



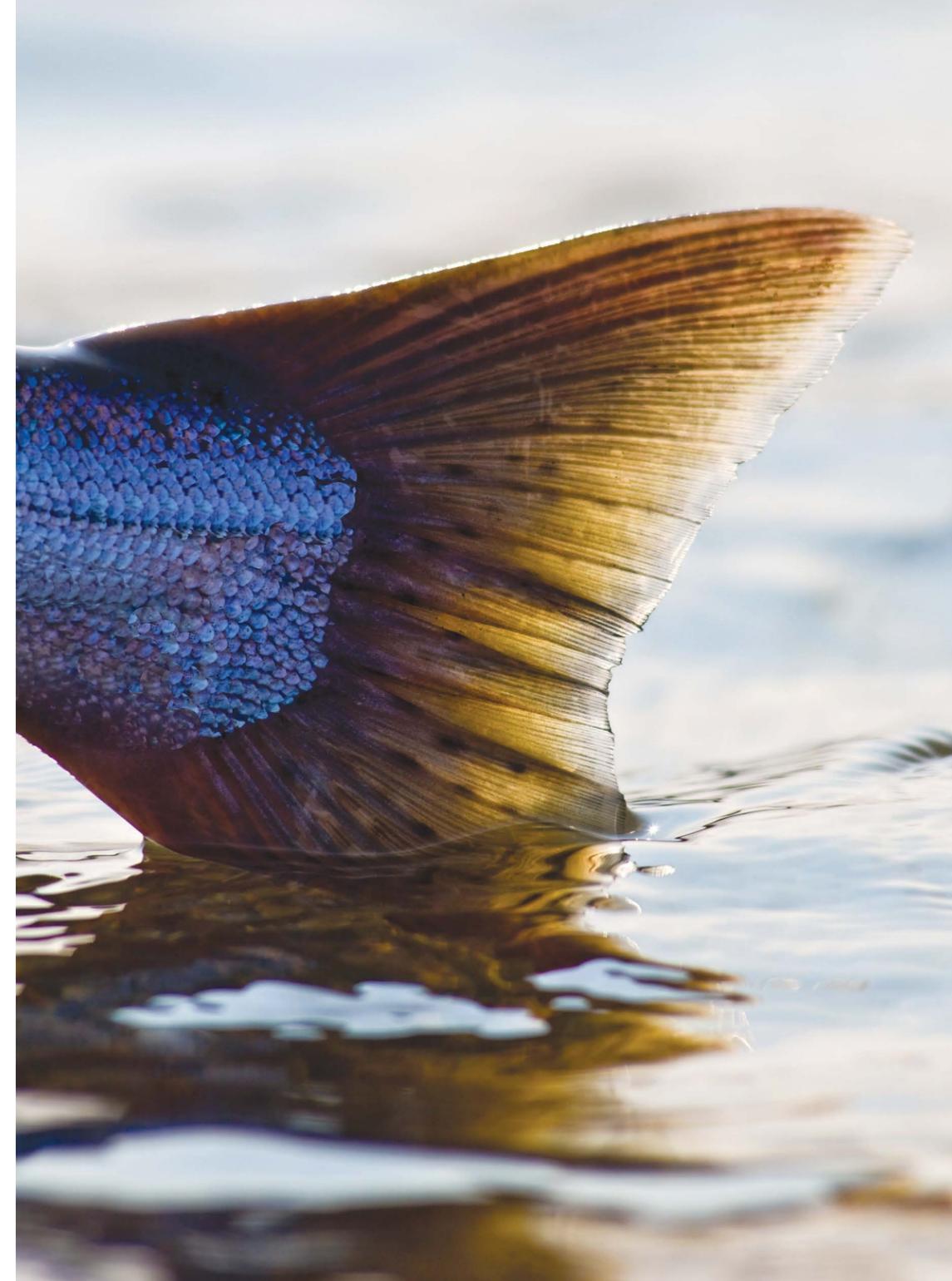
DROUGHT RESPONSE

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

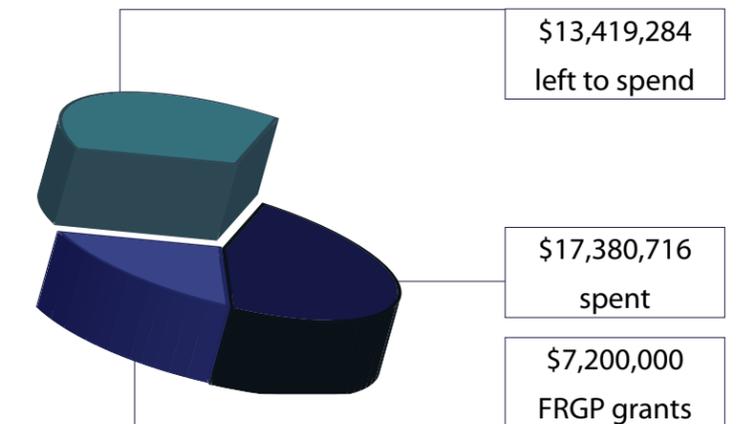
QUARTER 3, JANUARY-MARCH 2015



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 including river monitoring, rescue and relocation operations, holding the most threatened and vulnerable fish populations in captivity and restoring impacted habitat. The following is a progress report through the third quarter of the fiscal year (January-March 2015).



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

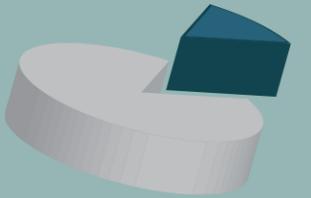
CDFW is restoring 150 acres of fresh and brackish water tidal emergent wetlands and 69 acres of alkali wetlands by reconnecting diked lands in Lindsey Slough, in the Cache Slough area in Solano County. Construction and tidal restoration was completed November 21, 2014.

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 \$3,685,230 of which \$491,000 has been allocated or spent by the end of the third 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 fourth quarter of the fiscal year, CDFW will finalize a contract for the construction of the Hill Slough tidal restoration project, develop plans and secure permits for Hill Slough through June 2015 when we anticipate breaking ground.



EMERGENCY HELP FOR SALMON AND SMELT

GOAL: Intensify existing monitoring for several runs of salmon and Delta and longfin smelt via enhanced 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.

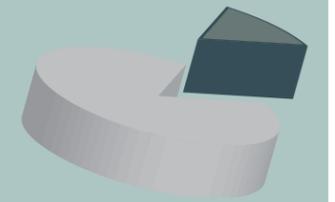


CDFW is partnering with the Interagency Ecological Program, and state and federal water operations teams and other resource agencies to improve monitoring of these at-risk fish species during the 2014 drought. The department has partnered with researchers to better understand how Delta smelt use the Delta during key spawning and rearing periods. In addition, the department is working with the UC Davis Fish Health Laboratory to study smelt health and growth patterns. This project will be integrated with the previous study.

In a separate action under this goal, the department is funding a study to determine the effects of toxins on the food web in the Delta. Finally, the department is supporting the National Marine Fisheries Service (NMFS) and U.S. Bureau of Reclamation (USBR) to evaluate the potential effects of the prolonged drought on winter-run Chinook salmon.

BY THE NUMBERS:

The total budget for this is \$5,790,844 of which \$1,247,258 is allocated or spent. Of this amount, CDFW is redirecting \$471,185 of these funds toward upgrading technology for monitoring. CDFW initially estimated \$511,185 was needed for redirection.



NEXT STEPS:

In the second quarter of the fiscal year, CDFW will break ground on a number of infrastructure improvements and restoration projects.



INCREASED INVESTMENT IN THE SAN JOAQUIN RIVER RESTORATION PROGRAM

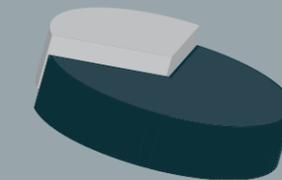
GOAL: Improve infrastructure at San Joaquin fish hatcheries, San Joaquin River Restoration Program (SJRRP) Interim Facility and a temporary fish rearing facility at the base of Friant Dam on USBR property which will provide cold water refuge sites in the face of the drought. Provide drought specific 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 \$1,372,171 was allocated or spent at the end of the third 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 by installing water reuse and chiller systems to reduce the amount of water necessary for raising spring and fall-run Chinook and protect them from unprecedented higher water temperatures during the drought and minimize impacts from limited water supplies. 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 purchase two transport vehicles that will provide safe fish movement for rescue and release, to improve monitoring of water temperature, flow and habitat, to trap fish below barriers, and to purchase and deploy holding equipment to ensure Chinook survive unsuitable river conditions in anticipation of continued drought conditions.

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 continues to make significant progress in addressing the effects of the drought on state wildlife areas during the third quarter of drought response plan implementation. Five projects have been completed, 26 projects are underway, and nine additional projects are in development that will improve water supply, water delivery and water use efficiency for the benefit of wetlands and the wildlife they support.

These projects include:

GROUNDWATER IMPROVEMENTS:

Such as refurbishing or replacing existing wells and related infrastructure.

WATER EFFICIENCY IMPROVEMENTS:

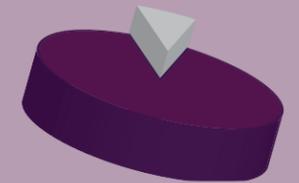
Such as installation of rainwater catchment and water delivery infrastructure; replacement of damaged pipes, water delivery systems and inefficient equipment; and habitat restoration and management to maximize the availability of existing water sources for wildlife.

WATER USE MONITORING IMPROVEMENTS:

Such as installation of metering devices to track and maximize efficiency of water use.

BY THE NUMBERS

The total budget for this is \$5,700,000 of which \$5,269,481 was allocated or spent through the end of the third quarter of the fiscal year.



NEXT STEPS

CDFW will complete most of the projects underway on wildlife areas by 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](#).

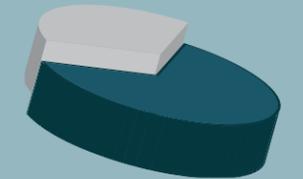


CDFW has contracted with the Pacific State Marine Fisheries Commission (PSMFC) to support us in implementing a steelhead monitoring program to evaluate population abundance and distribution in the Sacramento River Basin. Specific activities will include operating dyke traps, tagging adult steelhead and operating video stations and antenna arrays on the Sacramento River and its tributaries. So far CDFW has been able to secure the boats, vehicles and equipment needed for the program. CDFW has also secured the staffing resources needed to begin implementation of the program later this summer.

CDFW has entered into a contract with UC Davis as a key partner in implementing a sturgeon program to capture, acoustically tag and monitor the movements of juvenile sturgeon. The second key partner in this project is the National Oceanic and Atmospheric Administration's Southwest Fisheries Science Center and finalization of an agreement with them is expected in the fourth quarter.

BY THE NUMBERS

The total budget is \$6,800,000. At the end of the third quarter, \$4,470,598 had been spent.



NEXT STEPS

Additional CDFW efforts to improve monitoring capabilities and inform management decisions are still under development and expected to be finalized in the fourth quarter of this fiscal year. These efforts include finalization of two contracts with the Southwest Fisheries Science Center: one to establish a Passive Integrated Transponder (PIT) tag detection system in the Delta, San Joaquin River and tributaries, Sacramento River and tributaries and major diversion facilities; and the other to finalize a contract to implement the sturgeon program.

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). Monitoring in some areas of the state decreased into the late fall and early winter and will increase again in late February.

The total budget for this project is \$1,049,549 of which \$688,381 has been spent in first three quarters of the fiscal year.

GOAL 2: Rescuing fish and other aquatic species 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 more than 300 rescues throughout the state's coastal and Central Valley rivers and creeks. Focal species for rescues have been salmon, steelhead and native trout, and populations of at-risk suckers, Sacramento perch and stickleback also have been monitored during the drought. In some cases, rescued fish were taken to hatcheries to ensure the at-risk populations survived the drought. Rescued redband trout are being held at Mt. Shasta Hatchery and Merced River steelhead are being held at Merced River Hatchery. Coho salmon rescued from the Scott River and held at Iron Gate Hatchery were released back to the wild in the fall.

The total budget for this is \$798,235 of which \$249,139 has been spent.

GOAL 3: Preparing department hatcheries to hold rescued fish.

CDFW has modified existing hatcheries by installing self-contained, recirculating fish tanks complete with water chillers, biological filters and ultraviolet sterilization to safely hold fish rescued and removed from their natural locations. Hatcheries with fully operational systems include Iron Gate, Mount Shasta, Merced River, Mojave River and Fillmore hatcheries. Fish have been rescued and held at three hatcheries: Iron Gate held coho which have been returned to their natural location; Mount Shasta is holding 994 redband trout which remain in captivity. In mid-April, 16 females were spawned producing 3,000 eggs currently in incubation; Merced River has 56 steelhead which remain in captivity. In January, 12 females were spawned resulting in 750 steelhead fingerlings. Fish in captivity will be safely held at the hatchery until there is sufficient water of adequate quality to return them to their wild habitat. Currently drought conditions will not support their survival.



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. This system is currently operational and will be used in the coming months when water quality is not suitable for rearing fish.

CDFW also installed an ultraviolet water disinfection system, fish rearing tanks and fish feeders for Mount Shasta Hatchery. CDFW is expanding this system to hold additional fish due to poor conditions in the McCloud River watershed that are preventing these fish from being returned to the wild.

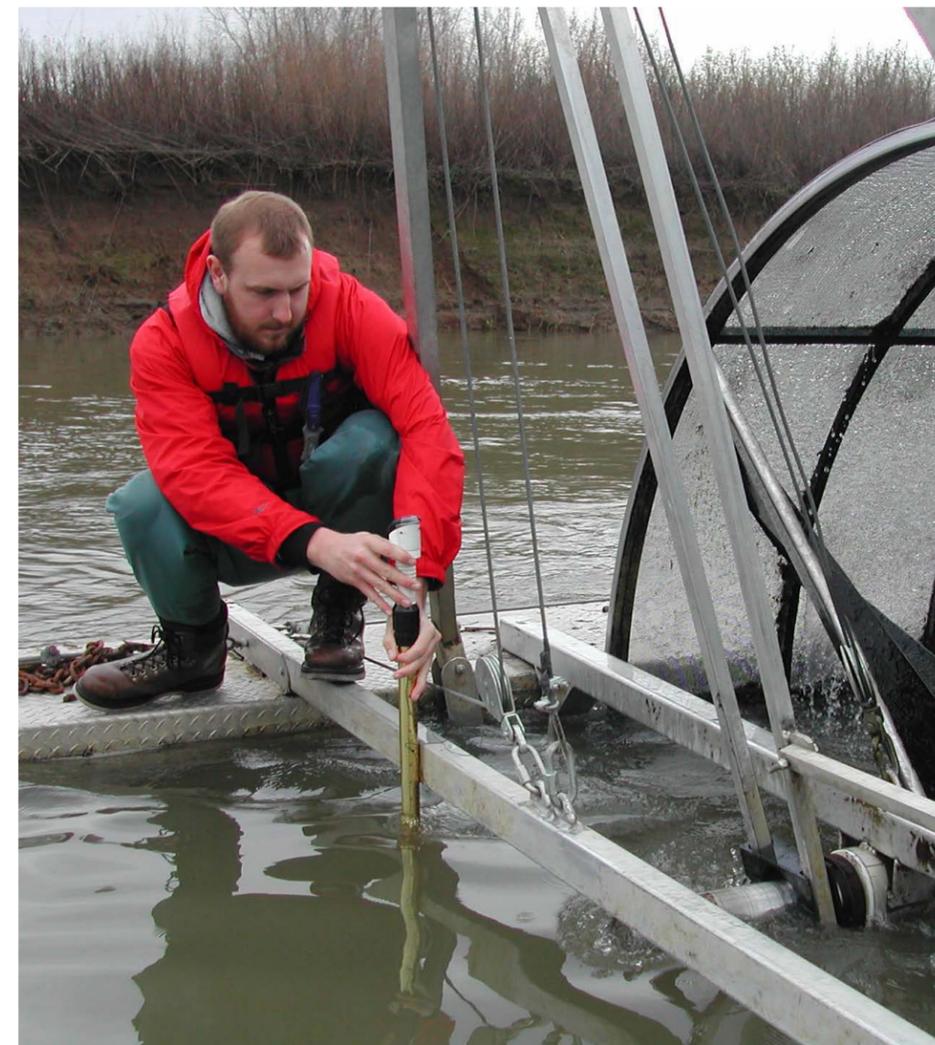
Finally, CDFW purchased eight self-contained re-circulating fish rearing units with chillers, biological filters and ultraviolet disinfection for use at Mojave River Hatchery, Iron Gate Hatchery, Kern River Hatchery, Mt. Shasta Hatchery and Silverado Fisheries Base to benefit rescued southern steelhead, Scott River coho salmon, Kern River rainbow trout, McCloud River redband trout, and coastal coho salmon and steelhead. The total budget for preparing hatcheries to hold rescued fish is \$1,950,000 of which \$1,938,690 has been spent.

GOAL 4: 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 a participant on the Real Time Drought Operations Management Team (RTDOT) and Water Operations Management Team (WOMT). These teams make modifications to water projects operations as well as plan on how to minimize impacts to fish in the continuing drought. Efforts during the second quarter included continuing operations of the Rotary Screw Traps at Knights Landing and Tisdale on the Sacramento

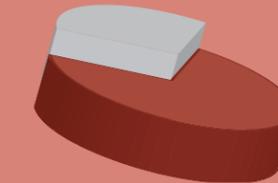
River and participation in the development and review of the State and Federal Water Project's request to the State Water Resources Control Board for a [temporary urgency change petition](#).

The total budget for water operations coordination is \$730,000 of which \$290,000 has been spent.



BY THE NUMBERS

The total budget for these activities is \$4,530,000. At the end of the first three quarters, \$3,166,210 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.

PLEASE WATCH THIS CDFW VIDEO OF THE AMERICAN RIVER HATCHERY CHILLER PROJECT

<https://www.youtube.com/watch?v=DUc62iNuMBw&feature=youtu.be>

TAKING STEPS TO AVOID COMMERCIAL FISHERY IMPACTS

GOAL: Continue trucking all or part of the Central Valley Chinook 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.

CDFW is implementing the trucking of fall run Chinook salmon smolts which began in late March and will continue through early June of 2015 because water quality conditions are not suitable for downstream migration and survival. The trigger conditions have been agreed upon by the U.S. Fish and Wildlife Service, National Marine Fisheries Service and CDFW.

BY THE NUMBERS:

The total budget for this is \$650,000 of which \$237,359 has been spent.*



NEXT STEPS:

CDFW is designing projects for selected salmon hatcheries for water treatment systems to improve survival of eggs and fish at the hatchery prior to their release

**Coded wire tags that were previously reported in this response item were budgeted instead in the response for emergency help for salmon and smelt, resulting in a lower total budget after three quarters.*

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 March 2015, the Law Enforcement Division had logged 35,247 hours to drought related activities. Within these hours, wildlife officers have had 42,448 contacts, issued 1,961 warnings and 1,374 citations and made 272 arrests.

During the third quarter, the top wildlife violations were fishing without license (602 citations), gear violations (203 citations), angling within closed streams and rivers (152 citations), and unlawful take or possession (65 citations).

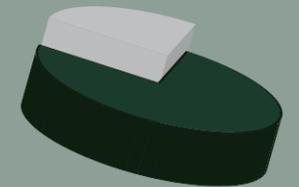
There has been a decrease in angler violations, however, water diversion and streambed alteration violations have increased. With creeks and tributaries drying up, violators are taking whatever water is available and diverting it into storage containers. Many of these operations are connected to marijuana grows, however, one case involves a rice farmer flooding his fields with a nearby creek.

Recently an upper portion of the Sacramento River was closed in an emergency rulemaking by the Fish and Game Commission to protect winter-run Chinook salmon.

Drought is now affecting wildlife guzzlers in the desert region of the state. Wildlife officers are utilizing patrol efforts and adding water to guzzlers. Some additional guzzlers have been constructed to help water-deprived areas.

BY THE NUMBERS:

The total budget for this is \$1,170,000 of which \$877,500 has been spent.



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.

FISHERIES RESTORATION GRANT PROGRAM ENHANCEMENTS FOR SALMON AND STEELHEAD RESTORATION

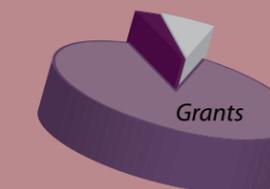
GOAL: Leverage existing Fisheries Restoration Grant Program (FRGP) funding to increase and enhance restoration projects along the coast and in the Sacramento River watershed.



CDFW released a public Proposal Solicitation Notice on July 1, 2014. The public Peer Review Committee reviewed and scored grant applications in September and forwarded their recommendations to the Director of CDFW in October. CDFW developed and released the mitigated Negative Declaration, the Environmental Review document for the potential restoration projects, in December. The Director of CDFW made grant approval decisions in February 2015 for drought and forest land restoration projects. Twenty-three drought projects were selected, totaling over \$3.5 million. Five forest land grants were awarded, totaling over \$500,000.

BY THE NUMBERS:

The total budget for this item is \$8 million, of which \$7,200,000 will be granted out. Of the remaining \$800,000, \$249,139 has been spent after the first three quarters of the fiscal year.



NEXT STEPS:

The Department will process grant agreements between March and June, and restoration projects will commence in June and July.

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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