAL	SERVICES: CANOE-ROW-MOTOR-KAYAK	SERVICES: CHARTER-HOUSE-SAIL	SERVICES: FOOD-LODGING-CAMPING	SERVICES: TOILETS-SHOWERS-LAUNDRY	SERVICES: WINTER STORAGE WET-DRY	SERVICES: PUMP-OUT STATION	SUPPLIES: WATER-ICE	SUPPLIES: NAUTICAL CHART SALES	SUPPLIES: GROCERIES-HARDWARE	SUPPLIES: BAIT-TACKLE	SUPPLIES: DIESEL OIL-GASOLINE
5	DRIFTWOOD MARINA	B	6	6	B E												TS P	D				G
8	EDDO'S HARBOR & RV PARK	B	5	8	B E	S										F C	TSLP	WD		WI	G	BT	G
17	SUGAR BARGE MARINA	B	10	6	BME	S	M			10		M				F C	TSLP	WD	C	WI	GH	BT	DG
45	MARINER COVE MARINA	B	12	12	B E							C M				C	TSLP	WD		WI	GH		G
50	KORTH'S PIRATES LAIR MARINA	A	6	10	ME	S										F	TSLP	WD		WI			G
52	WILLOW BERM MARINA	A	13	13	B E												TSLP	W		WI			DG
56	OXBOW MARINA	A	8	8	B E		M									F	TSLP	W	C	WI	GH	BT	DG
59	TOWER PARK MARINA	A	22	20	ME	S	M					M	H			FLC	TSLP	WD	C	WI	GH	BT	DG
62	KING ISLAND RESORT	B	10	12	BME	S										F	TSLP	WD		WI	G	BT	G
64	PARADISE POINT MARINA	B	8	8	BME	S	HM			12		M	H			F	TSLP	WD	C	WI	GH	BT	G
65	VILLAGE WEST MARINA	B	10	10	B E	S										F	TSLP	WD		WI			DG
65A	DISCOVERY BAY YACHT HARBOR	A	15	25	B E	S	M			2						F	TS P	WD	C	WI	GH	BT	DG
71	TIKI LAGUN MARINA	B	14	12	BME	S										F C	TSLP	WD	C	WI	GH	BT	G
72	WHISKEY SLOUGH HARBOR	A, B	9	11	B E	S										F C	TS P	D		WI		BT	G
74	RIVER POINT LANDING MARINA	B	10	5	B E	S				6						FLC	TSLP	WD		WI	G		DG
84	DELTA MARINA	A	5	6	ME	S	M									F C	TSLP		C	WI	H	T	DG
87	VIEIRA'S RESORT	A	6	3	BME	S	HMR	40								FLC	TSLP	W		WI	GH	BT	G
90	WALNUT GROVE MARINA	A	3	3	ME	S	HM			16	C		H			F C	TSLP	W		WI	GH	BT	G
98	LAZY M MARINA	A	7	7	BM	S										F	TS P	WD	C	WI	GH	BT	G

THE LOCATIONS OF THE ABOVE PUBLIC MARINE FACILITIES ARE SHOWN ON THE CHART BY MAGENTA NUMBERS AND LEADERS.
THE TABULATED "APPROACH-FEET (REPORTED)" IS THE DEPTH AVAILABLE FROM THE NEAREST NATURAL OR DREDGED CHANNEL TO THE FACILITY.
THE TABULATED "PUMP-OUT STATION" IS DEFINED AS FACILITIES AVAILABLE FOR PUMPING OUT BOAT HOLDING TANKS.

http://snugharbor.net/images-2014/maps/deltanavigation-noaa.pdf

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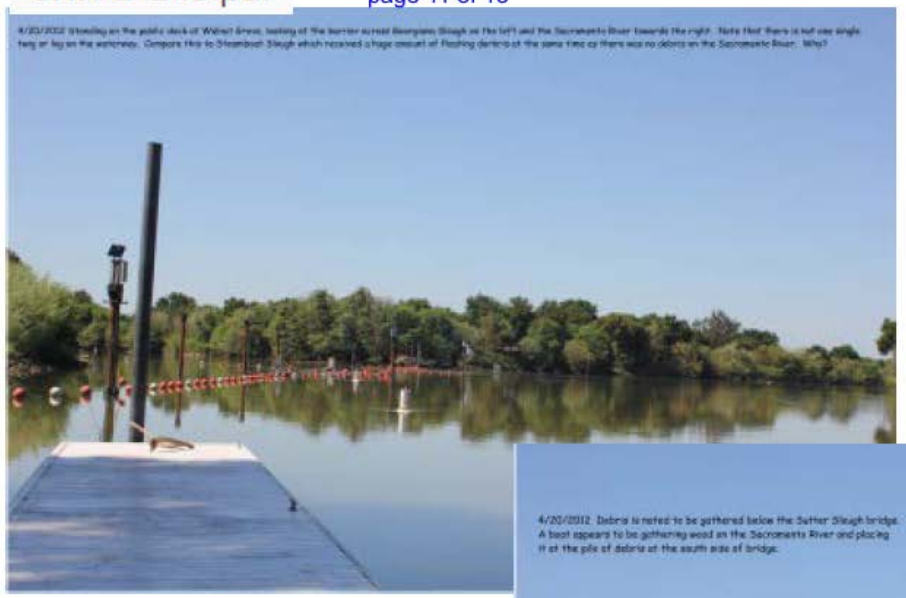

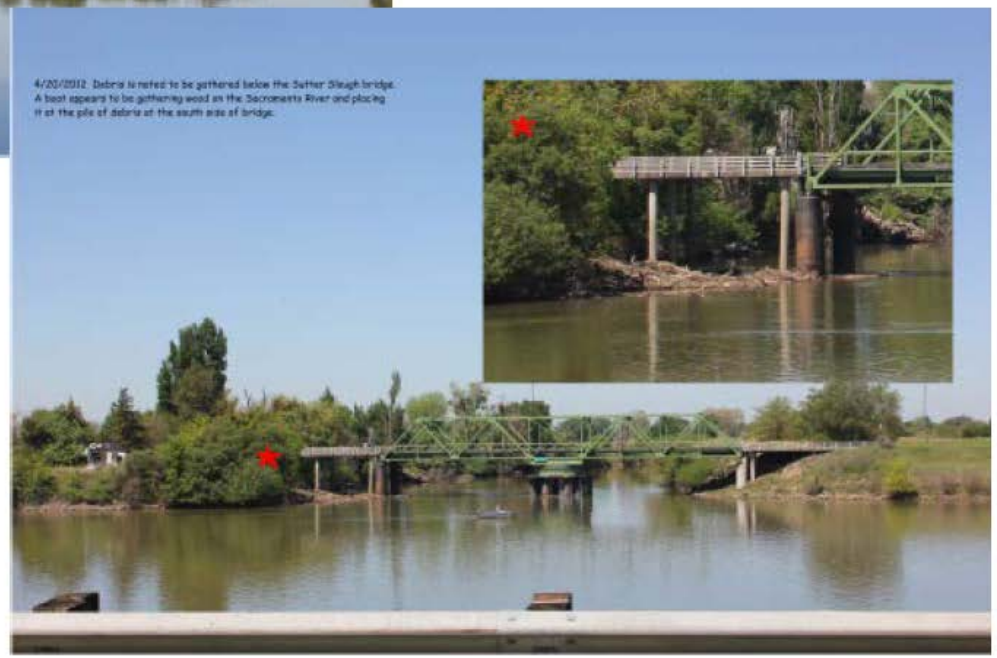

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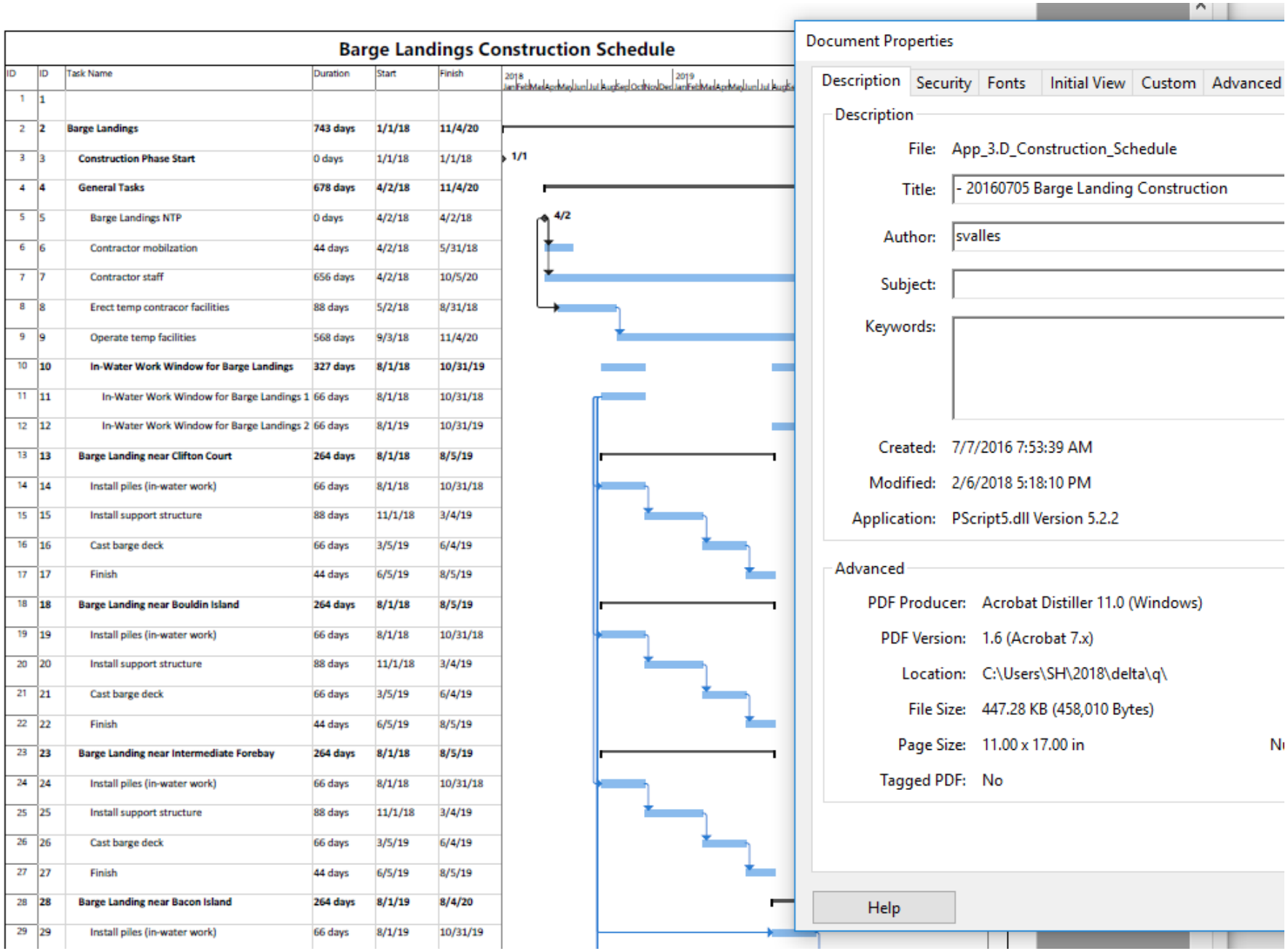
River Barges

- At least six river barge unloading facilities/docks for the delivery of construction materials (e.g., tunnel segments, batched concrete, major equipment) will be constructed located at: 1) State Route 160 west of Walnut Grove; 2) Tyler Island; 3) Bacon Island; 4) Woodward Island; 5) Victoria Island; and 6) Venice Island. Docks will be about 50 by 300 feet and supported by about 32 two-foot diameter steel piles. Will be removed following construction (no restoration of site mentioned). ***Chap 4, page 4-11.***

4

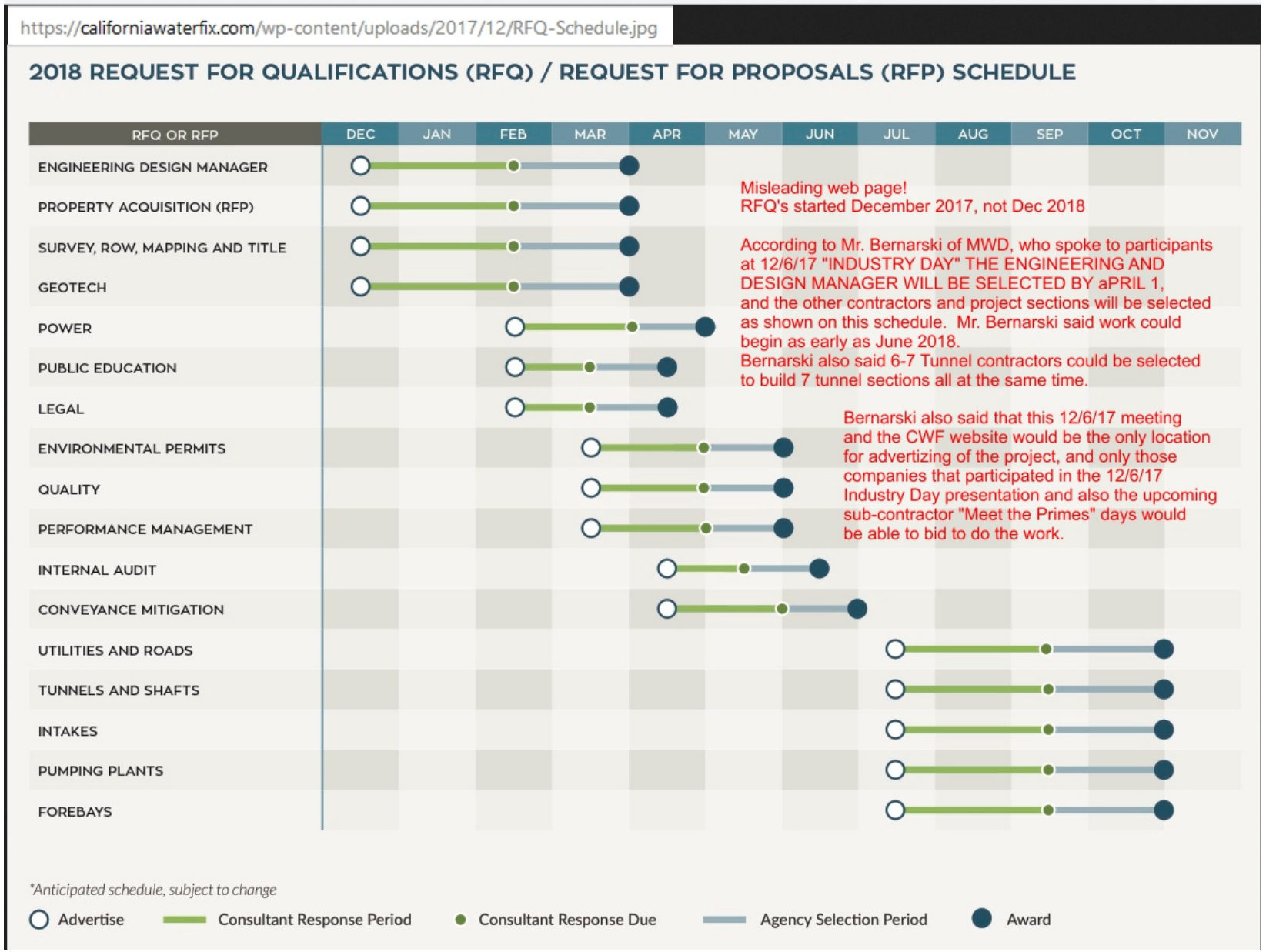
- Approx 3,000 barge trips are projected, averaging 1 trip per day thru 9-yr-long construction period. ***EIR/EIS, page 19-170.***

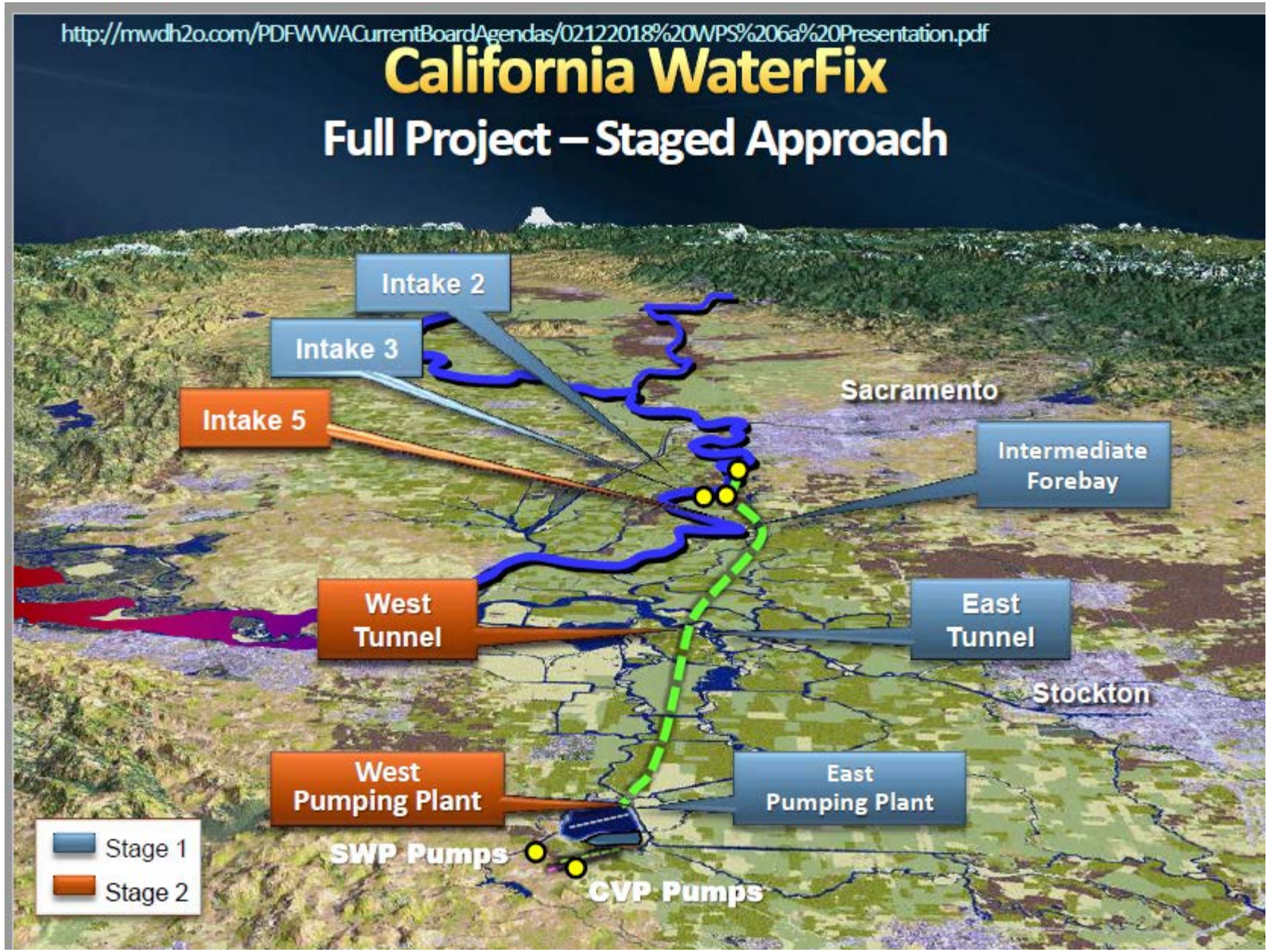


Barge Landings Construction Schedule

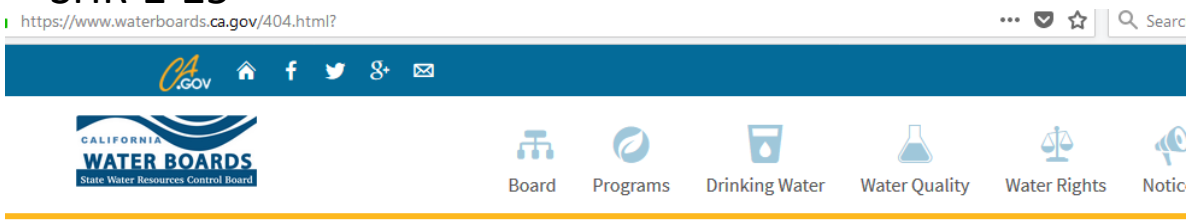
ID	ID	Task Name	Duration	Start	Finish
1	1				
2	**2**	**Barge Landings**	**743 days**	**1/1/18**	**11/4/20**
3	3	**Construction Phase Start**	0 days	1/1/18	1/1/18
4	**4**	**General Tasks**	**678 days**	**4/2/18**	**11/4/20**
5	5	Barge Landings NTP	0 days	4/2/18	4/2/18
6	6	Contractor mobilzation	44 days	4/2/18	5/31/18
7	7	Contractor staff	656 days	4/2/18	10/5/20
8	8	Erect temp contracor facilities	88 days	5/2/18	8/31/18
9	9	Operate temp facilities	568 days	9/3/18	11/4/20
10	**10**	**In-Water Work Window for Barge Landings**	**327 days**	**8/1/18**	**10/31/19**
11	11	In-Water Work Window for Barge Landings 1	66 days	8/1/18	10/31/18
12	12	In-Water Work Window for Barge Landings 2	66 days	8/1/19	10/31/19
13	**13**	**Barge Landing near Clifton Court**	**264 days**	**8/1/18**	**8/5/19**
14	14	Install piles (in-water work)	66 days	8/1/18	10/31/18
15	15	Install support structure	88 days	11/1/18	3/4/19
16	16	Cast barge deck	66 days	3/5/19	6/4/19
17	17	Finish	44 days	6/5/19	8/5/19
18	**18**	**Barge Landing near Bouldin Island**	**264 days**	**8/1/18**	**8/5/19**
19	19	Install piles (in-water work)	66 days	8/1/18	10/31/18
20	20	Install support structure	88 days	11/1/18	3/4/19
21	21	Cast barge deck	66 days	3/5/19	6/4/19
22	22	Finish	44 days	6/5/19	8/5/19
23	**23**	**Barge Landing near Intermediate Forebay**	**264 days**	**8/1/18**	**8/5/19**
24	24	Install piles (in-water work)	66 days	8/1/18	10/31/18
25	25	Install support structure	88 days	11/1/18	3/4/19
26	26	Cast barge deck	66 days	3/5/19	6/4/19
27	27	Finish	44 days	6/5/19	8/5/19
28	**28**	**Barge Landing near Bacon Island**	**264 days**	**8/1/19**	**8/4/20**
29	29	Install piles (in-water work)	66 days	8/1/19	10/31/19

DWR “Industry Day” December 6, 2017 and December 7, 2017 RFQ timing:




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

SHR-2-25



Error: 404 – The page you requested could not be found.

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