

DELTA CONDITIONS REPORT, NOVEMBER 19, 2015

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EXECUTIVE SUMMARY

- Operational constraint: Salinity management.
 - X2 today is >81 km.
 - Scheduled combined exports today are 2,500 cfs.
 - Outflow index today is ~3,800 cfs. Yesterday, monthly NDOI was 5,792 cfs.
 - Yesterday's CDEC OMR values were -1,890 cfs (daily), -2,080 (5-day), -2,390 (14-day).
 - % inflow diverted today is 31.2% (3-day average).
- Salvage and ITLs, WY 2016
 - No salvage yet for listed species this water year.
- Surveys/monitoring
 - **Delta smelt**, most recent surveys:
 - Fall Midwater Trawl: September abundance index=5 (caught four delta smelt at index stations); October abundance index=0 (none collected at index stations). September-October abundance index=5, second lowest in FMWT history.
 - **Longfin smelt**, most recent surveys:
 - Bay Study, age-0 to age-2: Survey #10 (October). Midwater trawl (pelagic) caught no fish and otter trawl (demersal/bottom) caught age-0 fish in South Bay.
 - Fall Midwater Trawl: September-October abundance index=0, the lowest in FMWT history. No longfin smelt collected at index or non-index stations in either month.
 - **Winter-run juveniles**, most recent preliminary RBDD passage estimates:
 - Estimated 252,675 juveniles as of 11/18/15. For comparison, last year by 11/18/14, the estimate was 354,876 juveniles (28.8% greater).
- Expectations
 - DCC is closed and will open tomorrow (Friday) at ~9am for Rio Vista flow standard.
 - Head of Old River Barrier: Breaching occurred 11/13 and it should be completely removed by 11/19.
 - Agricultural barriers: Grant Line Canal was breached 11/4 and should be completely removed by 11/30. Old River near Tracy was breached 11/4 and should be completely removed by 11/16. Middle River barrier was scheduled for breaching on 11/17 and should be completely removed by 11/20.

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DELTA SMELT

- **Salvage:**

- No salvage for WY 16 yet. Data through 11/18.

	Combined salvage as of 11/18/15	Concern level for WY 2016	ITL for WY 2016
Adult	0	None yet	None yet
Juvenile	0		

- **Spring Kodiak Trawl:**

- Scheduled to begin December 14 and January 11.

- **Smelt Larval Survey:**

- Begins January 4.

- **Fall Midwater Trawl index:**

- September 2015: Caught 4 delta smelt at index stations, all in lower Sacramento River. Caught none at non-index stations. Abundance index of 5.
- October 2015: Caught no delta smelt at index stations. Caught 1 at a non-index station in SDWSC. Abundance index of 0.
- September-October abundance index=5. Second lowest in FMWT history.

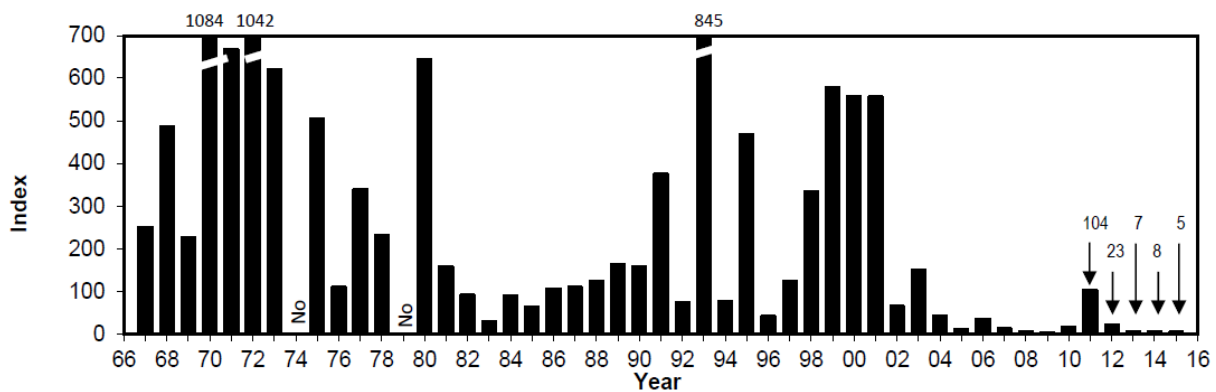


Figure 1. FMWT Delta Smelt September-October abundance indices, 1967-2015.

(“2015 Fall Midwater Trawl September-October fish abundance and distribution” memo from Sarah Finstad to Scott Wilson, CDFW, 10/26/15)

LONGFIN SMELT

- **Salvage:**
 - Salvage of 0 longfin smelt this WY (as of 11/18).
- **Spring Kodiak Trawl:**
 - Scheduled to begin December 14 and January 11.
- **Smelt Larval Survey:**
 - Begins January 4.
- **Fall Midwater Trawl:**
 - Caught no longfin smelt in September or October at index or non-index stations. September-October 2015 abundance index=0, the lowest in FMWT history.

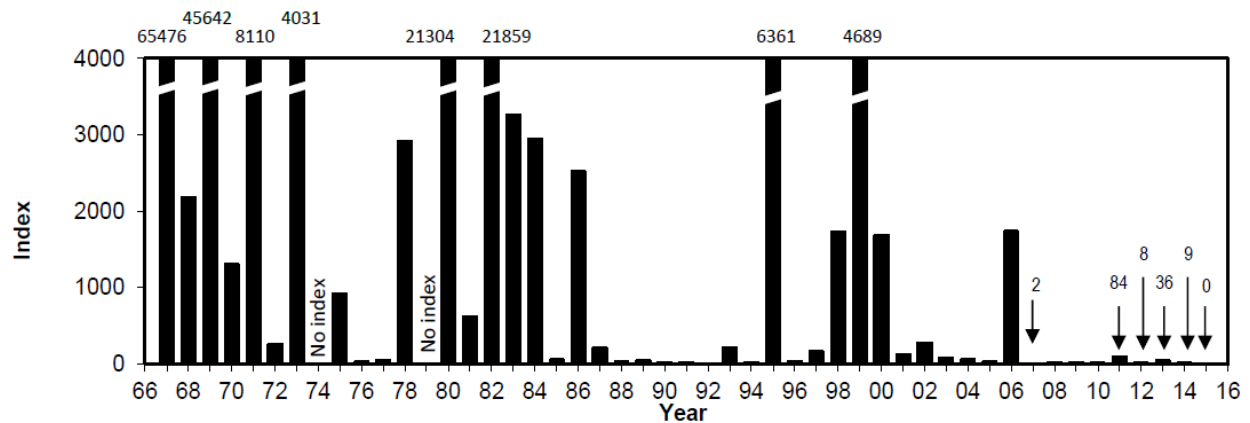


Figure 3. FMWT Longfin Smelt September-October abundance indices, 1967-2015.

(“2015 Fall Midwater Trawl September-October fish abundance and distribution” memo from Sarah Finstad to Scott Wilson, CDFW, 10/26/15)

- **Bay Study:**

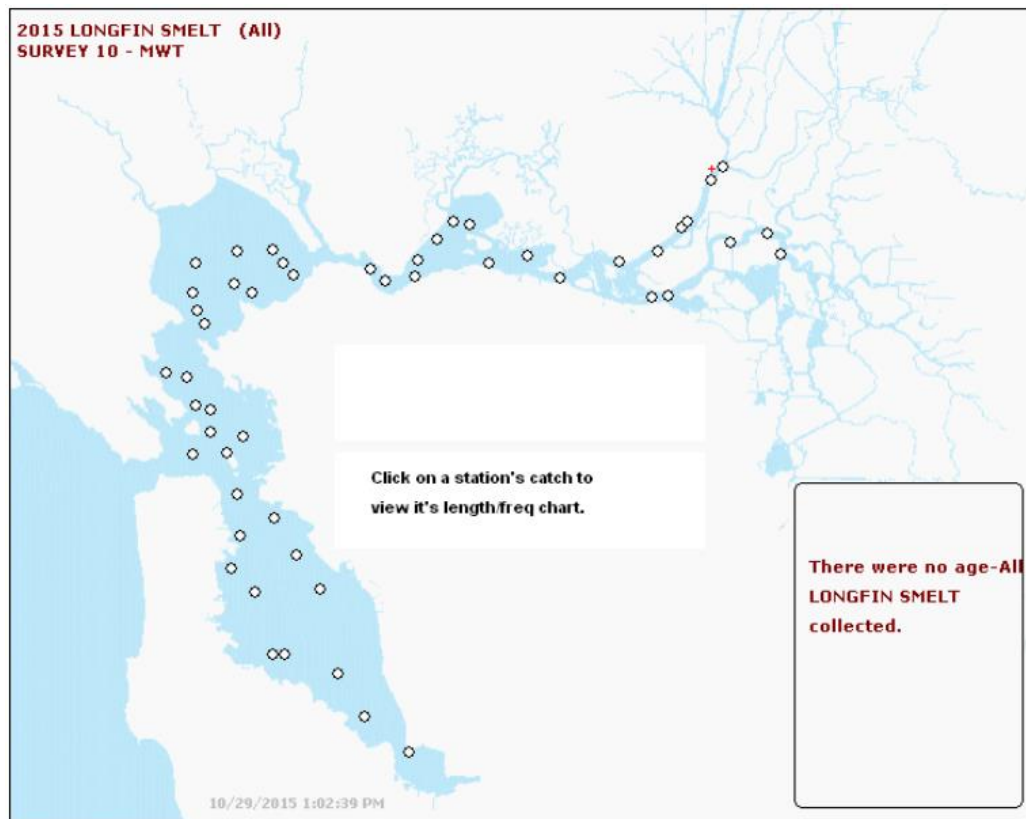


Figure: Monthly Mid water trawl (pelagic), Survey 10 (October). No longfin smelt were found in October. The last mid water trawl with catch was in June.

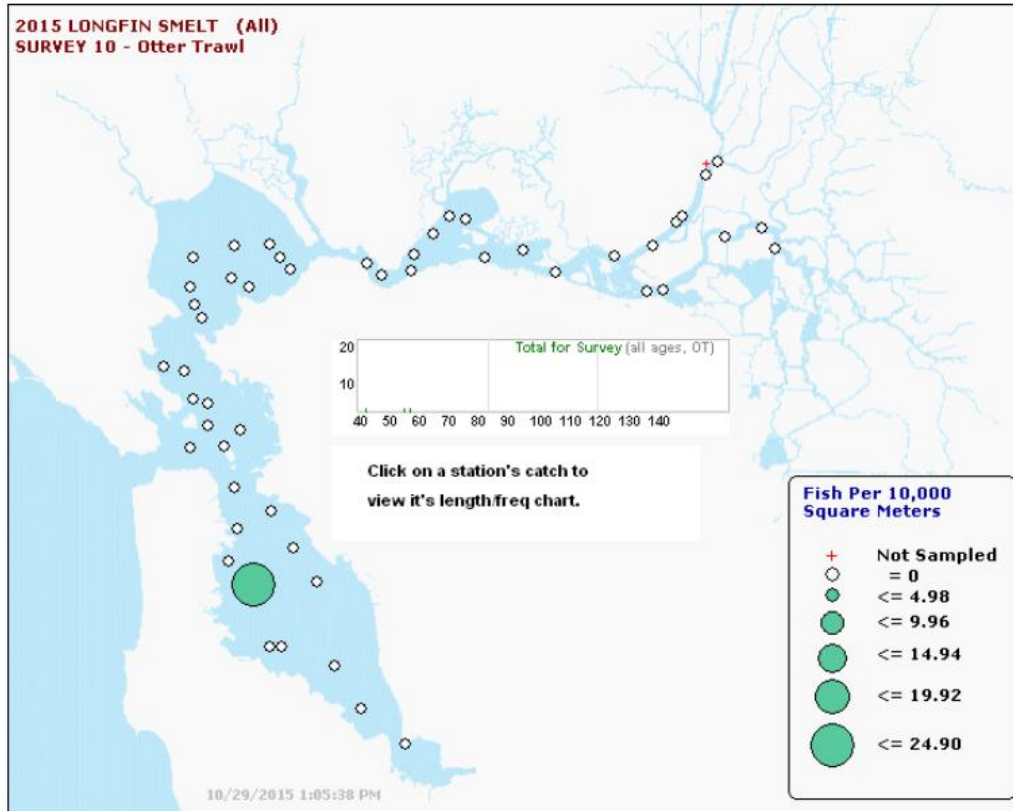


Figure: Monthly otter trawl (demersal/bottom), Survey 10 (October). Age-0 longfin smelt were caught in South Bay. The last otter trawl with catch was in June.

CHINOOK SALMON

- **Salvage:**
 - No salvage yet this water year. Data through 11/18.

	Cumulative combined loss as of 11/18/15	Winter-run concern level for WY 2015	<u>Winter-run ITL</u> for WY 2015
Non-clipped	0	None yet	None yet
Clipped	Clipped fish not released yet		

Coleman NFH Late-fall-run surrogate group	Released spring-run surrogates	Cumulative combined loss as of _	Spring-run surrogate concern level WY 2015 (0.5%)	<u>Spring-run surrogate ITL</u> WY 2015 (1%)
No releases yet.	N/A	N/A	None yet	None yet

- **DOSS estimates of fish distribution** (11/10/15 DOSS notes)
 - Bulk of young-of-year Winter-run still upstream of Delta, so are upstream of Knights Landing (>95%).
 - “Young-of-year juveniles from other runs (fall, spring, late-fall) are assumed rare or absent; many spring-run juveniles have likely not emerged yet from redds, fall-run spawning is still in progress, and late-fall-run spawning has yet to occur.”
- **Preliminary estimates of brood year 2015 Winter-run juvenile passage at Red Bluff Diversion Dam** (Josh Gruber, Red Bluff Fish and Wildlife Office, Biweekly report dated 11/19/15).
 - Estimated 252,675 juveniles as of 11/18/15. For comparison, last year by 11/18/14, the estimate was 354,876 juveniles (28.8% greater).
 - http://www.fws.gov/redbluff/rbdd_biweekly_final.html

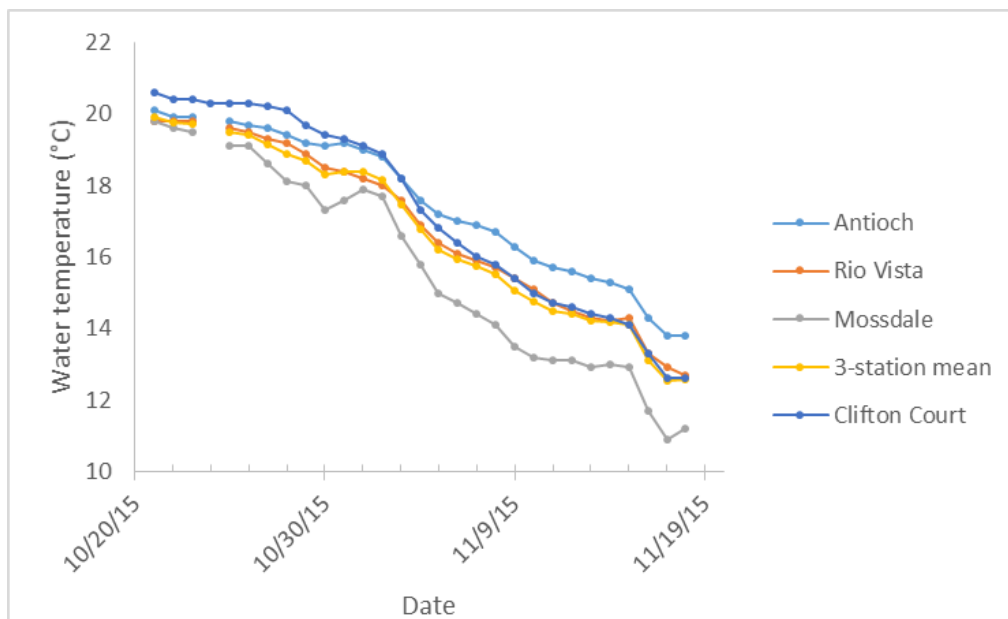
STEELHEAD

- **Salvage:**
 - No salvage yet this water year. Data through 11/18.

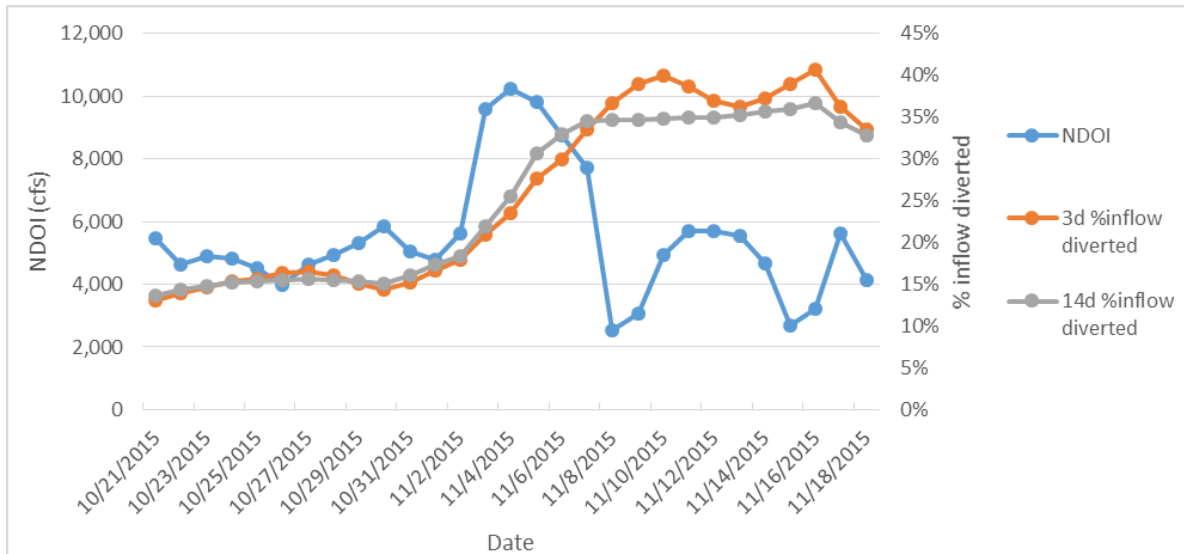
	Cumulative combined salvage for WY 2015 as of 11/18/15	Concern level	<u>Steelhead ITL</u>
Non-clipped, adults and juveniles	0	1,500	3,000

PHYSICAL CONDITIONS

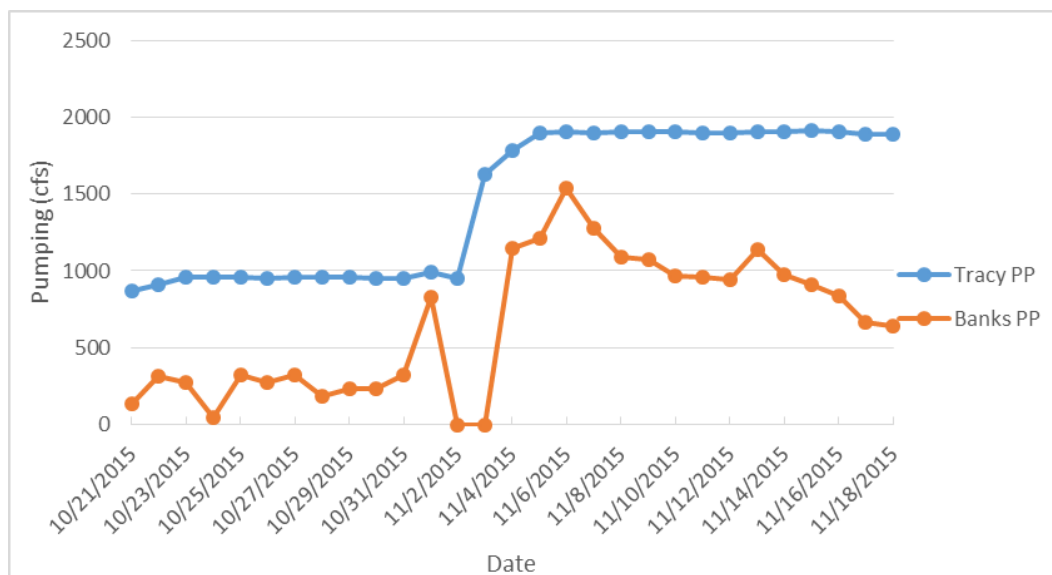
- Currently controlling operations: Salinity management.
- Location of X2, 11/19: >81 km (past Collinsville).
- DCC status, 11/19: Closed yesterday (11/18) and will open tomorrow (11/20) at ~9am for Rio Vista flow standard (11/16/15 USBR update).
- Turbidity (at sites in delta smelt BiOp)
 - Three-day mean Prisoner's Point: 2.1 NTU on 11/18
 - Three-day mean Holland Cut: 8.8 NTU on 11/18
 - Three-day mean Victoria Canal: 2.4 NTU on 11/18
- South Delta Temporary Barriers update (as of 11/16; email from Michelle Wong, DWR)
 - *Fall Head of Old River (HORB) barrier* closure occurred 9/14. Breaching occurred 11/13. Complete removal scheduled for 11/19.
 - *Old River near Tracy barrier* closure occurred 4/3. Was notched on 9/8 to allow fish passage. Breaching occurred 11/4 and complete removal should occur by 11/16.
 - *Middle River barrier* weir closed 3/30. Was notched on 9/8 to allow fish passage. Breaching was scheduled for 11/17 and complete removal is scheduled for 11/20.
 - *Grant Line Canal barrier* construction partial closure occurred 4/17. Closure occurred 6/19. Breaching occurred 11/4 and complete removal is expected by 11/30.
 - *Emergency drought barrier* closed on 5/28. Final inspection of construction occurred 6/23. Breaching occurred 10/1 and complete removal is expected on 11/15.
- Temperature



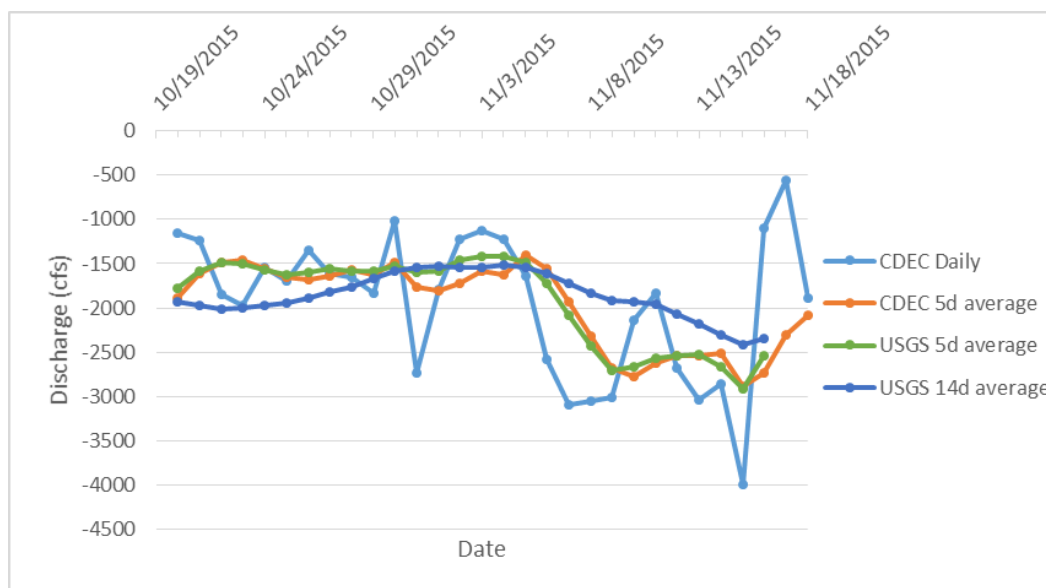
- Delta outflow index as of 11/19: ~3,800 cfs
 - On 11/18, the average NDOI was reported as 5,792 cfs (monthly) and 4,504 cfs (7-day).
 - November and December Delta monthly outflow requirements are 3,500 cfs.
- Total Delta inflow as of 11/19: ~7,160 cfs
 - Sacramento flow: 6,187 cfs
 - San Joaquin flow: 633 cfs
 - % inflow diverted (3-day average): 31.2%.
 - For % inflow diverted, July–January standard is 65%.



- Exports:
 - 11/19 scheduled exports: 500 cfs Clifton Court inflow; 2,000 cfs Jones/Tracy PP.



- Tidally-filtered OMR:



REGULATORY

- Delta smelt
 - Next RPA (Action 1) begins December 1.
 - Upcoming RPAs:

2008 BiOp RPA section	Trigger stage	Trigger month	Trigger criteria	WY 2016 information	Regulation
Action 1: Adult migration and entrainment (first flush) (RPA Component 1)	A	Dec. 1 - Dec. 20	Smelt Working Group may recommend a start date for the Action to the Service, based on conditions.		"Limit exports so that the average daily OMR flow is no more negative than -2000 cfs for a total duration of 14 days, with a 5-day running average no more negative than 2,500 cfs (within 25 percent)" (p. 329). SWG can recommend delayed start or interruption based on conditions affecting entrainment vulnerability.
	B	After Dec. 20	(1) Three-day average turbidity at Prisoner's Point, Holland Cut, and Victoria Canal are each > 12 NTU. (2) Three days of DS salvage at either facility. (3) Cumulative daily salvage $\geq 1/2$ prior year FMWT value.		
	Offramp	.	(1) Water temp reaches 12°C based on three-station daily mean at Mossdale, Antioch, Rio Vista. (2) Onset of spawning (presence spent females in SKT, Banks, or Jones).		Action 3 triggered, unless Service decides Action 2 should be implemented instead.

- Longfin smelt
 - Next ITP condition is 5.1 (OMR flow), beginning in December.
 - Upcoming RPAs:

2009 Longfin smelt ITP Condition	Trigger stage	Trigger month	Trigger	WY 2016 information	Regulation
5.1 (OMR flow)	.	Dec. - Feb.	(1) Cumulative salvage index (=cumulative combined salvage/FMWT index) >5 OR (2) Review of abundance and distribution survey data and other biological factors affecting entrainment risk of adults indicates OMR flow advice warranted.		SWG provides OMR flow advice to WOMET and Director of DFG weekly. Condition not likely to occur in many years. Would not trigger or would cease if Sacramento at Rio Vista > 55,000 cfs or San Joaquin at Vernalis > 8,000 cfs; retriggered at 40,000 and 5,000 cfs, respectively.
	Offramp		Spawning detected.		Condition 5.2 begins.

- Salmonids
 - Current and upcoming RPAs (WY 16 information from 11/10/15 DOSS notes):

2009 BiOp RPA section	Trigger stage	Trigger month	Trigger criteria	WY 2016 information	Regulation
IV.1.1 (Monitoring and alerts to trigger changes in DCC operations)	"First alert"	Oct. - Apr.	(1) Mean daily flow >95 cfs in Mill or Deer Creek OR (2) Starting in Oct., an increase in tributary flow of > 50% over levels immediately preceding flow spike--> indicates cues for emigration initiation.	Triggered (1) on 11/9	Either criterion can trigger the alert. Alert signals that gate operations might need alteration in near future to avoid diverting outmigrating Chinook.
	"Second alert"	.	(1) Water temp < 13.5°C at Knights Landing AND (2) Flows greater than 7,500 cfs at Wilkins Slough--> associated with recovering emigrating Chinook at Knights Landing.	First component triggered (11/5-11/7) but alert not triggered without second component	Alert triggered when both second alert criteria met.
IV.1.2 (DCC gate operations)	N/A	Oct. - Nov.	Fish present (criteria based on D1641 WQ standards, Knights Landing Catch Index, and Sacramento Catch Index).	Not met, as of 11/10	Gates closed if fish present. See 2011 amend., Encl. 2 (p. 62) for details on triggers.
		Dec. 1-14	1) If D-1641 WQ criteria met, DCC gates closed (unless NMFS approves Chinook experiment). 2) If WQ criteria are not met but both KLCI and SCI are <3 fish/d, DCC may be opened until WQ criteria met, then DCC will close within 24 hrs. 3) If WQ criteria are not met but either KLCI or SCI >3 fish/d, DOSS makes recommendation to NMFS and WOMT per Action IV.5 procedures (2011 amendment, Encl. 2 (p. 63)).		Gates closed, dependent on triggers.
		Dec. 15-Jan. 31	Gates may be opened for up to 5 days for NMFS-approved experiment, or for one-time event between Dec. 15-Jan. 5 when needed to maintain WQ in response to high tide coupled with low inflow.		Gates closed, dependent on triggers.
		Feb. - May 20	N/A	Closed.	Gates closed per D1641.
		May 21 - June 15	N/A		Closed up to 14 days per D1641.
IV.3 (Reduce likelihood of entrainment or salvage at export facilities)	"Third alert"	Nov. - Dec.	Catch index > 10 fish/d from either Knights Landing or Sacramento Catch Index.	Not triggered, as of 11/10	In conjunction with two DCC-closure triggers (Action IV.1.1), this alert signals that export operations might need to change in near future due to large numbers juvenile Chinook migrating into upper Delta.
	.		(1) Daily SWP/CVP older juvenile loss density > 8 fish/TAF. (2) Daily loss > 95 fish/d. (3) CNFH CWT late fall-run Chinook or LSNFH CWT winter-run cumulative loss > 0.5%.	Not triggered, as of 11/10	When any trigger criterion met, reduce exports to combined 6,000 cfs for 3 days or until CVP/SWP daily density < 8 fish/TAF.
	.		(1) Daily SWP/CVP older juvenile loss density > 15 fish/TAF. (2) Daily loss > 120 fish/d. (3) CNFH CWT LFR or LSNFH CWT WNT cumulative loss > 0.5%.	Not triggered, as of 11/10	When any trigger criterion met, reduce exports to combined 4,000 cfs for 3 days or until CVP/SWP daily density < 8 fish/TAF.