

# Monitoring Programs from Appendix C

## Key

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\* = real-time monitoring

\*\* = adaptive management

*Italics = maybe not need take coverage?*

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## Clear Creek

- **\*Adult Spring Chinook Escapement Monitoring in Clear Creek:** video weir; snorkel surveys; life history sample collection (carcass)
- **Juvenile Spring-Run and Steelhead Production Monitoring in Clear Creek:** rotary screw traps
- **Adult Steelhead and Late-fall Chinook Escapement Monitoring in Clear Creek:** video weir and kayak redd counts

## Sacramento River

- **\*Red Bluff Diversion Dam Rotary Screw Trap Juvenile Monitoring Project:** juvenile estimates for all Chinook runs; lamprey, green sturgeon. [Section 10- USFWS](#)
- **\*Juvenile Salmon Delta Emigration Real Time Monitoring:** Sacramento and Chipps Trawl for salmonids. [Section 10- USFWS. Listed as compliance for OCAP 2009 in IEP Workplan](#)
- **\*Lower Sacramento River Juvenile Salmon and Steelhead Monitoring Project:** rotary screw trapping at Knights landing. [Section 10- CDFW. Listed as compliance for OCAP 2009 in IEP Workplan](#)
- **\*Winter-run Chinook Salmon Escapement Monitoring:** Carcass surveys
- **Spring, Fall, and Late-fall Chinook Salmon and Steelhead Escapement Monitoring in the Upper Sacramento River Basin:** carcass surveys, aerial and wading redd surveys; video weirs, snorkel surveys in mainstem and major tributaries. Life history sample collection (carcass)
- **\*\*Upper Sacramento River Habitat Restoration Monitoring Project:** project effectiveness surveys at habitat improvement projects (snorkel; video; electrofish; seine)

## American

- **American River Chinook Salmon and Steelhead Escapement Estimation:** carcass surveys, aerial and wading redd surveys

## Stanislaus

- **Stanislaus River Chinook Salmon and Steelhead Escapement Estimation:** carcass surveys, aerial and wading redd surveys

## San Joaquin

- **Mossdale Spring Trawl:** trawl for juvenile steelhead and Chinook salmon. [Section 10- USFWS. Listed as compliance for OCAP 2009 in IEP Workplan](#)

## Hatchery

- **Genetic Analyses of California Salmonid Populations: Parentage Based Tagging (PBT) of salmonids in California Hatchery Programs.**

## Delta

- **\*Fish Salvage Operations: Tracy and Skinner:** daily salvage and loss; operational conditions, tissue sample collection. Salvage take covered under OCAP 2009 ITS, tissue collection covered under Section 10- BOR. Included in IEP Workplan
- **Delta Juvenile Salmon Monitoring (DJFMP seines and trawls)** Section 10- USFWS. Salmonid components listed as compliance for OCAP 2009 in IEP Workplan
- Smelt
- *\*Delta Flow Measurement and Database Management*
- **Environmental Monitoring Program**
- *\*Enhanced Delta Smelt Monitoring*
- *Fall Midwater Trawl: Delta, Deep water shipping channel, and San Pablo Bay-* Section 10- CDFW. Included in IEP Workplan
- *20-mm Survey monitoring to determine distribution and relative abundance of Delta Smelt and Longfin smelt-* Section 10- CDFW. Included in IEP Workplan
- *Spring Kodiak Trawl-* Section 10- CDFW. Included in IEP Workplan
- **Estuarine and Marine Fish Abundance and Distribution Survey (Bay Study)-** Section 10- CDFW. Included in IEP Workplan
- **Smelt Larva Survey (SLS)-** Section 10- CDFW. Included in IEP Workplan
- **Summer Towntnet Survey-** Section 10- CDFW. Included in IEP Workplan
- **\*\*Tidal Wetland Monitoring Studies-** Section 10?- CDFW. Listed as compliance for OCAP 2009 in IEP Workplan
- **\*\*Bay Salinity Monitoring-** *no take coverage necessary*-USGS. Included in IEP Workplan
- **\*\*Upper Estuary Zooplankton Sampling-** Section 10?- CDFW. Included in IEP Workplan

## Multi Division

- **\*Genetic Identification of Salmonids and Smelt to Inform Central Valley Project Operations and Bay-Delta Monitoring:** For verifying winter and spring run. Sampling at fish facilities and monitoring programs to help with juvenile estimates; and larval fish ID at fish facilities. Salvage take covered under OCAP 2009 ITS, tissue collection covered under Section 10- BOR. Included in IEP Workplan
- **\*Operation of Thermograph Stations-** *no take coverage necessary*-USGS. Included in IEP Workplan
- **Enhanced Acoustic Tagging, Analysis, and Real-time Monitoring:** Sacramento River through delta. Salmonids and sturgeon. Survival. Mention of real-time. Some take under USFWS Section 10 (Red Bluff Office)

## Gaps in Monitoring

- Funding or studies beyond collection of data (otolith/scale collection). Genetics may be covered for all monitoring.
- Operation of Clear Creek segregation weir (to separate fall and spring run Chinook salmon during spawning)
- Inclusion of steelhead at Red Bluff Diversion Dam screw trapping- O. Mykiss counts are reported monthly
- Inclusion of green sturgeon at Red Bluff Diversion Dam screw trapping
- Clear Creek habitat surveys
- Adult sturgeon population estimates- Section 10- CDFW. Included in IEP Workplan