Delta Operations for Salmonids and Sturgeon

OCAP Annual Review – 2010

Thuy Washburn (Reclamation) & Barb Byrne (NMFS)

Who is DOSS?

- U.S. Bureau of Reclamation (Reclamation)
- U.S. Fish & Wildlife Service (USFWS)
- National Marine Fisheries Service (NMFS)
- Environmental Protection Agency (US EPA)
- California Dept. of Fish & Game (CDFG)
- California Dept. of Water Resources (DWR)
- State Water Resources Control Board (SWRCB)

DOSS website

Notes from weekly DOSS meetings are available online:

http://swr.nmfs.noaa.gov/ocap/doss.htm

Acknowledgements

- DOSS members
- Other agency staff who provide information to DOSS
- Those who collect, and provide funding for, fish monitoring data throughout the Central Valley:

Fishbio, Cramer Fish Sciences, OID, SSJID, Fishery Foundation, Pacific States Marine Fisheries Commission, DFG, FWS, Reclamation

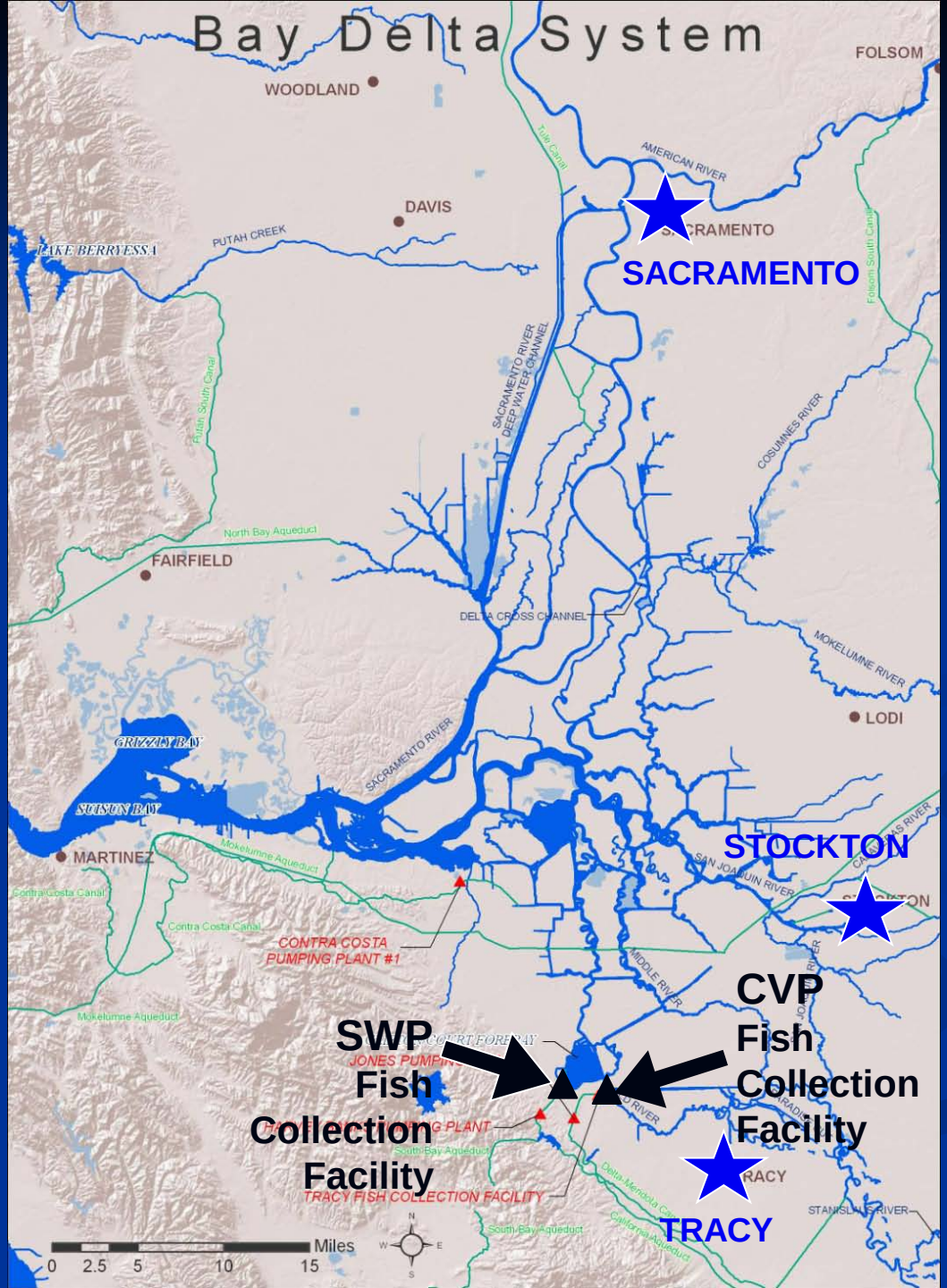
Delta species covered by OCAP Opinions

NMFS

- Endangered Sacramento River winter-run Chinook salmon
- Threatened Central Valley spring-run Chinook salmon
- Threatened Central Valley steelhead
- Threatened Southern Distinct Population Segment of North American green sturgeon
- Chinook salmon prey (including unlisted runs) of endangered Southern Resident killer whales.

FWS

- Delta smelt


Bay Delta System
FOLSOM
WOODLAND
AMERICAN RIVER
DAVIS
PUTAH CREEK
LAKE BERRYESSA
SACRAMENTO
SACRAMENTO
SACRAMENTO RIVER DEEP WATER CHANNEL
COSUMNES RIVER
North Bay Aqueduct
FAIRFIELD
DELTA CROSS CHANNEL
MOKELUMNE RIVER
LODI
GRIZZLY BAY
SACRAMENTO RIVER
SUISUN BAY
MARTINEZ
STOCKTON
SAN JOAQUIN RIVER
Contra Costa Canal
CONTRA COSTA PUMPING PLANT #1
MIDDLE RIVER
CVP Fish Collection Facility
SWP Fish Collection Facility
JONES PUMPING PLANT
South Bay Aqueduct
TRACY FISH COLLECTION FACILITY
TRACY
TRACY
STANISLAUS RIVER
Miles
0 2.5 5 10 15

What does DOSS do?

- Provide advice to WOMT and NMFS
- Track RPA Actions IV.1 through IV.4
- Oversee implementation of the acoustic tag experiment for San Joaquin steelhead
- Coordinate with other technical teams (including the Smelt Working Group)
- Conduct annual review of project operations and monitoring in the Delta

DOSS Call Agenda

- Fish monitoring data review* *(fish salvage, "DAT" data, KLCI, Sacramento & San Joaquin tributary weir/RST/carcass data)*
- Operations update
- SWG update (and other tech teams, if relevant)
- Other topics (e.g. transfers, fish studies)
- Advice on implementing actions

**see Appendix A of DOSS annual report*

Year in Review – Operations and RPA Implementation

Key RPA Actions in the Delta

- DCC Gate Operations -- Action IV.1.2
- San Joaquin River Inflow to Export Ratio & Vernalis flows– Action IV.2.1
- Six-Year Acoustic Tag Experiment – Action IV.2.2
- Old and Middle River Flow Management – Action IV.2.3
- Reduce likelihood of entrainment or salvage at the Export Facilities – Action IV.3
- Modification of the CVP and SWP fish collection facilities – Action Suite IV.4

October - December

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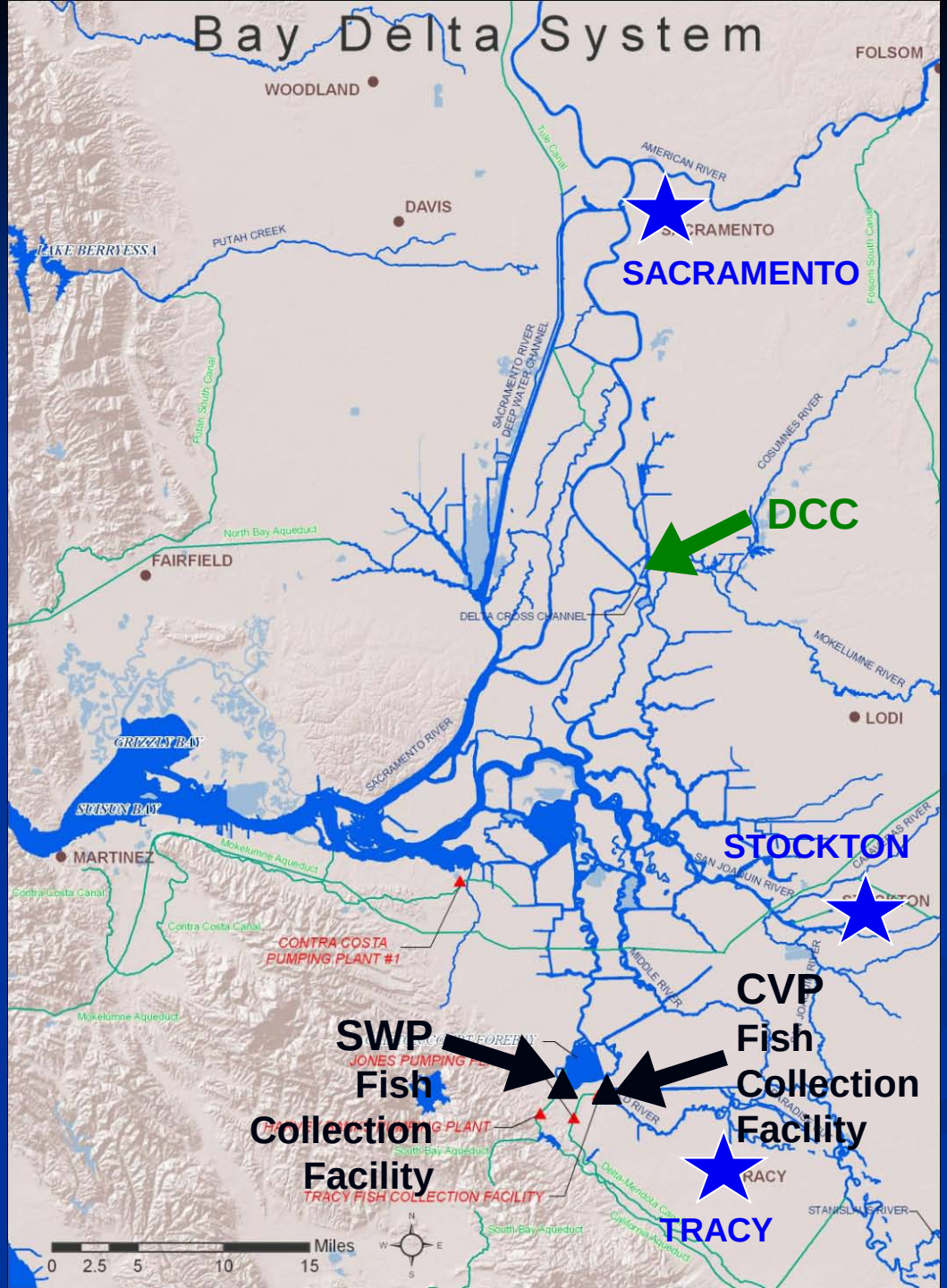
Bay Delta System
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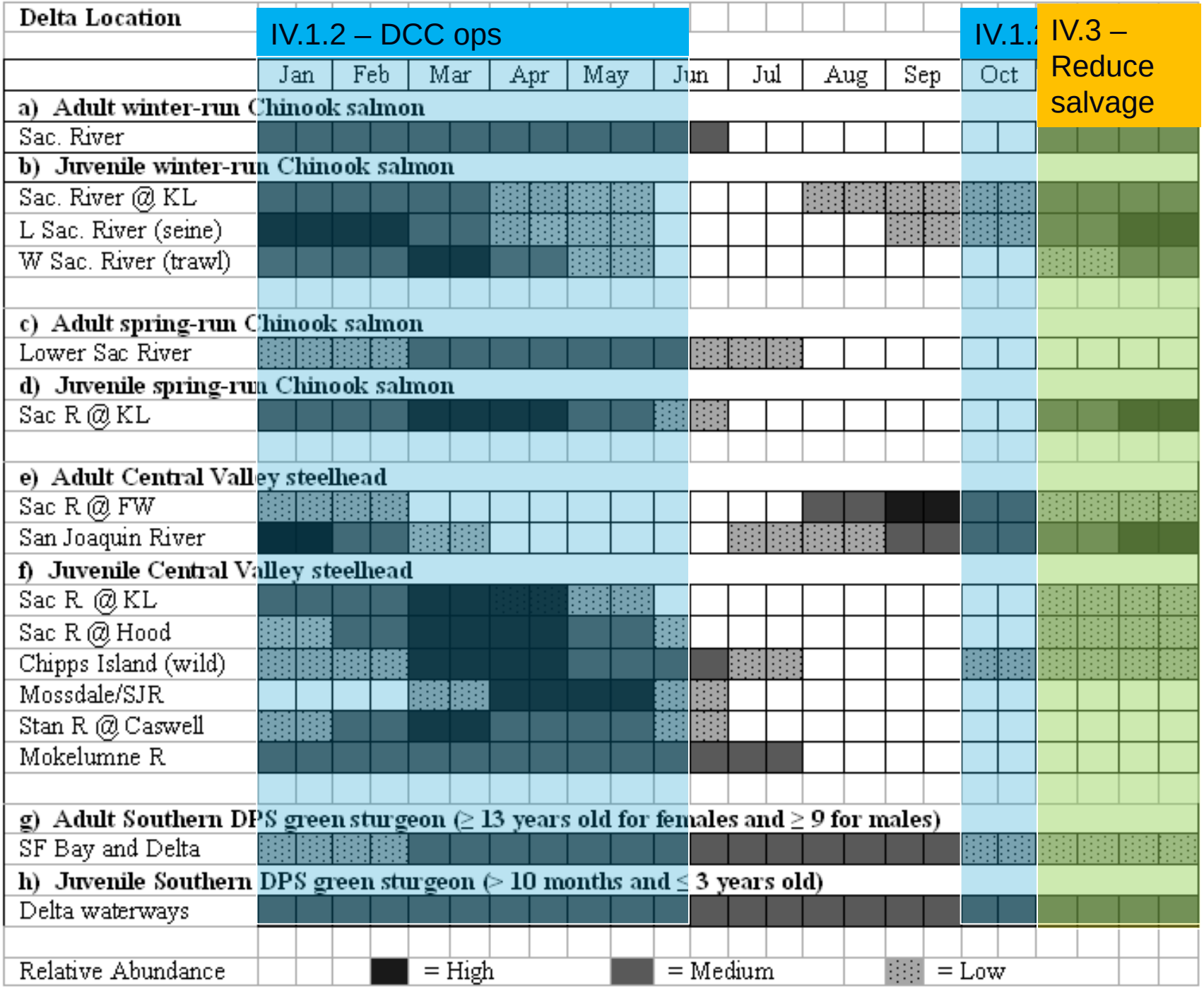
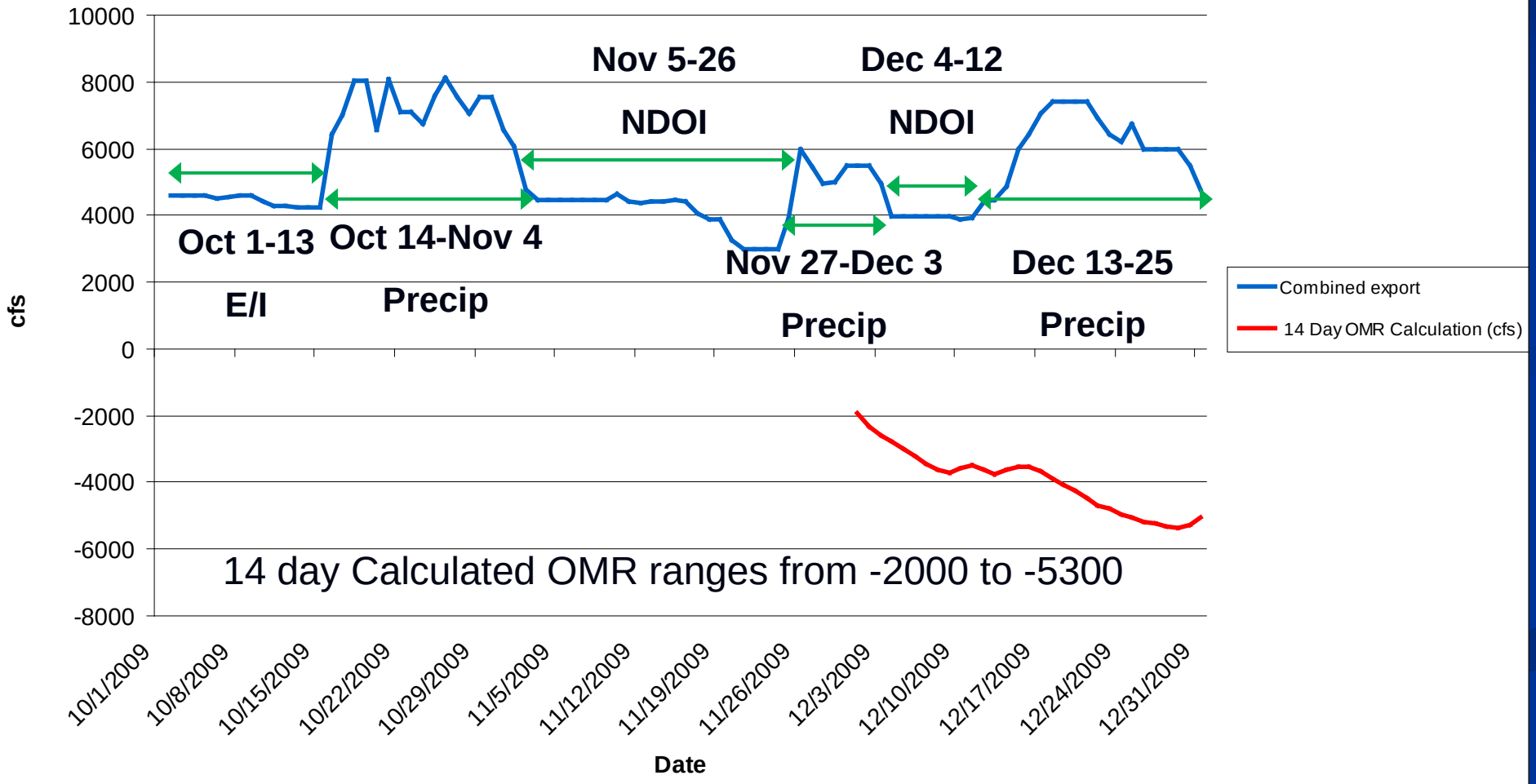

Delta Location
IV.1.2 – DCC ops
IV.1.
IV.3 – Reduce salvage
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
a) Adult winter-run Chinook salmon
Sac. River
b) Juvenile winter-run Chinook salmon
Sac. River @ KL
L Sac. River (seine)
W Sac. River (trawl)
c) Adult spring-run Chinook salmon
Lower Sac River
d) Juvenile spring-run Chinook salmon
Sac R @ KL
e) Adult Central Valley steelhead
Sac R @ FW
San Joaquin River
f) Juvenile Central Valley steelhead
Sac R @ KL
Sac R @ Hood
Chipps Island (wild)
Mossdale/SJR
Stan R @ Caswell
Mokelumne R
g) Adult Southern DPS green sturgeon (≥ 13 years old for females and ≥ 9 for males)
SF Bay and Delta
h) Juvenile Southern DPS green sturgeon (> 10 months and ≤ 3 years old)
Delta waterways
Relative Abundance
= High
= Medium
= Low

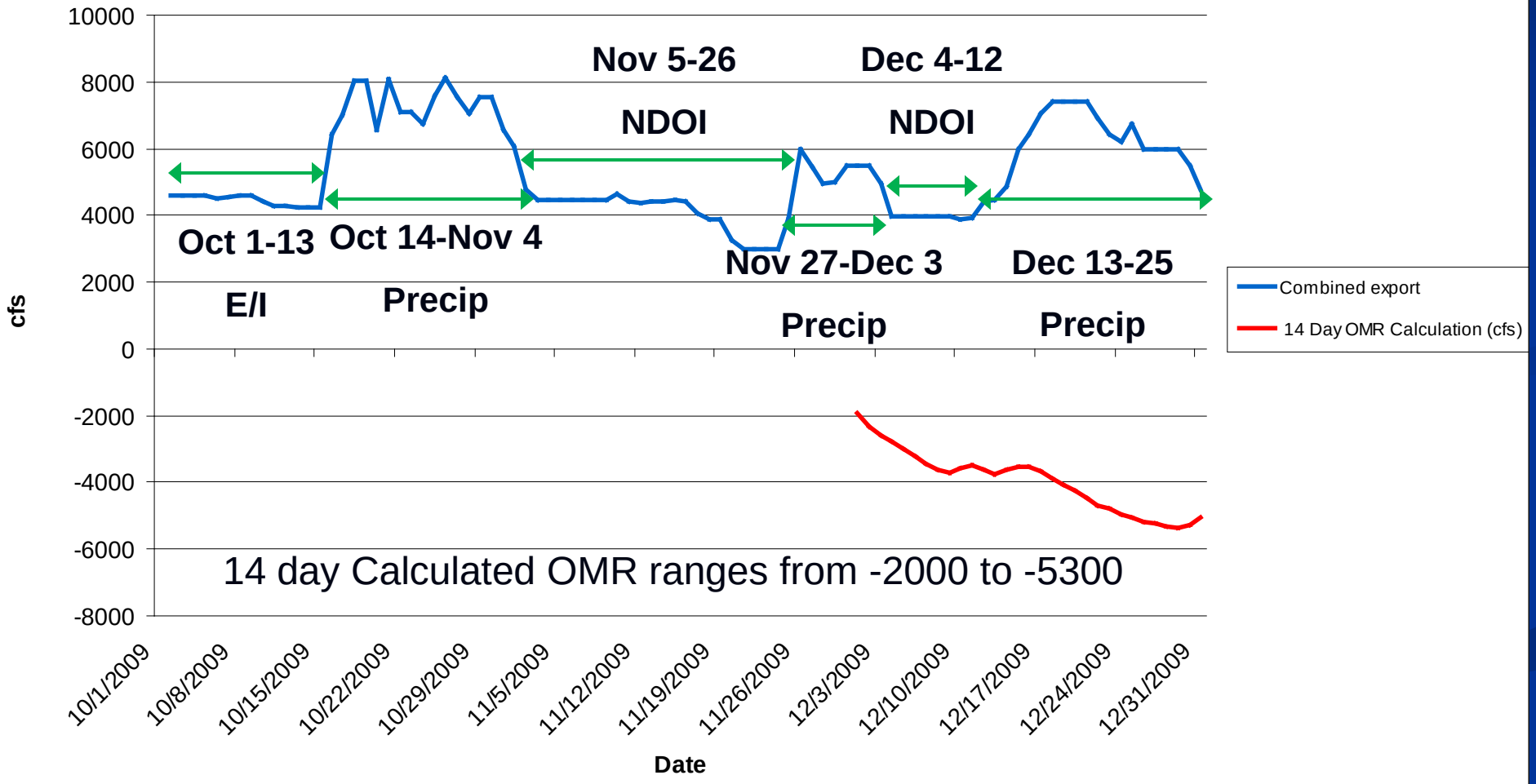
2010 CVP & SWP Operations & Delta Conditions

Date	Balance Excess	Jones PP (cfs)	Clifton Court export (cfs)	DCC	DAILY OMR (cfs)	5 Day OMR Calculation (cfs)	14 Day OMR Calculation (cfs)	Controlling	Concern Standards	
12/1/2009	B	1,981	3,493	O	-5551	-4384	-1945	NDOI/WQ	D1641 NDOI / WQ	D1641 Salinity Concern
12/2/2009	B	1,987	2,947	O	-5310	-4444	-2324			
12/3/2009	B	1,989	2,000	O	-3718	-4477	-2590			
12/4/2009	B	1,985	1,991	O	-2518	-4439	-2769			
12/5/2009	B	1,988	1,988	O	-3065	-4033	-2988			
12/6/2009	B	1,988	1,999	C	-3499	-3622	-3238			
12/7/2009	B	1,982	1,997	O	-3194	-3199	-3466			
12/8/2009	B	1,973	1,996	O	-2147	-2885	-3620			
12/9/2009	B	1,965	1,928	O	-1662	-2714	-3698			
12/10/2009	B	1,965	1,962	O	-2917	-2684	-3568			
12/11/2009	B	1,970	2,444	O	-4188	-2822	-3509			
12/12/2009	B	1,976	2,481	O	-4895	-3162	-3605			
12/13/2009	B	1,985	2,893	O	-4562	-3645	-3738			
12/14/2009	B	1,979	3,997	O	-3422	-3997	-3618	NDOI &		
12/15/2009	B	1,952	4,486	C	-4676	-4349	-3555	Salinity		
12/16/2009	B	2,561	4,497	C	-5108	-4533	-3541			
12/17/2009	B	2,934	4,494	C	-5491	-4652	-3667			
12/18/2009	B	2,935	4,490	C	-5739	-4887	-3898			
12/19/2009	B	2,932	4,496	C	-5639	-5331	-4081			
12/20/2009	B	2,928	4,485	C	-5902	-5576	-4253			
12/21/2009	B	2,925	3,996	C	-6282	-5811	-4474			
12/22/2009	B	2,931	3,490	C	-4997	-5712	-4677			
12/23/2009	B	2,840	3,355	C	-3312	-5226	-4795			
12/24/2009	B	2,243	4,488	C	-4975	-5094	-4942			
12/25/2009	B	1,980	3,989	C	-5781	-5069	-5056			
12/26/2009	B	1,989	3,989	C	-6408	-5095	-5164			
12/27/2009	B	1,990	3,997	C	-5297	-5154	-5216			
12/28/2009	B	1,991	3,994	C	-4918	-5475	-5323			
12/29/2009	B	1,993	3,498	C	-4977	-5476	-5345			
12/30/2009	B	1,290	3,475	C	-4148	-5149	-5276			
12/31/2009	B	1,007	2,997	C	-2349	-4338	-5052			

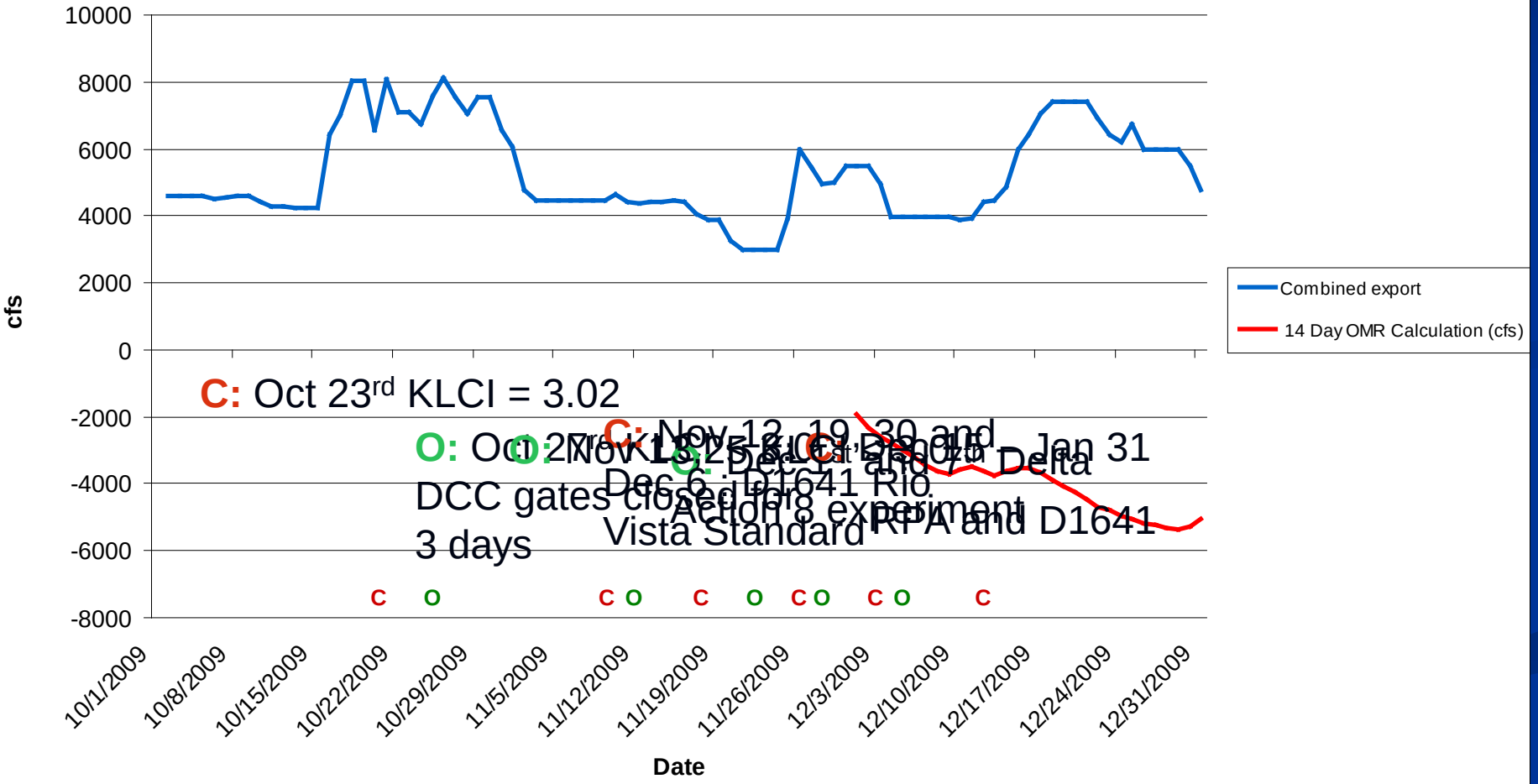
2010 Delta Operations
Oct - Dec



2010 Delta Operations
Oct - Dec



Water Year 2010 Delta Operations
Oct - Dec
Cross-Channel Gates



January - March

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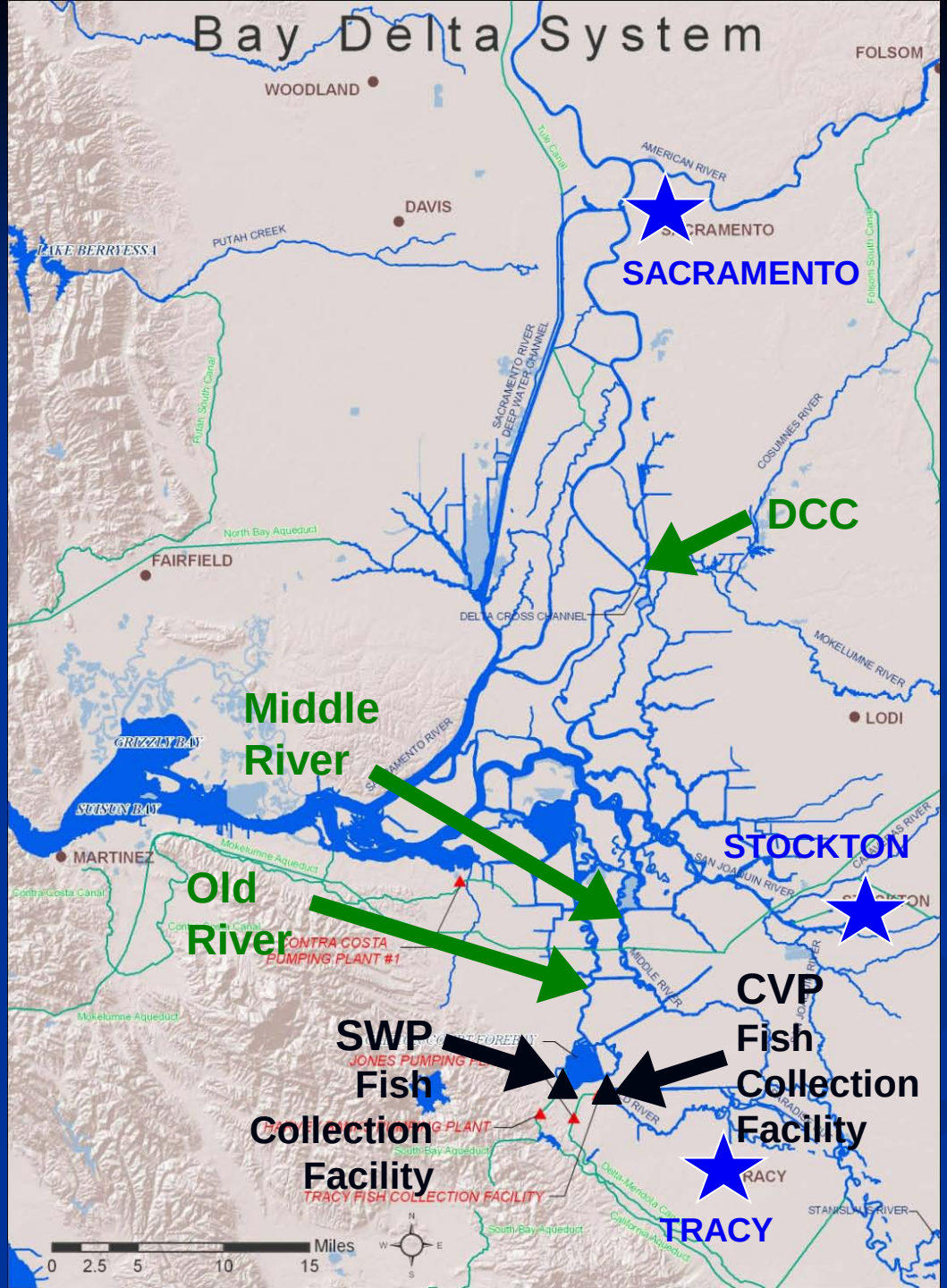
Bay Delta System
WOODLAND
FOLSOM
AMERICAN RIVER
DAVIS
PUTAH CREEK
LAKE BERRYESSA
SACRAMENTO
SACRAMENTO
Folsom South Canal
Putah South Canal
SACRAMENTO RIVER DEEP WATER CHANNEL
COSUMNES RIVER
DCC
North Bay Aqueduct
FAIRFIELD
DELTA CROSS CHANNEL
MOKELUMNE RIVER
LODI
Middle River
GRIZZLY BAY
SACRAMENTO RIVER
SUISUN BAY
MARTINEZ
Mokelumne Aqueduct
STOCKTON
SAN JOAQUIN RIVER
Old River
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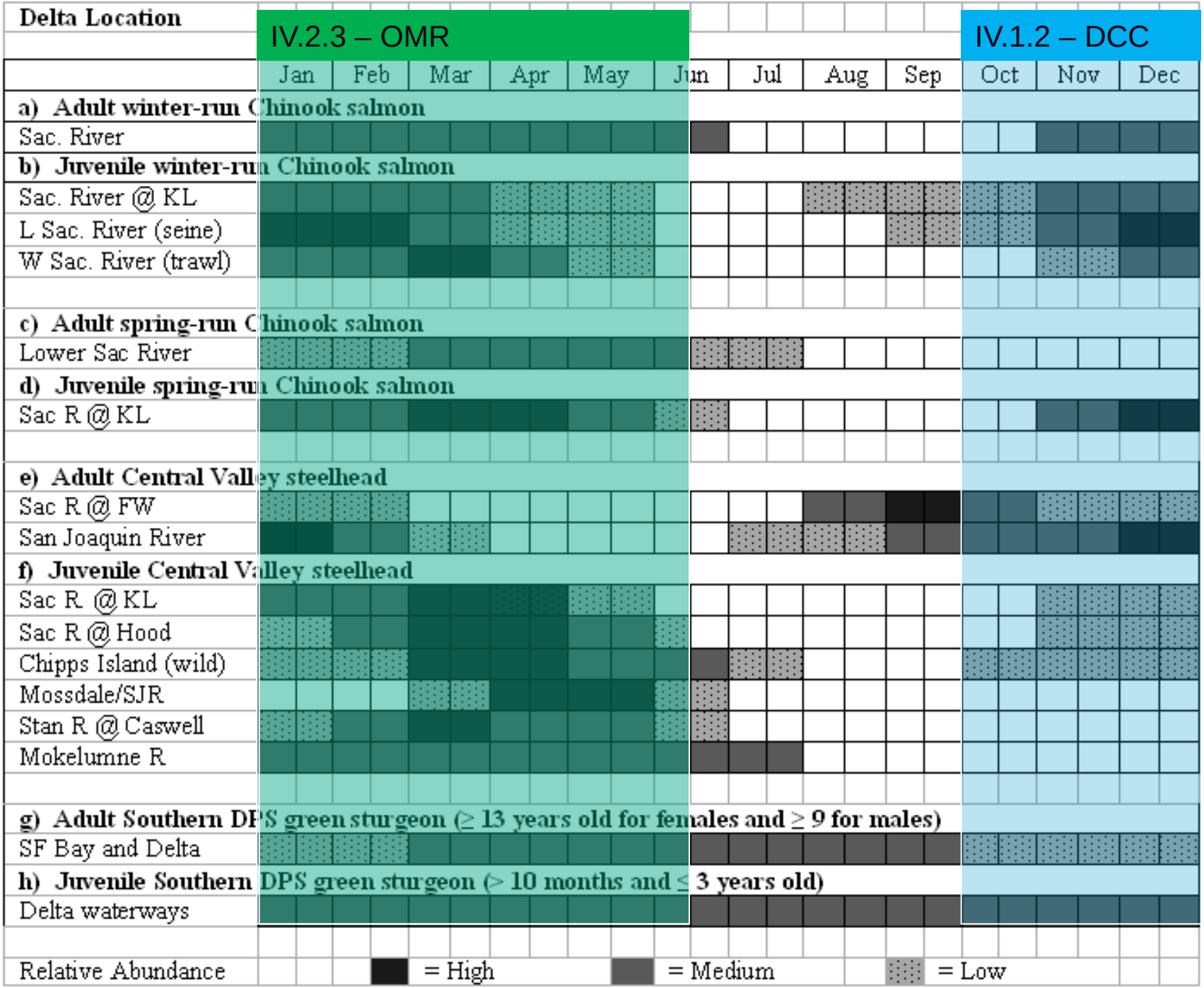
STANISLAUS RIVER
Delta-Mendota Canal
California Aqueduct
Miles
0 2.5 5 10 15


Delta Location
IV.2.3 – OMR
IV.1.2 – DCC
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
a) Adult winter-run Chinook salmon
Sac. River
b) Juvenile winter-run Chinook salmon
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Relative Abundance
= High
= Medium
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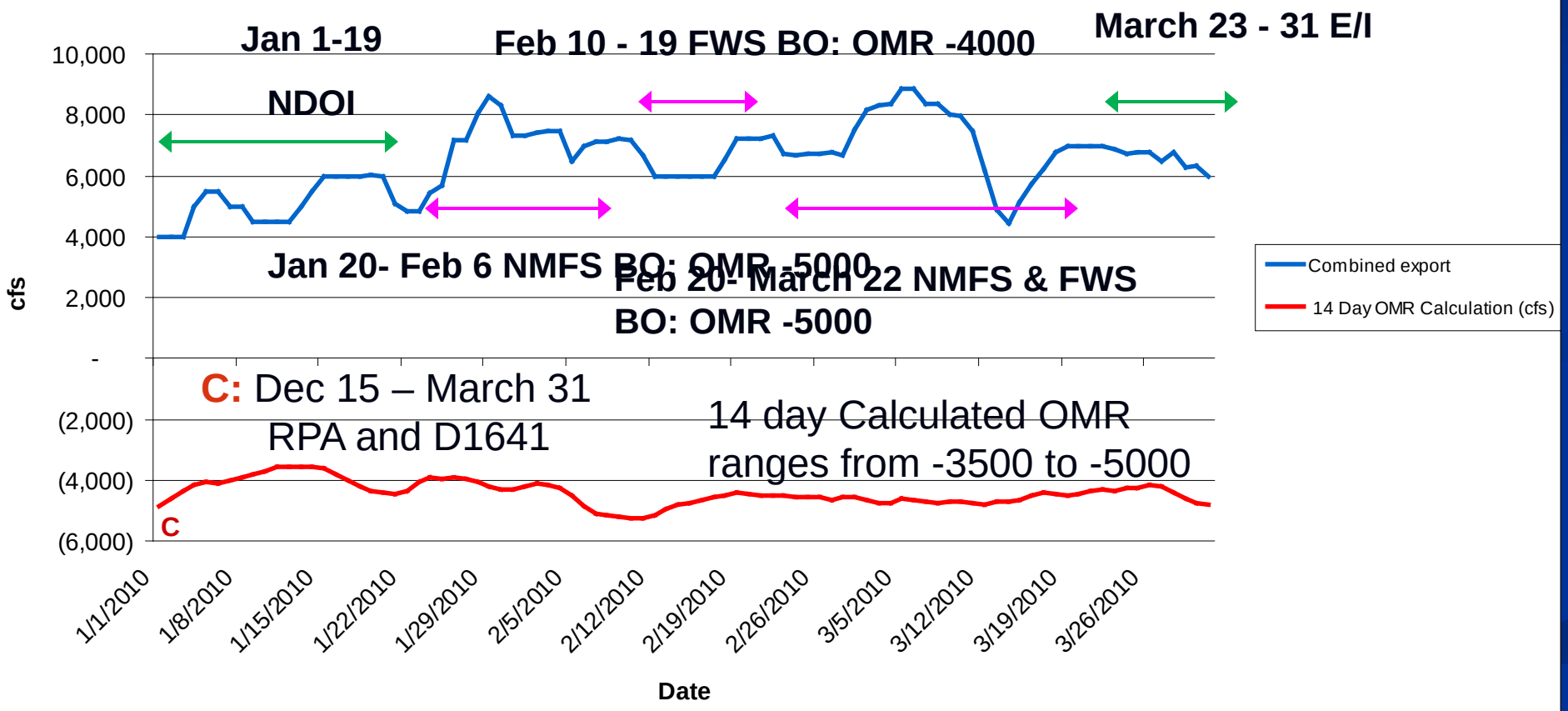
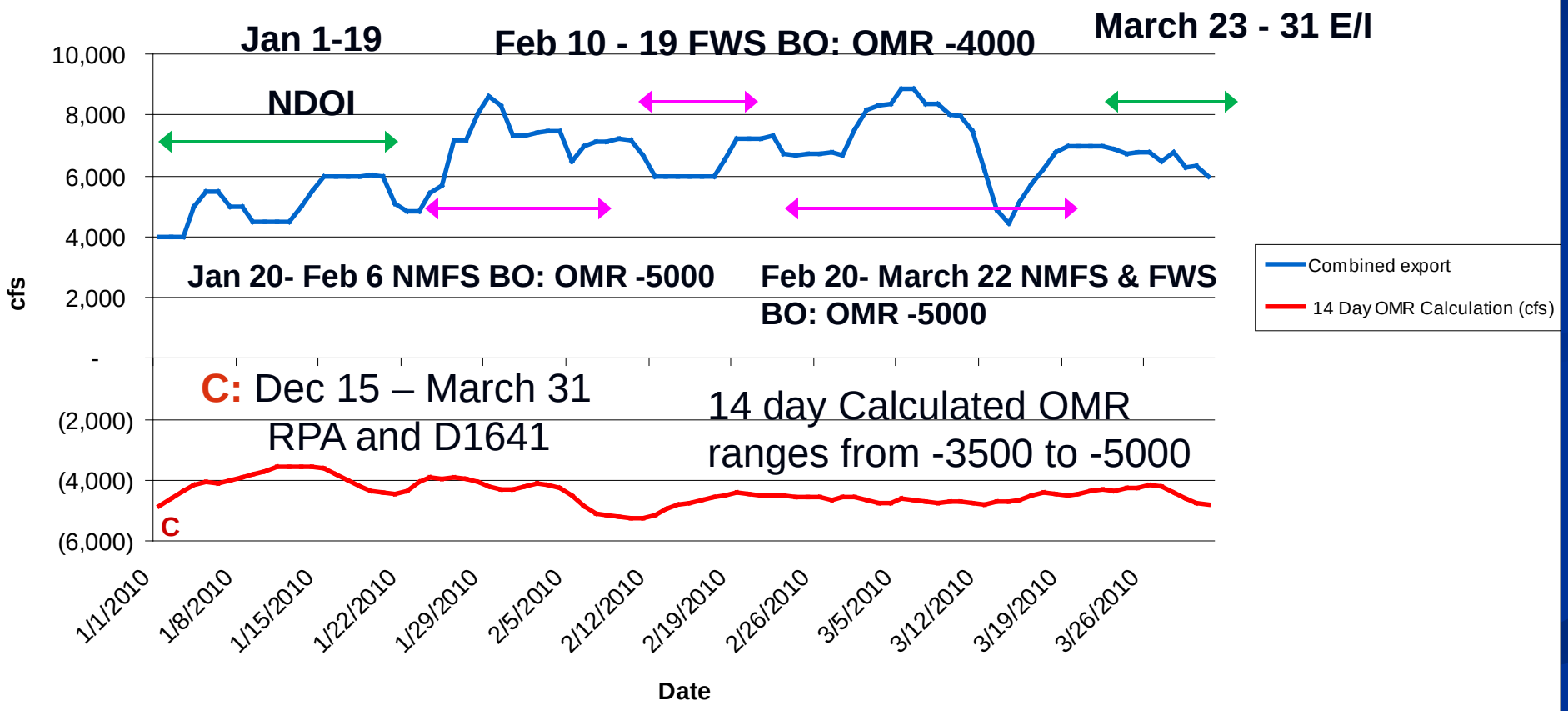
2010 Delta Operations
Jan - Mar



2010 Delta Operations
Jan - Mar



April - June

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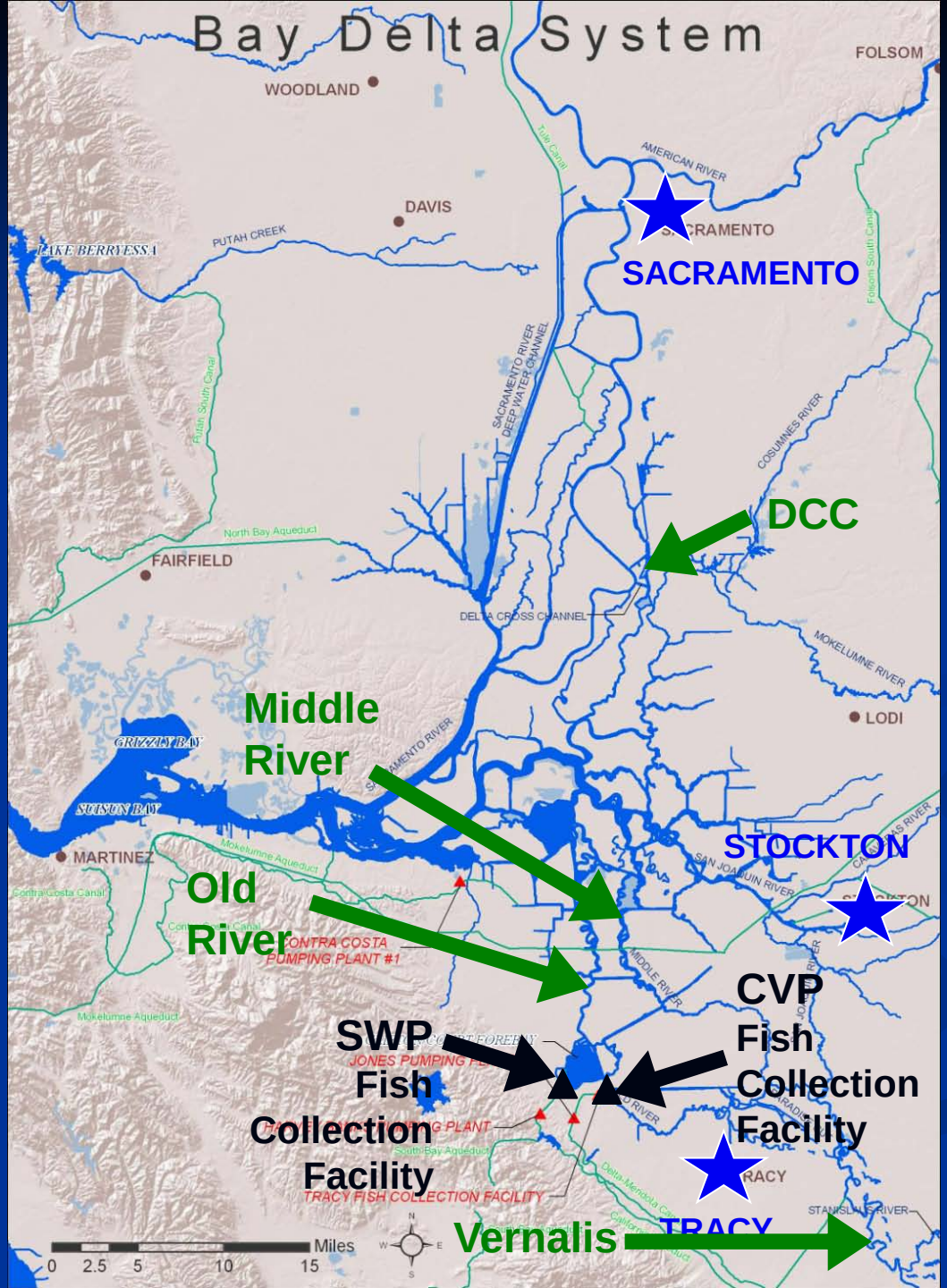
Bay Delta System
WOODLAND
FOLSOM
AMERICAN RIVER
DAVIS
PUTAH CREEK
LAKE BERRYESSA
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SACRAMENTO
SACRAMENTO RIVER DEEP WATER CHANNEL
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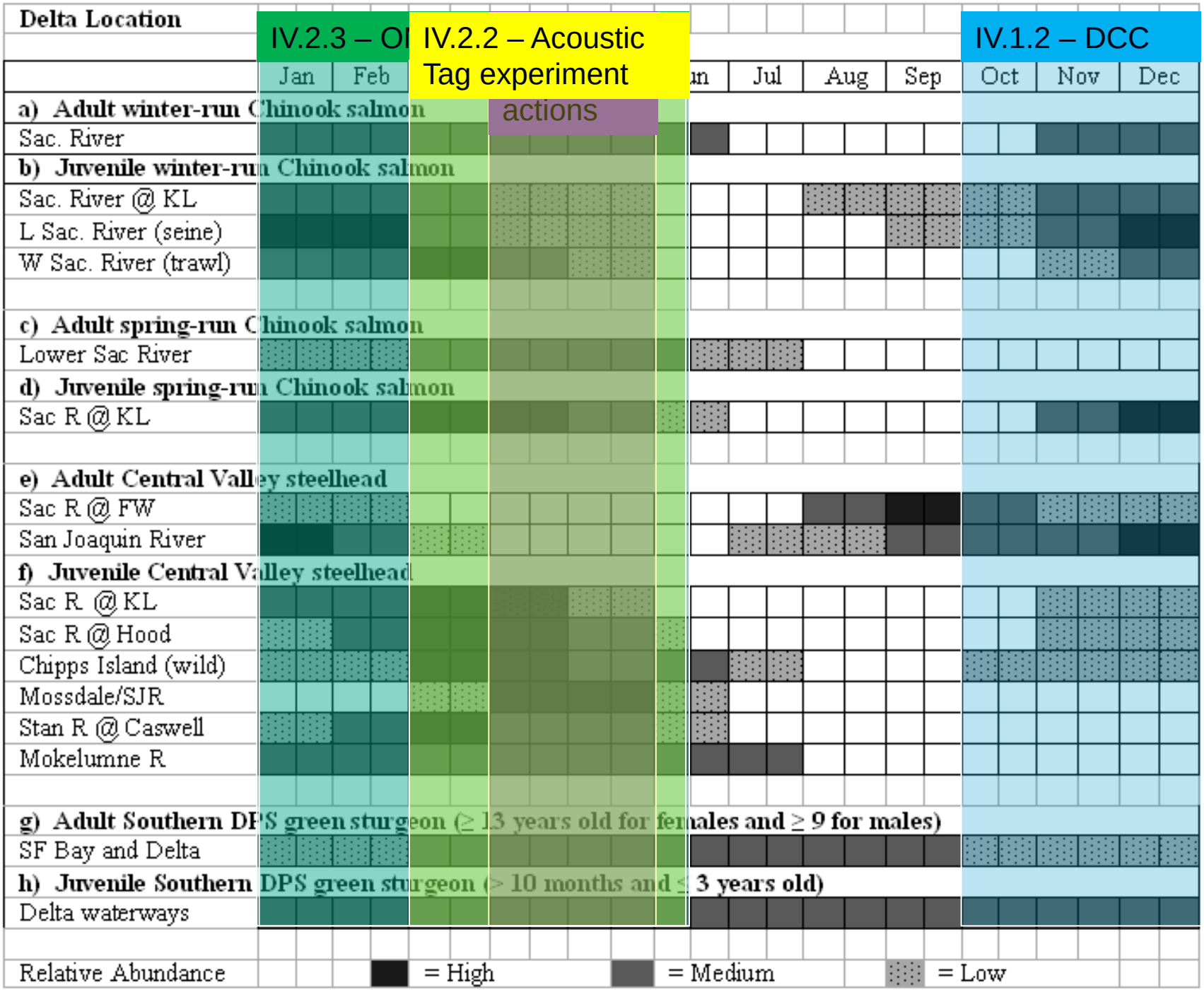
TRACY
Vernalis
TRACY
Miles
0 2.5 5 10 15


Delta Location
IV.2.3 – OI
IV.2.2 – Acoustic Tag experiment actions
IV.1.2 – DCC
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Feb
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Sep
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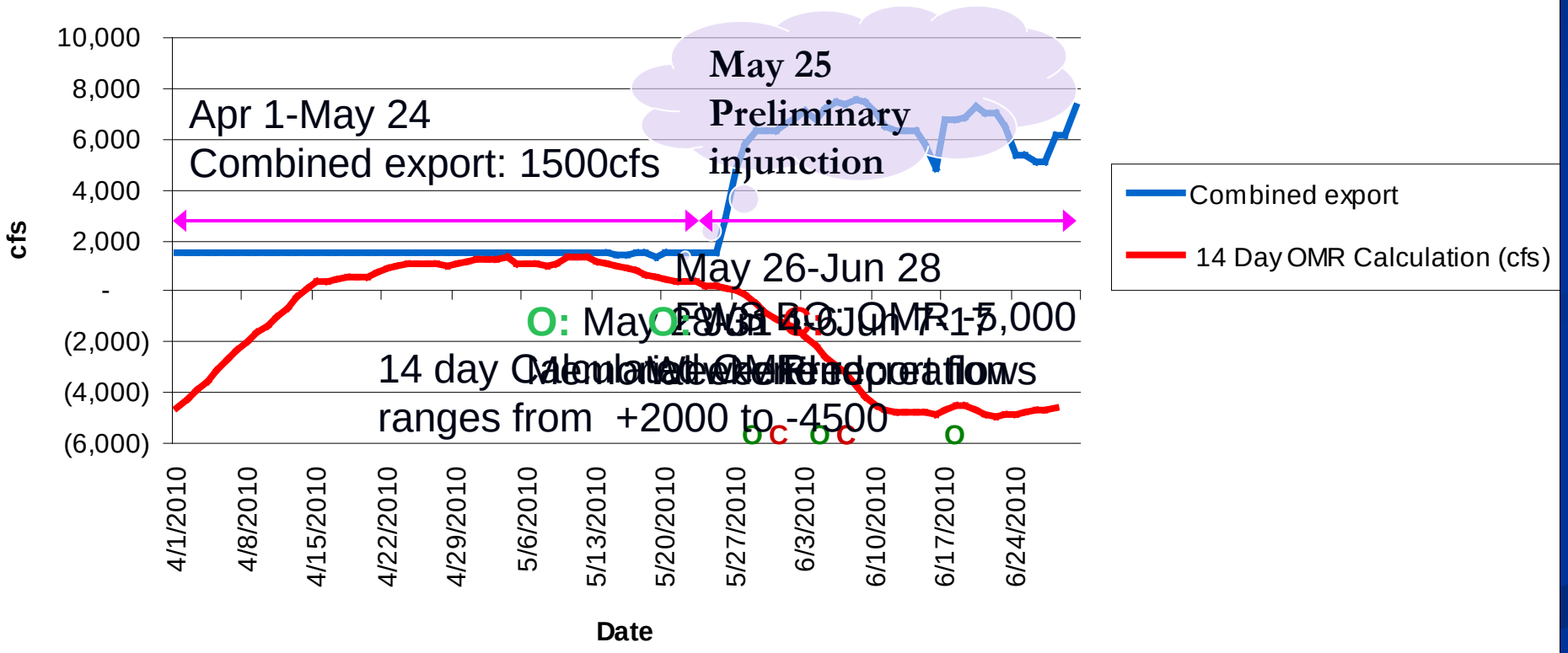
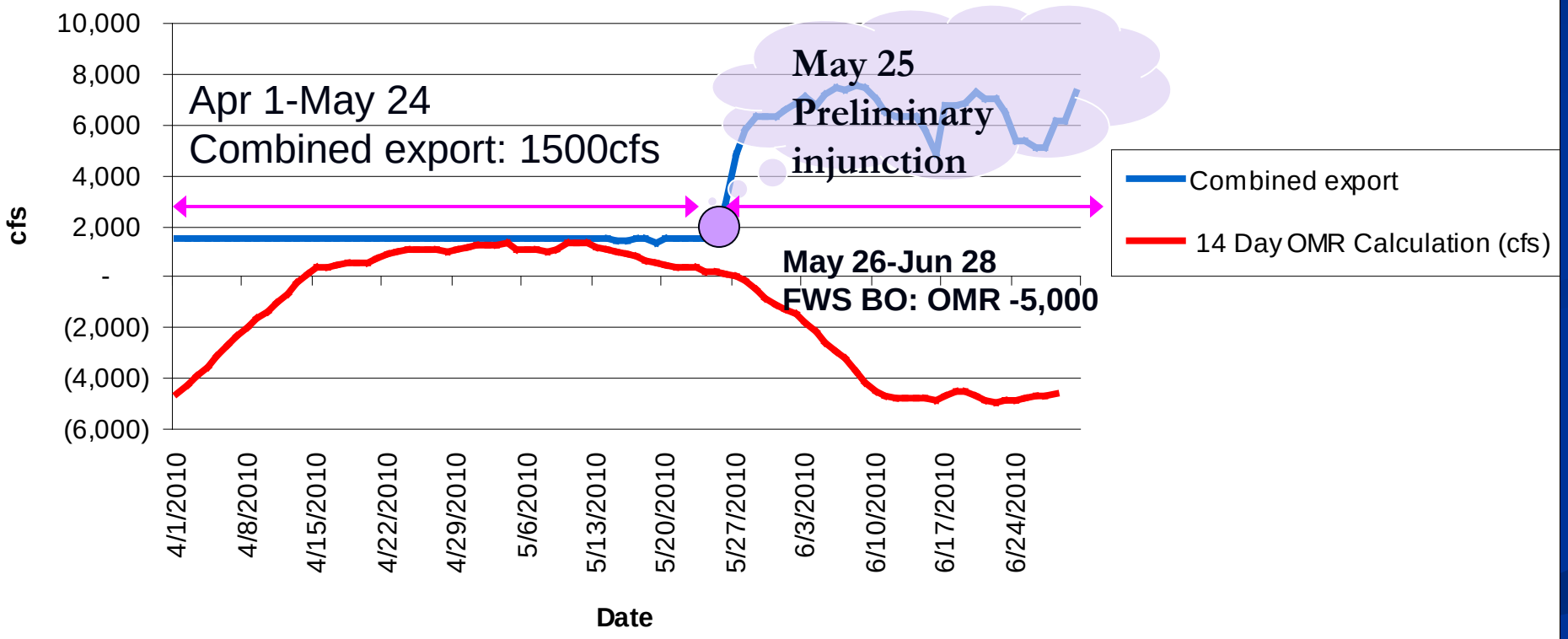
2010 Delta Operations
April - June



2010 Delta Operations
April - June



July - September

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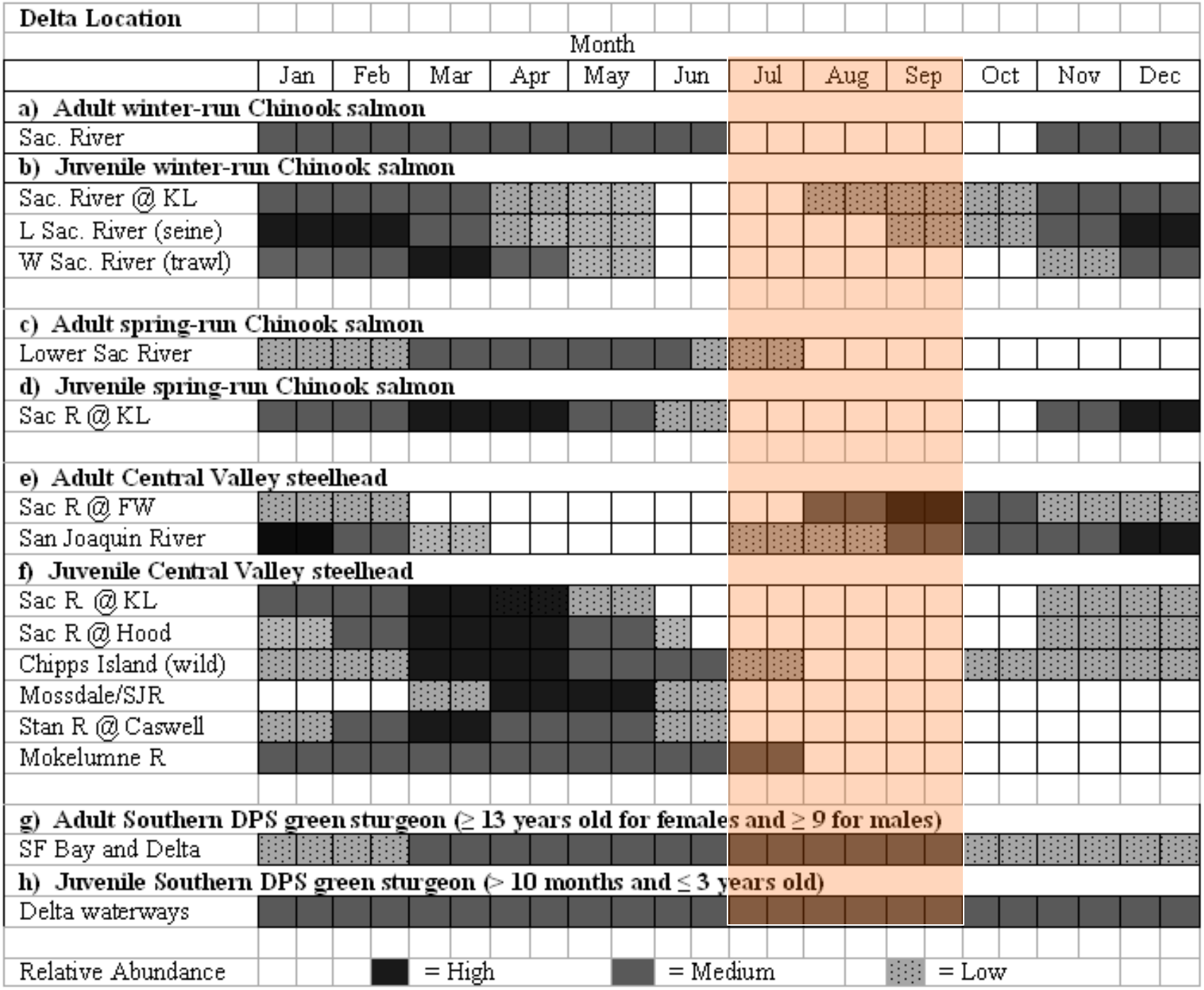
Delta Location
Month
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
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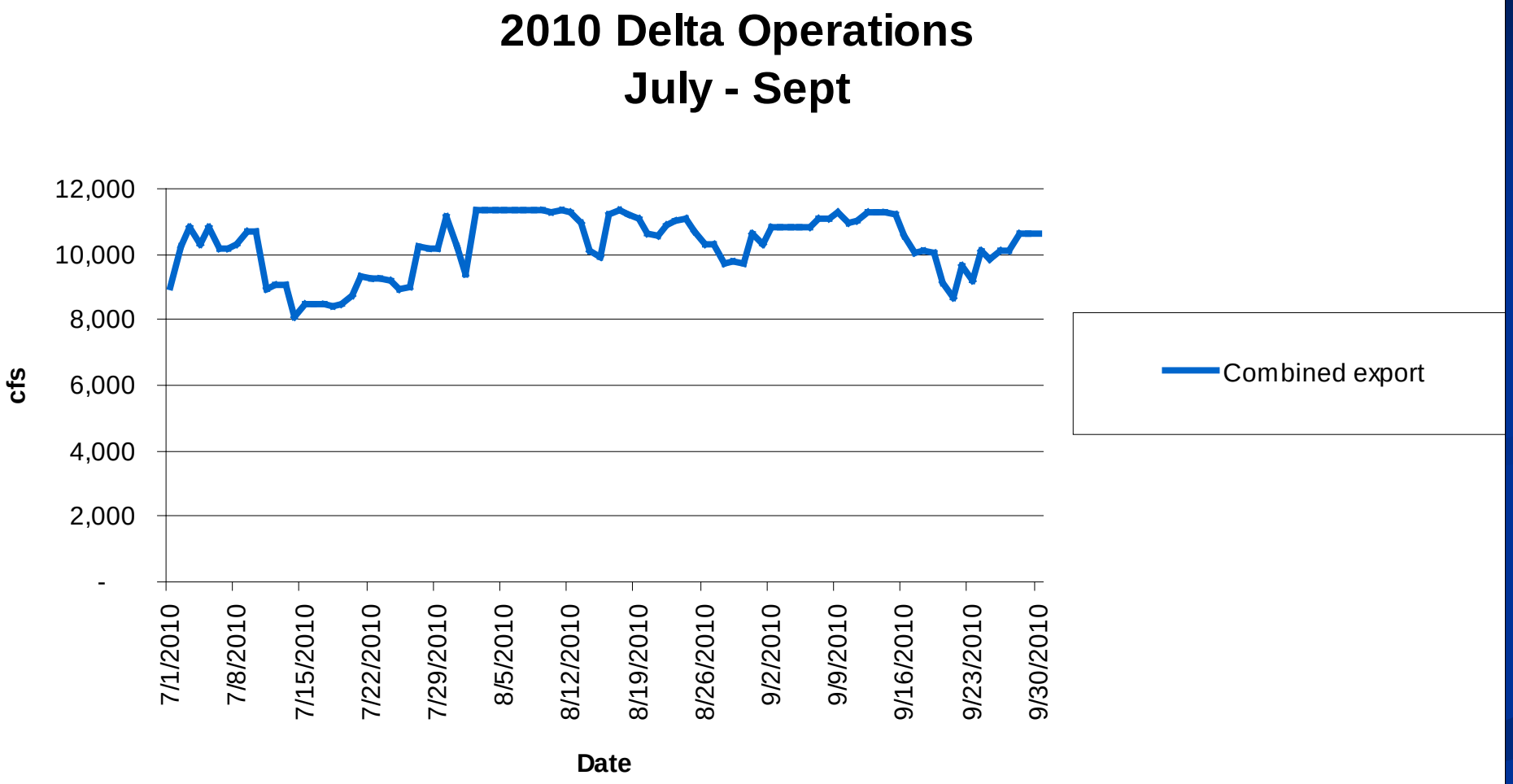
2010 Delta Operations
July - Sept
12,000
10,000
8,000
6,000
4,000
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-
cfs
7/1/2010
7/8/2010
7/15/2010
7/22/2010
7/29/2010
8/5/2010
8/12/2010
8/19/2010
8/26/2010
9/2/2010
9/9/2010
9/16/2010
9/23/2010
9/30/2010
Date
Combined export

Successes in 2010

- Interagency communication at technical staff level, and coordination with other technical teams
- Technical advice to WOMT
- Discussion and solution to SWP outage within RPA guidelines

Topics currently under review by DOSS

- OMR flows and fish density triggers
- OMR transitions
- Managing access to monitoring and salvage data
- Managing responses to RPA triggers

- *Upcoming:* Review of genetic data to assess the performance of the size-at-date criteria used to assign salvaged Chinook to a particular run

DOSS request for feedback

- Suggestions for additional monitoring or data review for improved implementation of, or evaluation of, the RPA Actions
- Other suggestions for improvement

Questions?

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Thuy Washburn | twashburn@usbr.gov

DOSS website: *http://swr.nmfs.gov/ocap/doss.htm*