



# **DROUGHT RESPONSE**

**CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE**

**QUARTER 1, JULY-SEPTEMBER 2014**



[www.wildlife.ca.gov](http://www.wildlife.ca.gov)



The 2014-15 state budget included \$38 million for the California Department of Fish and Wildlife (CDFW) to respond to the effects of the California drought on fish and wildlife. The department identified focus areas for response that included a variety of actions ranging from rescuing and holding threatened and vulnerable fish populations to restoring habitat for key aquatic species. The following is a progress report recapping how projects are going and how the funds have been spent through the first quarter of the fiscal year (July-September 2014).

# HABITAT RESTORATION

GOAL: Restore 1,100 acres of fresh and brackish water tidal emergent wetlands and 69 acres of alkali wetlands.

## LINDSEY SLOUGH TIDAL RESTORATION PROJECT

The department is restoring 150 acres of fresh and brackish water tidal emergent wetlands and 69 acres of alkali wetlands by reconnecting diked lands in Lindsey Slough, in the Cache Slough area in Solano County. Construction and tidal restoration was completed November 21, 2014.

## HILL SLOUGH TIDAL RESTORATION PROJECT

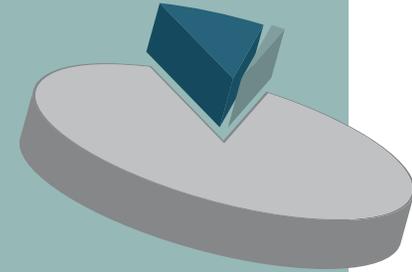
The department is restoring 950 acres of fresh and brackish water tidal emergent wetlands by reconnecting diked lands of Hill Slough, in Suisun Marsh in Solano County. The project is proposed to start in the summer of 2015 and will take two years to construct.

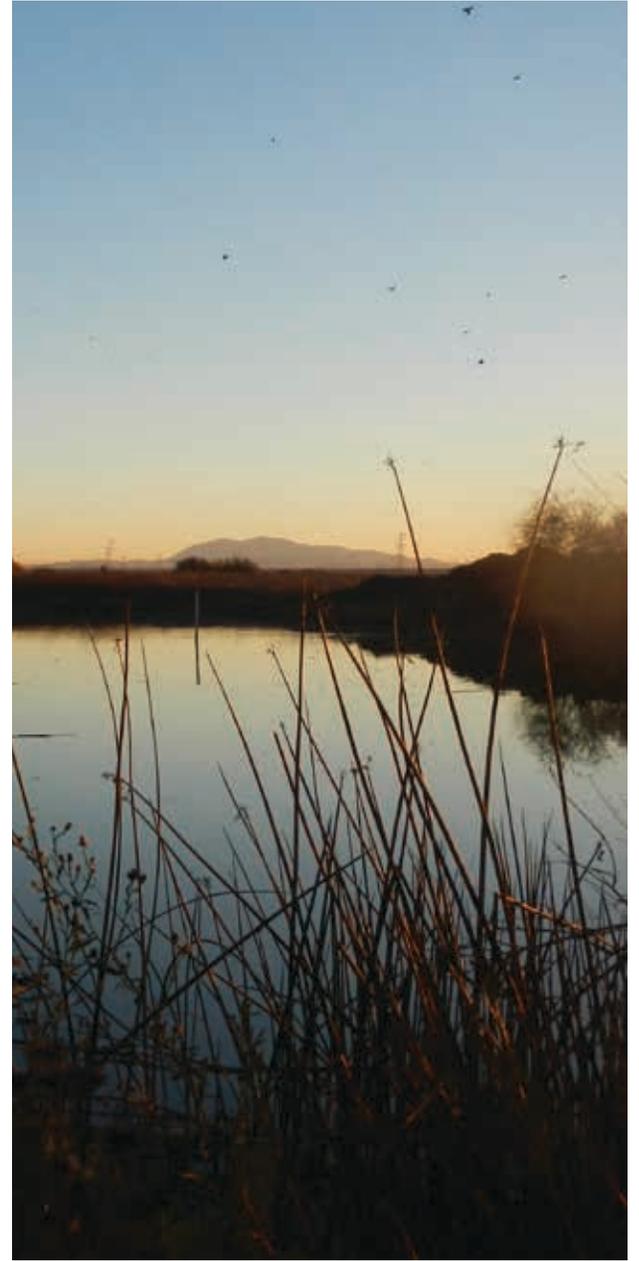
### BY THE NUMBERS:

The total budget for this is \$3,700,000 of which \$419,995 has been allocated or spent in the first quarter. The total project cost for the two restoration projects is estimated at \$10,800,000.

The project budget consists of \$3,700,000 in drought funds and the other \$7,100,000 will

consist of Proposition 50, Proposition 84 and two mitigation accounts to account for the additional funds to implement the restoration projects.





**NEXT STEPS:**

In the second quarter of the fiscal year, CDFW will develop plans and secure permits for Hill Slough through June 2015 when we anticipate breaking ground.

# EMERGENCY HELP FOR SALMON AND SMELT

GOAL: Improve existing monitoring for several runs of salmon and Delta and longfin smelt through increased sampling frequency and duration at key locations in the Delta and its tributaries, and then assess habitat responses in relation to operation of the State Water Project under drought conditions.



Through actions of the Interagency Ecological Program, and in partnering with state and federal water operations teams and other resource agencies, CDFW is improving monitoring efforts of these at-risk fish species during the drought. The monitoring and research will help CDFW better understand how Delta smelt use the Delta in drought years during key spawning and rearing periods, as well as evaluate health and growth patterns.

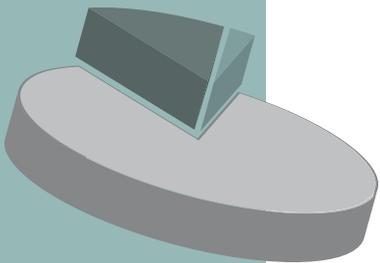
Additionally, CDFW is coordinating with National Marine Fisheries Service (NMFS) and U.S. Bureau of Reclamation (USBR) to evaluate the potential effects of the prolonged drought on spawning and out migration success of Winter-run Chinook salmon.

Finally, CDFW is funding a study in coordination with the Department of Water Resources and U.C. Davis to determine the effects of toxins on the food web in the Delta.



### BY THE NUMBERS:

The total budget for this is \$5,790,844 of which \$776,073 has been allocated or spent in the first quarter. CDFW is redirecting \$471,185 of these funds will be redirected toward upgrading technology for monitoring.



### NEXT STEPS:

In the second quarter of the fiscal year, CDFW will continue to monitor water and fish population conditions in the Sacramento River and Delta and implement key emergency restoration projects in the Sacramento River Valley for winter-run Chinook salmon (e.g., Battle Creek Reintroduction Plan, Deer and Battle Creek barrier removal projects).

# INCREASED INVESTMENT IN THE SAN JOAQUIN RIVER RESTORATION PROGRAM

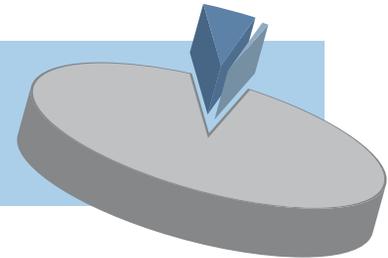
GOAL: Improve infrastructure at San Joaquin fish hatcheries, San Joaquin River Restoration Program (SJRRP) Interim Facility and a temporary fish rearing facility at the base of Friant Dam on USBR property which will provide cold water refuge sites in the face of the drought. Provide drought specific fish rescue, monitoring and enhanced restoration activities.



CDFW will further increase the investment in the SJRRP to protect spring and fall-run Chinook salmon. This effort will include two fish transport vehicles and temporary chillers to maintain cooler water temperatures, which is vital to the fish.

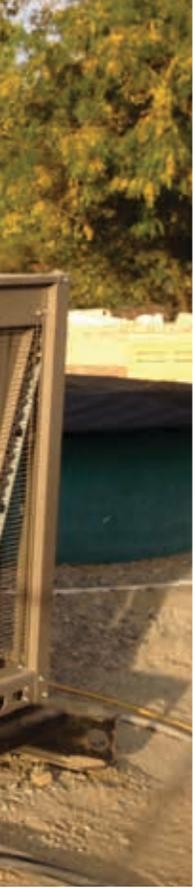
## BY THE NUMBERS

The total budget for this is \$2 million of which \$209,000 was allocated or spent at the end of the first quarter.



## NEXT STEPS

CDFW will improve functionality and upgrade equipment at the SJRRP facility below Friant dam and the SJRRP Interim Facility to allow translocation of spring-run eggs and juveniles from Feather River Fish Hatchery for release in the San Joaquin River. This will also support fall-run spawning and rearing activities and the maintenance of spring-run at the SJRRP Interim Facility. Remaining funds will be used to make improvements to the San Joaquin fish hatchery water supply and provide enhanced equipment for restoration activities.



# LASTING LEGACY FOR PUBLIC WILDLIFE REFUGES

GOAL: Improve water conveyance systems on state-owned wildlife areas and provide water to state wetlands for purposes of lessening the impact of drought on migratory waterfowl and other wildlife.



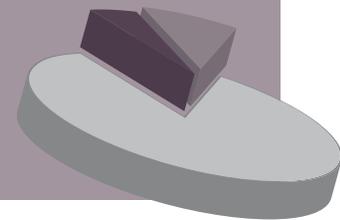
CDFW is refurbishing or replacing existing wells and improving infrastructure for more efficient groundwater pumping and delivery.

In addition, CDFW is installing 11 rainwater catchment systems to replenish existing wildlife watering sources, enhance wetlands and restore native habitats, and improving water delivery infrastructure. This includes replacement of damaged pipelines, water delivery systems and inefficient equipment.

Finally, CDFW is enhancing its ability to monitor water use by installing meters to track and maximize efficiency of water use.

## BY THE NUMBERS

The total budget for this is \$5,700,000 of which \$3,618,335 was allocated or spent.



## NEXT STEPS

CDFW will complete most of the projects underway on wildlife areas between December 2014 and October 2015. Additional projects on department lands will be implemented to improve water supply, water delivery and water use efficiency for the benefit of wetlands and the wildlife they support.



# APPLYING 21ST CENTURY TECHNOLOGY TO MONITORING

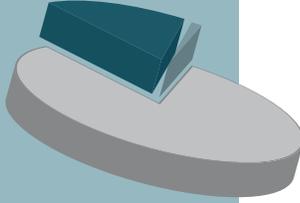
GOAL: Applying new technology to improve monitoring of salmonids, smelt and sturgeon as described in the California Water Action Plan and 2014 Drought Operations Plan.



CDFW is contracting for services to conduct aerial surveillance and spectral imaging of the Delta to assess the growth and spread of submerged aquatic plant species. These species can be problematic because they can change how native fish move through, and survive in the Delta.

### BY THE NUMBERS

The total budget for this is \$6,800,000. At the end of the first quarter, \$411,000 had been spent on the aerial survey described above.



### NEXT STEPS

Additional CDFW efforts to improve monitoring capabilities and inform management decisions include establishing a Passive Integrated Transponder (PIT) tag detection system in the Delta, San Joaquin River and tributaries, Sacramento River and tributaries and major diversion facilities; implementing a sturgeon program to capture, acoustically tag and monitor the movements of juvenile sturgeon; and implementing a steelhead monitoring program looking at population abundance and distribution in the Sacramento River basin.



**MONITORING,  
FISH RESCUES,  
EMERGENCY  
HATCHERY  
IMPROVEMENTS  
AND WATER  
OPERATIONS  
COORDINATION**

**GOAL 1: Continue monitoring of environmental stressors and increase monitoring of threatened and endangered species.**

CDFW is monitoring streams and rivers on a consistent basis, often more than once a week. Fish condition, habitat and water parameters are measured to evaluate and track environmental conditions and increasing threats to fish (i.e, disease, strandings, dewatered redds, high water temperature, low flow). The total budget for monitoring is \$1,050,000 of which \$276,000 has been spent.





**GOAL 2: Rescuing fish and, where necessary, relocating fish to hatcheries to prevent extirpation or extinction.**

CDFW, in collaboration with other resource management agencies and local organizations, has conducted approximately 300 rescues throughout the state since January 2013. Focal species for rescues have been salmon, steelhead, and native trout. Populations of at-risk suckers, Sacramento perch and stickleback also have been monitored during the drought. The total budget for fish rescues is \$800,000 of which \$162,000 has been spent.



### GOAL 3: Preparing department hatcheries to hold rescued fish.

CDFW is modifying, and in some cases has completed modifying, existing hatcheries by installing self-contained, recirculating fish tanks complete with water chillers and ultra-

violet sterilization to safely hold fish rescued and removed from their natural locations. These fish will be safely held at the hatchery until there is sufficient water of adequate quality to return them to their wild habitat.

Specifically, CDFW installed water cooling equipment for the American River Trout Hatchery to benefit Lahontan Cutthroat Trout



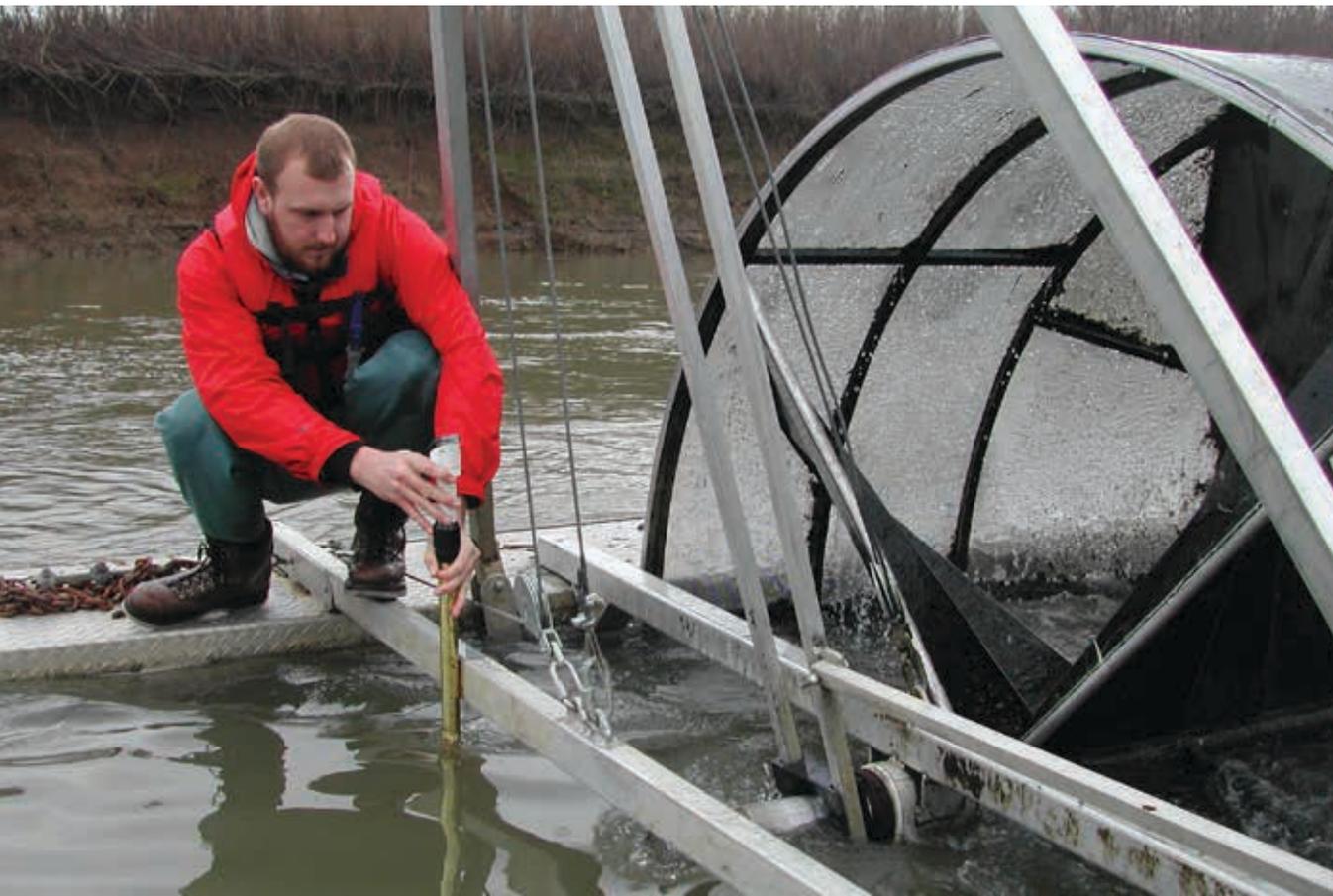
and to incubate fall-run Chinook salmon eggs from the American River during the period when water temperatures are too high for successful egg development and survival.

CDFW also installed an ultraviolet water disinfection system, fish rearing tanks, and fish feeders for Mount Shasta Hatchery which is currently holding approximately 1,000 McCloud River redband trout until stream conditions improve and the fish returned to the wild.

Finally, CDFW purchased eight self-contained re-circulating fish rearing units with chillers and ultraviolet disinfection at Mojave River Hatchery, Iron Gate Hatchery, Kern River Hatchery, Crystal Lake Hatchery and Silverado Fisheries Base to benefit rescued southern steelhead, Scott River coho salmon, Kern River rainbow trout, Goose Lake redband trout, Warner Valley redband trout and coastal coho and steelhead. The total budget for preparing hatcheries to hold rescued fish is \$1,950,000 of which \$915,000 has been spent.

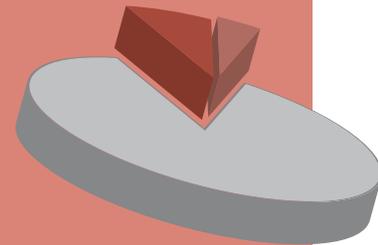
## GOAL 3: Constant and dedicated coordination with the Department of Water Resources to minimize drought effects on aquatic species and implement Delta-specific regulatory flexibility decisions.

CDFW is part of the Real Time Drought Operations Management Team (RTDOT) and Water Operations Management Team (WOMT). These teams make modifications to current water operations as well as plan for how to minimize impacts to fish in a continuing drought. To inform the management teams, CDFW staff continuously operates Rotary Screw Traps (RSTs) at Knights Landing and Tisdale on the Sacramento River. The RSTs, which consist of large rotating cones that funnel fish into a live box, allow CDFW to capture juvenile salmon and steelhead migrating downstream. This information helps us to better understand fish movement and allow flexibility of the Delta Cross Channel gate operations. This round the clock monitoring requires rotation of approximately 15 field staff. The total budget for water operations coordination is \$730,000 of which \$75,000 has been spent.



### BY THE NUMBERS

The total budget for these activities is \$4,530,000. At the end of the first three months, \$1,428,000 had been spent.



### NEXT STEPS

CDFW will continue monitoring efforts and will conduct fish rescues as needed. Emergency hatchery modifications will be finalized in order to receive rescued fish if necessary. Water operations coordination will continue through inter-agency collaboration as the water year develops.

# TAKING STEPS TO AVOID COMMERCIAL FISHERY IMPACTS

GOAL: Continue trucking all or part of the Sacramento River Basin salmon to selected net pens locations downstream to increase the survival of these hatchery-produced fish.



Hatchery produced Central Valley fall-run Chinook salmon are the primary contributors to ocean commercial and recreational fisheries. Hatchery salmon released upstream and near hatchery facilities face a gauntlet of hazards on their way to the ocean which include: water diversions, poor water quality, predation and other factors. These conditions, joined with abnormally low water levels and elevated water temperatures due to drought, make it extremely difficult for salmon to survive migration to the ocean. Trucking all or part of the Sacramento and San Joaquin River basin hatchery produced salmon to acclimation net pens downstream of the Delta bypasses these obstacles and is expected to increase the survival of hatchery produced salmon.

To accomplish this, CDFW contracted for new salmon hauling tanks that are now being built and additional funding for salmon net pen acclimation for 2015 and 2016.

CDFW is also refurbishing existing equipment use to haul and transport juvenile Chinook salmon at Feather River Hatchery and Nimbus Hatchery. This equipment will increase efficiency and reduce handling stress on these fish and thus increase their chances of survival.

Finally, CDFW will tag 25 percent of the fall-run Chinook salmon at Feather River Hatchery with coded wire tag. The 25 percent tagging of all fall-run Chinook salmon is key to the statewide Constant Fractional Marking program that feeds essential data into the Pacific Fishery Management Council (PFMC). The PFMC conducts an analysis that determines



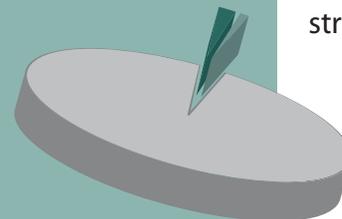
California's quota for commercial and recreational salmon fishery. Without this data the PFMC would not have the ability to set quotas for the salmon fishery and that could lead to lower quotas or a closure of the fishery.

### **NEXT STEPS:**

CDFW is prepared to tag 25 percent of Feather River Hatchery fall-run Chinook salmon in March. Additionally, CDFW will collaborate with federal fish management agencies to truck juvenile Chinook salmon from upstream hatcheries to acclimation pens located downstream of the Delta.

### **BY THE NUMBERS:**

The total budget for this is \$900,000, of which \$238,000 has been spent.



# ENSURING EXISTING WILDLIFE PROTECTION LAWS ARE ENFORCED

GOAL: Provides for overtime to sustain increased field presence of the department's enforcement staff in the parts of the state where drought impacts combined with illegal activities are likely to prove most harmful for fish and wildlife.





Through the end of October, the Law Enforcement Division had logged 20,803 hours to drought related activities. Within these hours, wildlife officers have had 24,567 contacts, issued 1,007 warning and 747 citations and made 191 arrests.

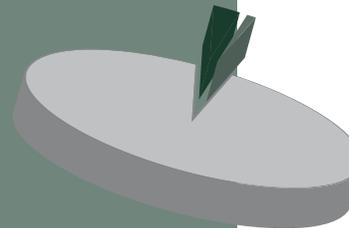
Between July and September 2014, key issues facing the Law Enforcement Division were water diversion, wildlife calls relating to low food levels, fish rescue, monitor closed or special restricted rivers and streams and marijuana grows.

### **NEXT STEPS:**

Wildlife officers will continue to focus enforcement efforts where drought impacts combined with illegal activities are likely to prove most harmful for fish and wildlife.

### **BY THE NUMBERS:**

The total budget for this is \$1,170,000 of which \$292,500 has been spent.



# FISHERIES RESTORATION GRANT PROGRAM ENHANCEMENTS FOR SALMON AND STEELHEAD RESTORATION

**GOAL:** Leverage existing Fisheries Restoration Grant Program (FRGP) funding to increase and enhance restoration projects along the coast and in the Sacramento River watershed.



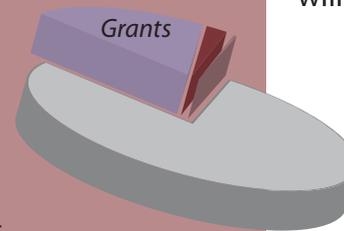
CDFW released a public Proposal Solicitation Notice on July 1, 2014 inviting restoration communities along the coast and in the Central Valley to apply for restoration grants to address impacts to salmon and steelhead due to the 2014 drought or forestry legacy effects on private and non-federal lands in key coastal and interior watersheds.

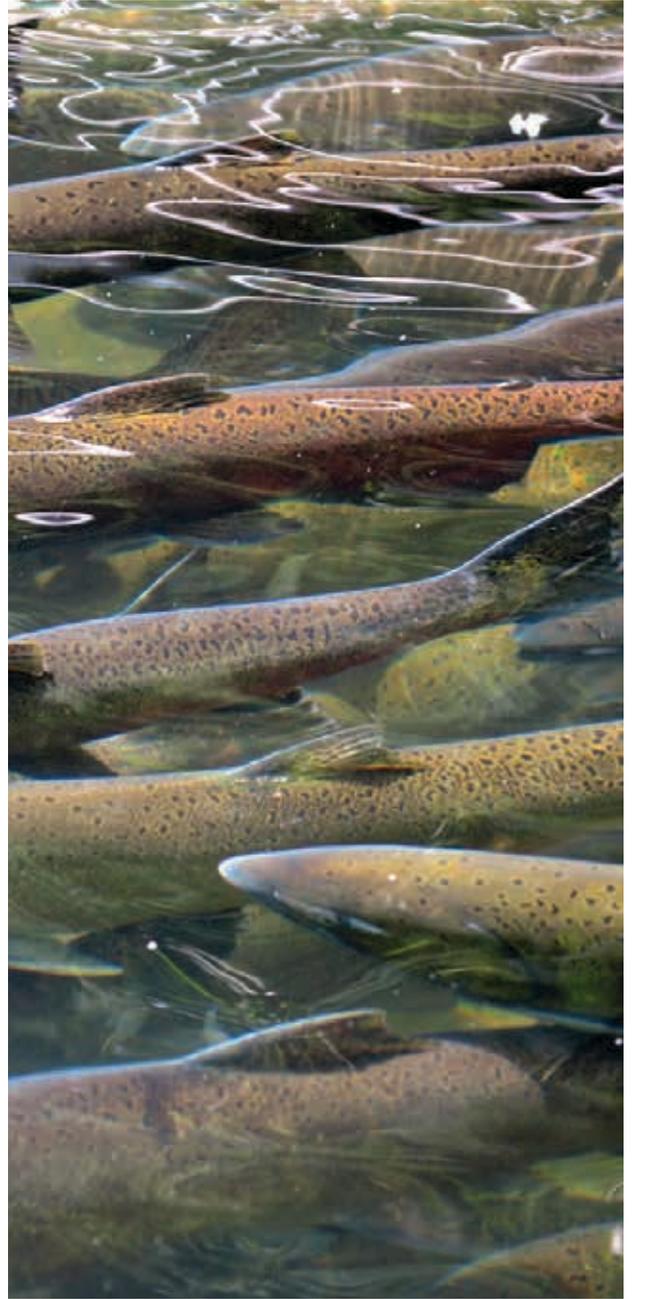
## **NEXT STEPS:**

In late December 2014, CDFW will be submitting the mitigated negative declaration to permit these grants. Grant proposals will be reviewed and recommendations for funding will be given to the Director in February 2015, after the environmental review process is completed, and the Director will make grant approval decisions in February 2015. Selected projects will commence in between May and July of 2015. Drought and forest land grants will commence in June and July.

## **BY THE NUMBERS:**

The total budget for this is \$8,000,000 (\$7,200,000 of which is earmarked for grants: \$5,200,000 for drought and \$2,000,000 for addressing forestry legacy effects). The remaining \$800,000 is for staff support, of which \$19,000 was expended in the first quarter.





An aerial photograph of a river delta, likely the Sacramento-San Joaquin River Delta, showing a complex network of waterways and agricultural fields. The water is a deep blue, and the surrounding land is a mix of green and brown, indicating different types of vegetation and soil. A semi-transparent dark blue rectangular box is overlaid on the center of the image, containing white text.

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