

List of the current anadromous fish (steelhead, salmon, and sturgeon) projects being conducted by NOAA at the South West Fisheries Science Center.

Date: 13 October 2011

Central Valley and Klamath, and other area activities:

Salmon Stock Assessment

- 1) **Description:** Primary responsibility for conducting annual population assessments of California's salmon stocks for PFMC, including determination of population sizes, spawning escapements, and fishery impacts.
- 2) **P.I.:** M. O'Farrell
- 3) **Funding source:** Internal
- 4) **Start date:** FY88
- 5) **End date:** ongoing (permanent)
- 6) **Current status:** Assessment is performed annually during the Jan–Feb period.

Salmon Fishery Assessment

- 1) **Description:** Annual evaluation of expected fishery impacts under PFMC-proposed fishery management measures, including impacts on ESA-listed stocks. Primary responsibility for maintaining and operating salmon fishery management models used by the PFMC for managing California and Oregon ocean fisheries, and Central Valley and Klamath Basin river fisheries. Serve as California salmon science liaison to the SWR, NWR, PFMC, fishing industry representatives, and the public for the duration of the annual salmon fishery management process.
- 2) **P.I.:** M. O'Farrell
- 3) **Funding source:** Internal
- 4) **Start date:** FY98
- 5) **End date:** ongoing (permanent)
- 6) **Current status:** Evaluation and consultation are performed annually during the Mar–Apr period.

Application of Genetic Stock Identification Data in Salmon Stock and Fishery Assessments

1. **Description:** Development and application of analytical methods for use in the analysis and interpretation of GSI data collected in ocean salmon fisheries, including estimation of ocean stock distributions (as opposed to fishery stock composition, i.e. pie charts), and combination of GSI and CWT data in stock and fishery assessments and management models.
2. **P.I.:** M. Mohr
3. **Funding source:** Klamath Fishery Disaster Fund
4. **Start date:** FY09
5. **End date:** FY12
6. **Current status:** Methods are currently under development.

Genetic Assays for Pacific salmonids with emphasis on CV and Klamath populations

- 1) **Description:** Development of assay sets for salmon and steelhead that will have application within the Klamath and CV and also through California. 96 for steelhead, 96 for salmon SNP assays. Single nucleotide polymorphisms, or SNPs (pronounced "snips"). Would be used as part of GSI. Timely development of these assays would secure locus standardization.
- 2) **P.I.:** C. Garza
- 3) **Funding source:** Internal, SWR-PRD
- 4) **Start date:** FY10
- 5) **End date:** FY11
- 6) **Current status:** Largely completed. Steelhead and Chinook salmon are completed; coho salmon assays are currently in validation. Project has expanded to include standardization and baseline development with the NWFSC (coho) and coast-wide evaluation for the Pacific Salmon Commission.

Mass Marking and Mark-Selective Fishery Scientific Workgroup

- 1) **Description:** SWR, CDFG, and USFWS requested SWFSC to form and lead a scientific workgroup to evaluate alternative marking/tagging systems for Central Valley and Klamath Basin hatchery-produced salmon with respect to their ability to meet explicitly defined management needs and their implementation cost.
- 2) **P.I.:** M. Mohr
- 3) **Funding source:** Internal (SWR - travel expenses for non-NMFS personnel only)
- 4) **Start date:** FY10
- 5) **End date:** FY11
- 6) **Current status:** A draft report has been written based on analyses conducted to date. Further analyses will be undertaken in the coming months and a final report issued.

California Hatchery Scientific Review Group (CA HSRG)

- 1) **Description:** U.S. Congress requested formation of a scientific panel to conduct an independent evaluation of current hatchery operations and programs in the Central Valley and Klamath Basin, and to make recommendations for improvements.
- 2) **P.I.:** M. Mohr, C. Garza
- 3) **Funding source:** USFWS
- 4) **Start date:** FY11
- 5) **End date:** FY12
- 6) **Current status:** Evaluation of the Klamath Basin and Central Valley anadromous fish hatcheries has been completed. The HSRG is now focused on drafting a final report with a target completion date of January 2012.

Juvenile salmon ocean survey: southern Oregon to Central California

- 1) **Description:** We conduct two cruises (July and Sept) to study the spatial-temporal distribution, abundance, growth, and energetics of juvenile salmon. Fish are genetically ID to stock (primarily Central Valley and Klamath). Data are compared with trophic resources and oceanographic conditions on the coast of

California using a rope trawl, plankton nets, CTD, and hydroacoustics, and ultimately related to escapement. 1-7 July to 1-13 September.

- 2) **P.I.:** S. Hayes, B. Wells, J. Harding
- 3) **Funding source:** Internal
- 4) **Start date:** on-going
- 5) **End date:** on going
- 6) **Current status:** annually repeating surveys.

ESA and Climate Change working group

- 1) **Description:** Develop best practices for including climate change considerations in NMFS ESA activities
- 2) **SWFSC lead:** S. Lindley
- 3) **Funding source:** Internal
- 4) **Start date:** July 2010
- 5) **End date:** December 2012
- 6) **Current status:** Several manuscripts are in development that will provide examples and guidance for SWR biologists working on critical habitat, Section 7 consultations, recovery plans and HCPs.

Reintroductions working group

- 1) **Description:** Develop best practices for reintroducing salmonids to habitats made available by fish passage of dam removal.
- 2) **SWFSC lead:** S. Lindley
- 3) **Funding source:** Internal
- 4) **Start date:** September 2010
- 5) **End date:** ??
- 6) **Current status:** a large report is in development, focusing on interior Columbia River, but should have many applications elsewhere.

Green sturgeon recovery team

- 1) **Description:** Recovery team for green sturgeon.
- 2) **P.I.:** SWFSC lead S. Lindley
- 3) **Funding source:** Internal
- 4) **Start date:** 2010
- 5) **End date:** 4Q 2011
- 6) **Current status:** ongoing

CCC coho salmon BRT

- 1) **Description:** Request from SWR for SWFSC to convene BRT to determine southern boundary of CCC coho salmon. This request was in response to a petition to change the southern boundary of the ESU to the Golden Gate Bridge.
- 2) **P.I.:** B. Spence
- 3) **Funding source:** Internal
- 4) **Start date:**
- 5) **End date:**
- 6) **Current status:** Completed

5-yr status updates of list ESUs/DPSs in California

- 1) **Description:** As part of the ESA, NMFS is required to review the status of each listed ESU/DPS every five years. The Centers received a request from the Regions to review current status and to consider new information that might warrant convening a BRT to more rigorously review new information since 2005 status update by Good et al. (2005).
- 2) **P.I.:** T. Williams
- 3) **Funding source:** Internal
- 4) **Start date:**
- 5) **End date:** Completed
- 6) **Current status:** Reviews complete, final draft and cover memo transmitted to Regions. Manuscript for peer review journal in preparation.

Coastal steelhead BRT

- 1) **Description:** As part of the 5-year status updates, it was determined that new data (particularly genetic data) were available that warranted convening a BRT to more rigorously review DPS boundaries of coastal steelhead DPSs. Along with evaluating boundaries, the BRT will also review the status and trends of the DPSs.
- 2) **P.I.:** C. Garza and E. Anderson
- 3) **Funding source:** Internal
- 4) **Start date:** November 2010
- 5) **End date:** 2011/2012
- 6) **Current status:** Initial BRT meeting held 10-11 January 2011. The BRT is working on analysis and document preparation.

Scott Creek (Santa Cruz County) coastal salmonid life-history station

- 1) **Description:** A life-history station is operated in a small coastal watershed with steelhead and coho salmon populations. Annual population dynamics monitoring is conducted via smolt and adult trapping stations, instream PIT read technology, seining of estuary habitat, and annual electrofishing surveys. Data provide insights into local adaptation and habitat use by salmonids living in Mediterranean climate.
- 2) **P.I.:** S. Hayes
- 3) **Funding source:** External (??CDFG??)
- 4) **Start date:** on-going
- 5) **End date:** Funded through 2013
- 6) **Current status:** annually repeating surveys.

Movement of adult Chinook salmon across Point Reyes, California: combining acoustic tagging and genetics.

- 1) **Description:** We are deploying 140 acoustic tags and collecting tissues samples for DNA analysis from maturing Chinook salmon along the California coast from Godega Bay and Monterey Bay. The objectives are to assess relative stock distribution via genetic stock identification (GSI) and seasonal movement patterns

- of Klamath and Central Valley stocks around a line of acoustic receivers offshore from Pt. Reyes and to assess the potential for a management line break as a way of separating Klamath and Central Valley stocks during certain times of fishing.
- 2) **P.I.:** M. O'Farrell, S. Hayes, C. Garza
 - 3) **Funding source:** National Cooperative Fisheries Funds
 - 4) **Start date:** FY11
 - 5) **End date:** FY12
 - 6) **Current status:** commencing tagging of adult fish in coastal ocean, Fall 2011.

Experimental studies of habitat restoration for juvenile coho salmon and steelhead

- 1) **Description:** This project involves a collaboration with the Santa Cruz Resource Conservation District and Coastal Conservancy to determine the effectiveness of large wood additions to San Vicente Creek as habitat improvement for juvenile coho and steelhead. We have set up control sites to match with experimental sites that will be modified in September and October. These reaches will be monitored over a multi-year period, potentially with seeding of juvenile coho beginning in spring 2012.
- 2) **SWFSC P.I.:** J. Kiernan and S. Sogard
- 3) **Funding source:** Internal with some startup funds from the Coastal Conservancy
- 4) **Start date:** Sept 2011
- 5) **End date:** Dec 2016
- 6) **Current status:** Baseline sampling of invertebrate prey has begun and fish sampling will occur in September.

Monitoring of juvenile steelhead populations in Soquel Creek

- 1) **Description:** A time series of sampling juvenile steelhead within the Soquel Demonstration State Forest was begun by forest staff in 1993 and continued by NMFS-SWFSC scientists. Quantitative sampling at 5 sites provides long term data on abundance and growth.
- 2) **SWFSC P.I.:** S. Sogard
- 3) **Funding source:** Internal
- 4) **Start date:** Sept 1993
- 5) **End date:** ongoing
- 6) **Current status:** Sampling is conducted every October.