Prospective Projects for
Bay-Delta Sport Fishing Enhancement Stamp Funding

White Sturgeon Research – DFG, Bay-Delta Region

(1) Develop an up-to-date age-length key for white sturgeon. DFG last did this in the 1970's. Because environmental conditions have changed since the 1970's, white sturgeon growth rate has probably changed. We use this information to understand how water-year and/or water project operations impact white sturgeon year-class strength, and can provide better projections and/or recommendations with better information.

(2) Use genetic methods to estimate abundance of white sturgeon parents responsible for a given year-class.

Leopard Shark Research – DFG, Bay-Delta Region

Calculate leopard shark annual abundance, growth rate, survival rate, and harvest rate.

Predation on Bay-Delta Sport Fish Species – DFG, Bay-Delta Region

Quantitatively and qualitatively describe the 'breadth and scope' of marine mammal predation on salmon, striped bass, and sturgeon inside the Golden Gate, up the Sacramento River to the first major dam, and in the Delta. Rigor must be sufficient for regulators considering policy and permits for regulation of marine mammals.

Organizational Capacity

Increase the organizational capacity of fishing groups to develop and propose Projects consistent with use of Bay Delta Stamp funds. Habitat restoration is too expensive for Stamp funds to have much of an impact on fish populations, so recommend an emphasis on education, access to fishing sites, and 'conservation-oriented' hatcheries.

Striped Bass Research – U.C. Davis, David Ostrach, Ph.D.

Role of Contaminants in the Collapse of the Striped Bass Population in the San Francisco Estuary

The overall goal of the research program is to assess the significance of contaminants relative to other factors in the POD conceptual model on the observed decline of the striped bass population. The primary objective of the study is to assess the health status of larval, juvenile, and adult female striped bass collected from selected locations in the Bay Delta using morphometric, histopathological, otolith (aging, growth and microgeochemical analyses) and biochemical metrics. The primary objective of this study is a component of the overall research goal, and findings from this study will help shape and guide research in outgoing years.

Acoustic Tagging of Steelhead / Rainbow Trout on the Yuba River – DFG Fisheries Branch

Cost: $594,490

Objective: Monitor local movements of juvenile to adult Steelhead/Rainbow Trout within the lower Yuba River as well as monitor potential movements in the Feather River and potential migration towards the Pacific Ocean via the lower Sacramento River, the Sacramento-San Joaquin Delta, and the San Francisco Bay.

Species Benefited:	Steelhead / Rainbow trout
Project Duration:	Four years, beginning March 2009 to January 2013
Counties:	Yuba County, with remote data retrieval in other counties.
Waters:	Lower Yuba River thence the lower Feather River thence the lower Sacramento River
Tributary to:	Sacramento-San Joaquin Delta
Major Drainage Systems:	Sacramento River drainage system

Overview

The purpose of this study is to monitor the movement patterns of wild juvenile and adult steelhead / rainbow trout in the lower Yuba River. The Yuba River is unique to the Central Valley because it is one of the last rivers that have wild, native steelhead runs. The lower Yuba River is a 24 mile reach from Englebright Dam to the confluence at the Feather River. It is important to get a better understanding of how these fish are utilizing the habitat. The status of the anadromous and residential population is unknown.

This proposed study will target steelhead / rainbow trout throughout the year. The lower Yuba River will be divided into sampling reaches to reduce population bias. This type of information is critical to management and conservation of this important sport fishery.

This proposed study is projected to be a long-term (5-10 year) study. The first year of the study will be considered the pilot phase in which research methodology will be adjusted based on data trends and equipment trials. The scope of the project is projected to increase if successful information is gathered and processed.

CDFG Central Valley Angler Survey Project – Fisheries Branch

1. Title: Expansion of Central Valley Angler Survey into the Central Delta

   Estimated Cost: $300,000 annually

   Description: This funding would be used to expand the current angler survey, which runs along the Sacramento River from the Carquinez Bridge to Keswick Dam, into the central Delta region. The primary purpose would be to capture sport fishery data (angler effort, catch, and harvest) on important fisheries in this area not currently covered by the survey. These surveys include significant black bass and striped bass fisheries, along with a popular fall-run Chinook salmon fishery in the vicinity of New Hope Landing on the lower Mokelumne River.

2. Title: Assessment of Juvenile Steelhead Hooking Mortality in Central Valley Rivers

   Estimated Cost: $75,000/year for three years

   Description: Catch-and-release angling of naturally produced steelhead in Central Valley sport fisheries may be a significant source of mortality under certain environmental conditions, especially high water temperature. This is likely a factor the State will need to manage for in getting an approved ESA-mandated Fishery Management and Evaluation Plan (FMEP) in place for sport fisheries in the Central Valley steelhead ESU. This project would conduct experiments and field assessments to determine thermal criteria for protection of juvenile steelhead in Central Valley catch-and-release fisheries.

3. Title: Migration of Naturally Produced Steelhead in the Lower American River

   Estimated Cost: $75,000/year for 3 years

   Description: A companion project to the hooking mortality study proposed in #2 is to continue an already established steelhead hydroacoustic tagging project on the lower American River. Little is known about the emigration timing and other movements of naturally produced steelhead on the American River, information that is needed to better understand, characterize, and manage this important sport fishery resource. Hydroacoustic tagging may also be used as a research tool to assess the fate of caught-and-released steelhead, relative to project #2. While sample sizes have been small, this work is already yielding significant novel information about juvenile steelhead movements and survival to the Golden Gate. BDSFES funds are needed to staff and continue this important work.

Halibut Research Ideas – DFG Marine and Bay-Delta Regions

Mark/ recapture of SF Bay halibut:

1. Mark legal and sub-legal halibut taken within San Francisco bay using volunteer and Department vessel. Record catch location, length, and tag number before release.
   a. Ride and observe halibut oriented CPFV trips with compensation to the vessel for the observer
      i. Measure and tag released sub-legal halibut
   b. Using Department vessels, catch, measure, tag and release all caught halibut
   c. Use local volunteers to catch, measure, tag and release all caught halibut

2. Conduct outreach to local sport fishing clubs, charter boats, commercial fish dealers, and commercial fishermen regarding the project and importance.
3. Returned heads may have otoliths removed for aging
4. Required equipment includes tags, tagging guns/ needles, outreach flyers and handouts, measuring boards, data sheets, reward $.

Mark/ recapture will provide additional data regarding movement and potential mixing of halibut inside and outside of SF bay. If at liberty for enough time, growth rate data collection is possible. A similar study was performed in Tomales Bay (Tom Moore, CDFG)

Halibut Research/Management – DFG Bay-Delta Region

Evaluate current halibut regulations and determine if regulation changes would increase the population.

Distribution of Green and White Sturgeon in Sacramento/San Joaquin Watershed – UC Davis, A. Peter Klimley and DFG, Marty Gingras

Abstract

Coded ultrasonic beacons with a battery life of 10 years will be placed in the peritoneum of 60 subadult and adult green sturgeon and 120 subadult and adult white sturgeon that will be monitored with an array of 275 automated, tag detecting monitors to determine their seasonal and inter-annual movements throughout the Sacramento/San Joaquin watershed. Nearly 100 monitors are placed at 30 km distance intervals along the mainstem of the Sacramento River, 50 within the Delta, 125 in arrays across the Benicia, Carquinez, and Raccoon Straits, across the San Rafael, Bay, and Golden Gate Bridges, and at private marinas and the Oakland and San Francisco Ports. The electronic tags will be placed within the peritoneum of these fish by a Graduate Research Assistant of UC Davis after capture by biologists of the California Department of Fish and Game (CDFG) during spring (March and April) and summer (August and September) sampling periods from CDFG research vessels. Comparison of the records of detection of green versus white sturgeon will enable CDFG biologists to improve the method of assessing the size of the populations of the green and white sturgeon in the estuary. Currently, the estimate of the size of the population of the former species is based upon the proportion of its catch relative to that of the latter species. This estimate could be improved with knowledge of the rate of emigration and immigration of green sturgeon derived from the records of tag detections from the monitors. The large-scale array of monitors will also provide information on periodicity of entry of both species into putative spawning grounds.

Starting Date: 1 August 2009

Ending Date: 30 September 2011

Duration: 2 Years

Cost Year 1: $144,173.73

Cost Year 2: $144,173.73

Provide Funding for Warden Overtime – DFG

Provide funds to the DFG Law Enforcement Division to pay overtime costs for wardens patrolling the Bay-Delta and Sacramento-San Joaquin River system.

Cost: $250,000

Central Valley Chinook Salmon Monitoring Plans – DFG

BDSFES funds would be used to continue work already started on the Central Valley Chinook Salmon Monitoring Plans. Development of these plans has been affected by the bond fund freeze. Funding is needed for project staff, hired through Pacific States Marine Fisheries Commission and supervised by DFG Fisheries Branch, to develop the plans. A team of a statistician, biologists, and database specialists are needed to write the plan.

Cost: $110,000

Purchase One or Two Tanker Trailers for Hauling Fish – DFG

Mokelumne River Fish Hatchery (MRFH) is requesting funds to purchase two new tanker trailers to haul hatchery salmon smolts to release sites in the Delta and San Pablo Bay. The MRFHcurrently owns one 15-year-old tanker used to release Chinook Salmon and stealhead trout. One tanker is not sufficient enough to meet the new planting goals of the hatchery. Also, the current tanker has been in service for 15 years and has become deteriorated from all the usage, making the tanker vulnerable to breakdowns and fish losses. Two tankers will replace the old tanker, avoiding breakdowns and fish losses, and meet the new planting requirements by allowing the hatchery to release fish in an efficient and timely manner.

Cost: $175,400

Screen Unscreened Diversions

Use BDSFES funds to identify landowners with unscreened water diversions in the Delta and in the Sacramento and San Joaquin rivers and install fish screens to protect Bay-Delta fisheries.

Halibut Management Plan

Prepare a management plan for California halibut. California halibut has been identified as a high-priority species for stock assessment and fishery management plan.

Delta Fisheries Management Plan

Prepare a Delta Fisheries Management Plan to ensure the long-term viability of Bay-Delta sport fisheries.