

Seasonal operations under the existing BiOps

The USFWS and NMFS BiOps on long-term operations of the Central Valley Project (CVP) and State Water Project (SWP) each contain a Reasonable and Prudent Alternative (RPA) that describes actions necessary to avoid jeopardy to species listed under the Endangered Species Act (ESA). RPA actions were developed based on the species' biological requirements¹. In general, these actions include consideration of individual populations, life stage, life-history traits, and timing of species' needs throughout the year.

Table 1 summarizes the overlap in timing of some of the key Delta-related RPA actions in the 2008 USFWS BiOp and the 2009 NMFS BiOp with species presence.

Table 1: Summary of species presence in the Delta (darker shading indicates greater abundance) and within-year timing and overlap of some key RPA actions in the USFWS and NMFS BiOps, including OMR flow management.

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Species presence in the Delta	Juvenile winter-run												
	Juvenile spring-run												
	Juvenile steelhead												
	Delta smelt												
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
OMR management in FWS and NMFS BiOps	NMFS Action IV.2.3 (juvenile migration and entrainment)												June 15 or temperature offramp
	FWS Action 1-A (adult migration and entrainment)				Dec 1-20								
	FWS Action 1-B (adult migration and entrainment)				After Dec 20								
	FWS Action 2 (adult migration and entrainment)						Follows Action 1						
	FWS Action 3 (larval entrainment)												
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Other actions in NMFS BiOp	NMFS Action IV.1.2 (Delta Cross Channel operations)									Jun			
	NMFS Action IV.2.1 (I:E ratio)												
	NMFS Action IV.3 (Export management)												

Real-time monitoring and Delta RPA actions in the NMFS BiOp

The seasonal species presence information in Table 1 for salmonids is based on the historical monitoring record. That record shows that there is variability from year to year, particularly in the timing of the first significant migration of juvenile Chinook salmon into the Delta from upstream spawning areas (generally associated with the first storm event in the fall or winter).

¹ ESA-listed species included in the NMFS' BiOp: Sacramento River winter-run Chinook salmon (endangered), Central Valley spring-run Chinook salmon (threatened), California Central Valley steelhead (threatened), the Southern Distinct Population Segment of North American green sturgeon (threatened), and Southern Resident killer whales (endangered). ESA-listed species included in USFWS's BiOp: Delta smelt (endangered).

To build in flexibility based on *observed* life-history timing and fish distribution each year, some of the Delta RPA actions in the NMFS BiOp include action responses that are required only when fish presence exceeds a specified threshold at a location (see map in Figure 1) relevant to the action in question. For example:

- **Action IV.2.1 (Delta Cross Channel Operations)** – From October through mid-December, closure of the Delta Cross Channel gates is required *only* when a specified catch index is exceeded based on sampling at locations upstream of the Delta Cross Channel: Knights Landing rotary screw traps, Sacramento beach seines, or Sacramento Trawl.
- **Action IV.2.3 (OMR management)** – From January through mid-June, an OMR limit of -5,000 cfs is in effect; however, OMR limits more positive than -5,000 cfs are required *only* when a specified loss-density threshold is exceeded based on combined loss observed at the CVP and SWP export facilities.
- **Action IV.3 (Export management)** – During November and December, export reductions are required *only* when a specified loss-density threshold is exceeded based on combined loss observed at the CVP and SWP export facilities. Because high loss early in the season is rare, the loss-density triggers in Action IV.3 have been triggered only twice since the NMFS BiOp was issued in June 2009 – both exceedances occurred in early December 2012, and only the first exceedance required an export change (at the time of the second exceedance, an OMR criterion for Delta smelt was controlling exports and no further export reduction was required).

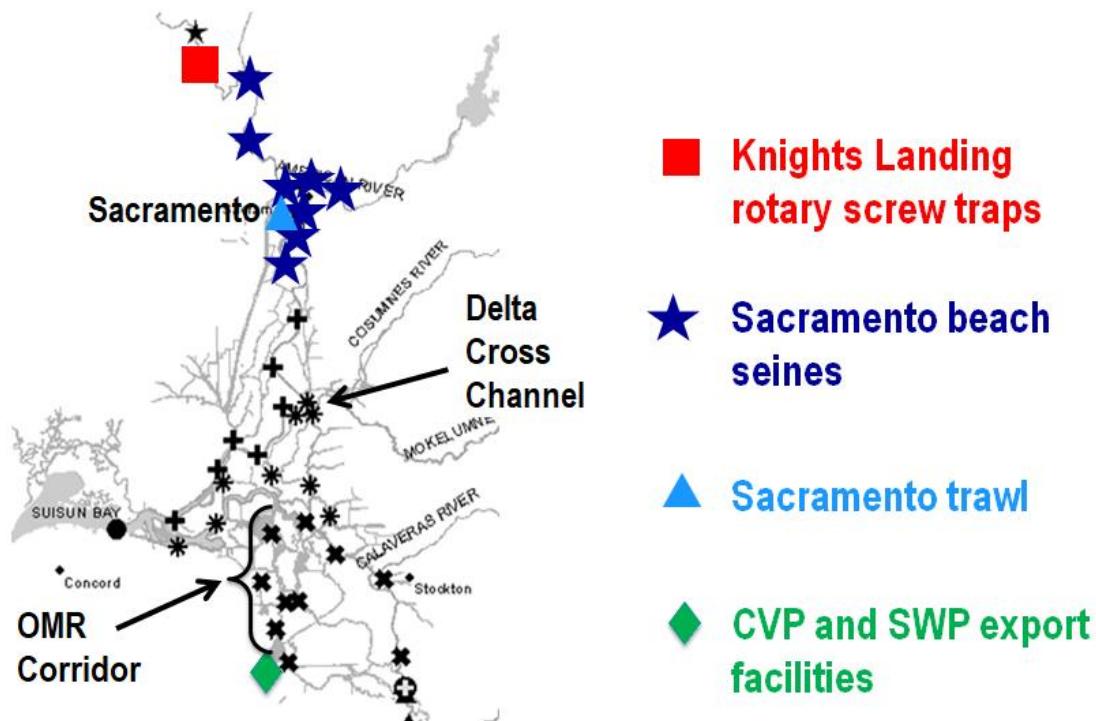


Figure 1: Sampling locations associated with monitoring-based triggers for some Delta RPA Actions in the NMFS BiOp.