

Federal Actions to Assist the Drought Emergency

As called for in the President's Climate Action Plan, the National Drought Resilience Partnership (NDRP) is coordinating long-term Federal preparedness for drought. The NDRP coordinates Federal efforts broadly across the country and is working closely with state and local governments, agriculture and other partners to improve community preparedness and resilience to drought.

With a focus on building long-term drought resilience, the NDRP is dedicated to helping communities better prepare for future droughts and reducing the impact of drought events on livelihoods and the economy. NDRP is comprised of: the United States Department of Agriculture (USDA), the National Oceanic and Atmospheric Administration (NOAA), the Department of the Interior (DOI), the Assistant Secretary of the Army for Civil Works (US Army Corps), the Federal Emergency Management Agency (FEMA), the Environmental Protection Agency (EPA) and the U.S. Department of Energy (DOE).

The following provides the highlights of ongoing Federal water management actions, as well as funding and tools to assist in addressing drought.

Assistance to Farmers, Communities, and Families Impacted by Drought

- **New Rural Development's Water and Environmental Program Funding:** On April 22, 2015, USDA announced it will provide more than \$112 million for projects to assist rural communities in building and upgrading their water and energy infrastructure systems. The projects will be funded through USDA's Rural Development's Water and Environmental Program.
- **Emergency Community Water Assistance Grants:** Since October 2014, USDA Rural Development has awarded 21 Emergency Community Water Assistance Grants. ECWAG applications have been funded for the State of California totaling \$7,955,908 and 1 for Kansas in the amount of \$500,000.
- **Individual Household Water Well Grants:** USDA's Rural Utilities Service approved \$730,461 for 3 Individual Household Water Well Grants to non-profit entities in California to provide loans to homeowners needing to drill new or rehabilitate existing household water wells.
- **Livestock Forage Program (LFP):** Since passage of the Farm Bill in February 2014, providing emergency drought assistance to livestock producers, often dealing with multi-year severe drought conditions, has been a top USDA priority. The Livestock Forage Program (LFP) has paid almost \$5.5 billion to hundreds of thousands of livestock producers. This assistance was often the difference between being able to continue farming or ranching and leaving agriculture. While the drought in some areas has lessened in 2015, significant drought especially on the west coast has triggered over \$137 million in emergency assistance so far.
- **New Funding for NRCS's Environmental Quality Incentives Program:** On May 18, 2015, Secretary Vilsack announced the availability of an additional \$21 million through NRCS's Environmental Quality Incentives Program (EQIP), targeted to farmers and ranchers in eight western states experiencing extreme (D3) or exceptional (D4) drought as defined by the U.S. Drought Monitor. \$13.7 of the \$21 million was made available to California producers. These additional funds were targeted to practices improving rangeland health (largely livestock watering facilities and improved grazing distribution) and improving water use efficiency on cropland. Combining this additional \$13.7 million with California's annual EQIP

allocation, NRCS is investing over \$36 million in 2015 in practices addressing the state's drought conditions.

- **Investment in Ogallala Aquifer Region:** On May 14, 2015, Secretary Vilsack announced that NRCS is investing \$6.5 million in the Ogallala Aquifer region this year to help farmers and ranchers conserve billions of gallons of water and improve water quality. Funding will be targeted to seven focus areas to support their primary water source and strengthen rural economies.
- **Watershed Rehabilitation Funding:** On April 9, 2015, USDA [announced](#) \$73 million in Watershed Rehabilitation funding for 150 dam projects nationwide. Funds are used to rehabilitate and assess dams across the nation, delivering benefits that may include improved water supply in drought affected areas, flood damage reduction, and recreational benefits.
- **High-Impact Conservation Projects:** In January 2015, USDA [announced](#) more than \$370 million in funding to 115 high-impact conservation projects across the nation that will improve soil health, water quality and water use efficiency, wildlife habitat, and other related natural resources on private lands. Roughly \$60 million was dedicated to projects that primarily target water quantity or drought-related resource concerns. In May 2015, USDA announced up to \$235 million for the next round of projects.
- **New Drought Response Program:** On August 12, 2015, Bureau of Reclamation (Reclamation) Commissioner Estevan López announced the selection of 23 projects to receive grants totaling \$5.2 million under Reclamation's new Drought Response Program. The grants provide cost-shared funding for proactive drought planning and projects to build long-term drought resiliency in nine states in the West. Under this new program, funding is allocated to states, tribes and local governments in the 17 Western States through competitive processes for drought contingency planning and drought resiliency projects on an annual basis.
- **Western Drought Response Funding:** Reclamation is providing \$19.9 million in 2015 as part of the Western drought Response Funding for California's Central Valley Project. Reclamation is also dedicating an additional \$8.8 million for the Central Valley Project. The funding will support operations and maintenance, fish passage and fish screens, and to supplement the Natural Resources Conservation Service (NRCS) water conservation partnerships to improve efficiency of agricultural water use in California.
- **Clean Water State Revolving Loan Fund (CWSRF):** EPA continues to provide low interest, 30-year extended term financing to States to undertake a variety of water quality improvement projects. Over the last two and half decades, the CWSRFs have provided over \$100 billion, funding more than 33,320 low-interest loans.
- **Water Assistance for At-Risk Tribes:** EPA Region 9 (Pacific Southwest) is working with Indian Health Services and the California Office of Emergency Services to assist tribes across California at risk of running out of drinking water.
- **National Drought Resilience Partnership (NDRP) Montana Demonstration Project in partnership with NIDIS:** On Sept 9 - 11, 2015, NOAA's National Drought Information System (NIDIS) partnered with federal and Montana state agencies in a meeting, *Building Drought Resilience for the Upper Missouri Basin*. The goal was to develop on-the-ground actions that support a coordinated basin-wide plan to build drought resilience in the Upper Missouri River Basin in Montana. Meeting participants, including

regional watershed groups, are developing a work plan that lists National Drought Resilience Partnership goals, documents current activities, and identifies needs and actions to resolve drought-related issues. They are also working to identify the Federal and State resources available to help execute the work plan items.

Wildfire Assistance

- **Sierra Nevada Watershed Improvement Program:** [Launched](#) on March 4, 2015, this partnership between the Sierra Nevada Conservancy and the U.S. Forest Service seeks to improve the Sierra's ability to store and filter water and reduce fire risks by restoring forests. The program will coordinate the diverse activities of government agencies, property owners, and non-profit groups to restore streams and meadows, improve habitat and thin overgrown forests, and protect the economic uses of the land, such as logging and grazing.
- **Joint Chiefs' Landscape Restoration Partnership:** In 2014 the U.S. Forest Service and the NRCS [initiated](#) a new [partnership](#) program to improve the health and resiliency of forest ecosystems where public and private lands meet across the nation. The program has enabled partnerships across the Nation to reduce wildfire threats to communities and landowners, protect water quality and supply and improve habitat for at-risk species. Now in its second year, the Joint Chiefs' Landscape Restoration Partnership (LRP) supports 28 ongoing projects from Vermont to Hawaii. To date, the total investment by the U.S. Forest Service and NRCS has exceeded \$69 million in treatments and activities on public, state, and private land. Importantly, other partners are bringing additional funding and technical assistance to the projects over the life of the partnerships. In addition, many of these projects leverage ongoing work funded by state and local governments. New partnership proposals have been solicited for consideration of additional projects in 2016.
- **Wildfire Preparedness:** DOI's Bureau of Land Management (BLM) and the U.S. Forest Service have boosted fire management resources to 7-day staffing while the California Department of Forestry and Fire Protection (CAL FIRE) are adding staffing patterns with augmented resources and personnel to their traditional 7-day staffing. All agencies are engaged in increased coordination. BLM is prepared to submit a fire severity funding request when needed and has done so twice this season: one for June 19 - July 19 in the amount of \$235,000 and the second for August 6 - September 5 for \$534,000, for a total of \$768,000.
- **Integrating Drought Science and Wildfire Management Workshop:** NOAA's National Integrated Drought Information System (NIDIS), in partnership with NOAA's Western Regional Climate Center (WRCC) and the Desert Research Institute (DRI), will be hosting a two day workshop October 21-22, 2015 in Boise, ID. The workshop will bring together key members of the drought and fire communities to identify ways to better integrate drought science, research and tools into fire response and forecasting.
- **Watershed Enhancement Program (WWEP):** The WWEP advances partnerships between Reclamation and other Federal agencies, state and local government, and non-governmental entities promoting watershed health and wildfire resiliency to protect water supplies and infrastructure. WWEP projects target activities to reduce wildfire risk through forest thinning, prescribed fire and other forest health treatments; minimize post-wildfire erosion and sedimentation through rehabilitation of fire-damaged areas; restore wildlife habitat; and investigate watershed enhancement methods. In FY 2015, \$700,000 was awarded to fund 4 proposals.

Improved Drought Monitoring, Planning, Research, and Tools

- **The WaterSMART Water and Energy Efficiency and Title XVI Grants** . On May 20, 2015, DOI's Secretary Jewell announced \$50 million to improve water efficiency and conservation in Western states through the following two programs:
 - 1) Water and Energy Efficiency Grant program. Projects awarded seek to conserve and use water more efficiently, increase the use of renewable energy, improve energy efficiency, benefit endangered and threatened species, facilitate water markets, carry out activities to address climate-related impacts on water or prevent any water-related crisis or conflict, and
 - 2) Title XVI Program. Funding went to water reclamation and reuse projects and feasibility studies. Both programs will announce the 2016 funding opportunity in October or November 2015.
- **Permit for Emergency Salinity Barrier in the Sacramento-San Joaquin Delta:** On May 4, 2015, the US Army Corps issued an emergency permit to the California Department of Water Resources to install an emergency salinity barrier in the Sacramento-San Joaquin Delta to repel salinity that could threaten a source of water used by 25 million Californians. Installation began soon after the permit was issued.
- **The National Integrated Drought Information System (NIDIS):** The NIDIS is a NOAA-led, cross-agency system developed under Public Laws 109-430 and 113-86 (the NIDIS Acts). NIDIS supports development and improvements in drought monitoring, forecasting, risk and impact assessments. NIDIS provides users with access to data, information, expertise and networks of practitioners to improve communication about drought conditions, and inform state, tribal and local planning, preparedness and risk management strategies. Throughout the country, NIDIS has been hosting workshops to prepare people for drought impacts. For example, this summer in Utah, NIDIS organized a series of snowpack monitoring for streamflow forecasting and drought planning workshops. In September/October, NIDIS and the USDA's Midwest Climate Hub will sponsor a workshop in Illinois on climate impacts, tools, and needs for specialty crops and livestock. In California, NIDIS has been, and will continue to host a series of outlooks/workshops throughout California's Central Coast and Southern California to help the agricultural sector better understand El Nino, the 2016 forecast, and potential impacts.
- **Drought Information and Early Warning: The U.S. Drought Monitor** is produced each week through a NOAA-USDA-University of Nebraska, Lincoln partnership. NWS and NIDIS helps support the University of Nebraska and the Western Regional Climate Center's roles in producing the Drought Monitor. **The U.S. Monthly and Seasonal Drought Outlooks (NOAA/NWS)** show projected trends for areas experiencing drought as well as indicating areas where new droughts may develop. The 1- and 3-month Long-Lead Temperature and Precipitation Outlooks, currently depicted as probabilities and critical inputs into the Drought Outlooks, will be evaluated for a complementary non-technical format (e.g. anomalies or departures) based upon recent customer and participant feedback at drought workshops and forums in the West.
- **NOAA NIDIS Drought Outlook Meetings:** NIDIS is hosting meetings focused on drought outlooks to inform the NIDIS Drought Early Warning Systems (DEWS) currently under development in the Pacific Northwest and Midwest (FY 16 release). For example, a Coastal Pacific Northwest Drought Outlook focused on coastal drought conditions, forecasts, and impacts in the Pacific Northwest will be held on September 22, 2015, in partnership with the University of Washington's Climate Impacts Group (CIG)

and the Pacific Northwest Climate Impacts Research Consortium (a NOAA Research Integrated Science Assessment (RISA program), . In November, NIDIS will organize two Midwest Drought Outlooks with the Midwest Regional Climate Center (MRCC) and the National Drought Mitigation Center (NDMC) focused on the Upper Mississippi and Ohio basins

- **Texas and Oklahoma Climate Extremes Workshop:** NOAA's National Integrated Drought Information System (NIDIS), the Southern Region National Weather Service and the Southern Climate Impacts Planning Program (SCIPP), a NOAA Regional Integrated Science Assessment (RISA), are partnering with the National Drought Mitigation Center (NDMC) to host a workshop on the recent multi-year drought and 2015 spring flood event in Texas and Oklahoma. This workshop will be held on October 13 - 14, 2015 in Fort Worth, Texas, providing federal and state agencies the opportunity to identify successes, challenges, lessons learned and opportunities for future collaboration.
- **NOAA provides weather, climate, and forecast information and decision support services for the California Drought during the 2014-15 Water Year:** NOAA's National Weather Service's Climate Prediction Center (primary) and the Western Regional NWS Headquarters (back-up) provide weekly updates of weather and long-term (monthly, seasonal, year-to-date, etc.) climate summaries, U.S. Drought Monitor changes, various precipitation, snowpack, and reservoir information; monthly and seasonal U.S. Drought Outlooks forecasts, and the latest El Niño updates for the ongoing long-term California and surrounding Western states drought. NOAA has also been supporting the California Governor's Office, including the Office of Emergency Services (CalOES) with this information. The information is also used by state and local agencies to continue to emphasize the need for on-going conservation.
- **Forecast Informed Reservoir Operations (FIRO) Project:** NOAA's Earth System Research Laboratory - Physical Sciences Division (ESRL-PSD) and the National Integrated Drought Information System (NIDIS), are partnering with the U.S. Army Corps of Engineers to develop experimental extended weather forecasts of extreme precipitation events to inform short term deviations in the management of reservoirs to increase water supply and to predict the contribution of weather events in reducing the severity or ending drought conditions.
- **El Niño Southern Oscillation (ENSO) related changes in the risk of extremes:** NOAA's Earth System Research Laboratory - Physical Sciences Division (ESRL-PSD) is developing an updated experimental El Niño/La Niña assessment of the change in the risk of seasonal temperature and precipitation extremes (uppermost and lowest 20 percent) in the United States as a decision support resource to better understand how ENSO related changes in the risk of extremes can reduce/increase severity or end/extend duration of drought conditions.
- **NOAA/NIDIS Modeling, Analysis, Prediction and Projections (MAPP) and Coping with Drought (RISA and SARP) research grants:** Annual research solicitations enhance the Nations capability to understand and predict natural variability and changes in the Earth's climate system, and advance techniques for risk communication and risk management with respect to drought planning and preparation. These competitive research programs support the National Integrated Drought Information System.
- **Creation of the Drought Risk Management Research Center (DRMRC):** In June 2015, NOAA's National Integrated Drought Information System (NIDIS), in partnership with the NOAA Sectoral Applications Research Program (SARP), announced the [creation](#) of the Drought Risk Management Research Center (DRMRC) at the National Drought Mitigation Center (NDMC) at the University of Nebraska-Lincoln. The

Center conducts research and applied studies to develop improvements drought monitoring products and tools; integrate socio-economic information across all scales of drought preparedness and impacts; advance the societal and economic benefits of regional drought early warning systems; and advance innovations in planning for drought, including incorporating drought information into multi-hazard mitigation planning.

- **What can drought-stricken California expect from the El Niño winter forecast?:** A brief science assessment, conducted by a subgroup of the NOAA Drought Task Force, was recently [released](#). The assessment focused on the potential impacts of an El Niño winter in California. The Drought Task Force is supported by the Modeling Analysis Predictions and Projections Program (MAPP) and NIDIS. The document and FAQs can be found here:
- **Reconciliation and Enhancement of Tools for Quantifying and Ameliorating Meteorological Drought Deficits:** To address the information needs for the California drought, NOAA's National Integrated Drought Information System (NIDIS) is partnering with NOAA's National Centers for Environmental Information (NCEI)-Asheville to a) update the existing drought amelioration web page with improved documentation and new nationally applicable drought amelioration/termination products; b) reconcile the differences in drought amelioration products between NCEI-Asheville, CPC, and IRI; and c) work with the media, general public, political leadership and other key stakeholders to identify sector-specific requirements to enhance the drought amelioration web resource product suite. On September 15, 2015 in Irvine, CA, NCEI, with support from NIDIS, convened an information sharing dialogue between climate experts and community members, including political leaders, TV media, and science writers, to discuss the NCEI drought amelioration tool and anticipated improvements
- **National Water Center:** In May, 2015, NOAA opened a new National Water Center on the campus of the University of Alabama, Tuscaloosa, dedicated to water forecasts, research, and collaboration. The new facility will focus on creating actionable science to drive the development of new products and services to mitigate and prepare for water-related challenges ranging from floods to drought.
- **USDA and NASA Innovative Partnership:** On July 16, the U.S. Department of Agriculture (USDA) and the National Aeronautics and Space Administration (NASA) announced an expanded partnership designed to better protect America's working lands, predict and prevent natural disasters, and inspire young people to pursue careers in science, technology, engineering, mathematics and agriculture. Under the new agreement, USDA has expanded access to NASA satellite data, which will help U.S. Forest Service's fire fighters and first responders to better detect wildfires and predict their behavior. Additionally, the satellite data could be used to create soil moisture maps for California to improve weather and water availability forecasting and to provide a drought early-warning system for producers.
- **Water Challenge Grants:** On April 7, 2015, USDA's National Institute of Food and Agriculture [announced](#) 21 [grants](#) totaling more than \$10 million have been awarded to universities to support critical water problems in rural and agricultural watersheds across the United States. The grants will be used to develop management practices, technologies and tools for farmers, ranchers, forest owners and citizens to improve water resource quantity and quality.

- **USDA Regional Climate Hubs:** On February 5, 2014, USDA [announced](#) the establishment of seven USDA Regional Climate Hubs. These [regional hubs](#) will serve the needs of agricultural producers and foresters as a source of regional data and interpretation of climate change forecasts for hazard and adaptation planning for agriculture and resource management
- **The Agricultural Research Service (ARS):** conducts research to increase the efficiency of agricultural water use, including the safe use of nontraditional waters (e.g., high salinity waters; treated wastewaters) to develop improved drought early warning systems such as the satellite-based Evaporative Stress Index (in collaboration with NOAA); and to harness genetic resources to increase drought and heat resilience in crops.
- **Water Supply Stress Index (WaSSI) Ecosystem Services Model:** WaSSI is a prediction tool developed by USDA Forest Service to assess how climate, land cover, and human population change may impact water availability and carbon sequestration at the watershed level and across the lower 48 United States. The tool estimated how water yield and carbon sequestration in the National Forest and Grassland System (NFs) were impacted by periodic droughts across the United States over the past 60 years, providing a reference point to assess drought impacts for each of the 170 NFs, and can help land managers better optimize limited resources during watershed restoration efforts in response to climate and land use changes.
- **National drought science synthesis:** In October 2015, USDA Forest Service R&D will release a report titled, “Drought Impacts on U.S. Forests and Rangelands: A Comprehensive Science Synthesis.” Although drought has been a constant force shaping forest and range ecosystems throughout time, changing drought regimes are having significant impacts on the nation’s forests and rangelands which impact AFWA issues. Impacts on forests and rangelands are different than impacts on agriculture. As a result, many of the commonly used approaches to quantify drought and assess impacts do not apply to forests and ranges. This report evaluates appropriate ways to quantify and monitor drought, assesses consequences for forests and rangelands and their values, and identifies potential adaptation strategies. Written by 77 expert authors from Federal service, universities, and national labs, the report draws on more than 1,000 scientific citations.
- **Assessing the 2015 Drought and the Vulnerability of Western Water Resources to Future Droughts:** The U.S. Geological Survey (USGS) is collecting streamflow and water temperature information from more than 500 rivers and streams to document the severity of this year’s drought across six western states: California, Idaho, Nevada, Oregon, Utah, and Washington. The goal of the study is to assess how warmer winter temperatures, reduced mountain snowpack, and a shift in precipitation from snow to rain may affect water availability, as well as the subsidence resulting from groundwater withdrawal and the impacts of that subsidence on water conveyance infrastructure integrity. Partners include Reclamation, Northwest Indian Fisheries Commission, Nevada Division of Water Resources, Oregon Department of Water Resources, and Washington Department of Ecology . In California, U.S. Geological Survey (USGS) is measuring stream flow through the Sacramento – San Joaquin Delta and throughout the state of California.
- **EPA’s Drought Response and Resilience Guide:** EPA is developing a Drought Response and Resilience Guide for drinking water utilities to plan for and respond to drought.
- **Water Loss Audit Workshops:** EPA is participating with the CA Department of Water Resources and the California Urban Water Conservation Council in workshops for local utilities to assist in training on the

use of water audit software. These workshops provide an opportunity for local utilities to learn how to use software that assists in auditing their systems to determine the amount of water loss they have in their system. Addressing water loss in systems is an important action for utilities to take in order to create greater efficiency in their utility, guard against potential contamination, and generate more revenue.

- **Website for water and wastewater funding sources:** Developed by EPA Region 9, [this website](#) shows potential federal funding sources for states within the region. This creates a one stop shop for stakeholders to find sources of potential funding to finance needed infrastructure improvements.

Efforts to reduce the federal water footprint

- **Executive Order 13687:** On March 19, 2015, President Obama signed Executive Order 13687 that will further reduce Federal portable and industrial, landscaping and agriculture water use an additional 2% per year through 2025.
- **Moratorium on water usage for new, non-essential landscaping projects:** In response to the drought, in 2014 the President directed all federal facilities in California to take immediate steps to curb their water use, including a moratorium on water usage for new, non-essential landscaping projects. Agency successes include: EPA's regional Federal Green Challenge participants conserved over 355 million gallons of water; the Federal Deposit Insurance Corporation (FDIC) cut water use by 36% to conserve over 729 thousand gallons of water; the DEA Lab in the Pacific Southwest cut potable water use by 40% to conserve 38,906 gallons of water; and the San Diego Naval Base Coronado reduced water use last year by 20%, conserving over 101 million gallons.
- **Reducing Water Use:** Between 2007 and 2013, federal agencies reduced potable water use by 19%. To date, across the nation, USDA has reduced potable water consumption by 18% since 2007 and other water consumption by 62% since 2010.

Increased Coordination and Flexibility

- **The Western States Drought Coordinators and Emergency Managers Meeting:** On July 21-22, 2015 in Seattle, WA, NOAA's National Integrated Drought Information System (NIDIS), in partnership with the National Drought Mitigation Center (NDMC) and the Western Governors' Association (WGA), brought together for the first time, individuals who lead and assist coordination of drought-related activities from across the western United States. Representatives from 16 of the 19 Western states participated in identifying and addressing drought-related issues that cut across all western states; highlighting where states are working together and how interstate coordination can be improved; and sharing effective strategies, recent lessons learned and case studies of drought mitigation and response
- **California Headwaters Partnership:** as part of the President's Climate and Natural Resources Priority Agenda, in June USDA, DOI, and the state of California announced the California Headwaters Partnership. USDA's Forest Service and NRCS will leverage investments with federal and state partners as well as local organizations to knit together over \$210 million in forest restoration and headwater

protection efforts in the Sierra-Cascade headwater region. The California Headwaters contribute greatly to the state's water supply; for example, the Sierra-Cascade watersheds provide drinking water to 25 million people, almost two-thirds of the California population, and the majority of water for irrigated agriculture. The California Headwaters Partnership will take a watershed and landscape-level approach to restoration and will be jointly led by a state and federal planning committee. This builds on the Sierra Nevada Watershed Improvement Program, a partnership between the Sierra Nevada Conservancy and the U.S. Forest Service launched on March 4, 2015 that seeks to improve the Sierra's ability to store and filter water and reduce fire risks by restoring forests. The program will coordinate the diverse activities of government agencies, property owners, and non-profit groups to restore streams and meadows, improve habitat and thin overgrown forests, and protect the economic uses of the land, such as logging and grazing.

- **Water Transfers through Collaborative Agreements:** Reclamation has reached various agreements with the State of California and water users on the delivery of transfer and exchange water. These agreements add to Reclamation's ability to flexibly manage and operate the system to serve multiple beneficial purposes that include water for cities and rural communities, farms, fish and wildlife and their habitats. This suite of actions will also help increase the amount of water that can be transferred to areas of the state that have the greatest need for additional water supplies, maximize operational flexibility, and assist in meeting environmental objectives.
- **Endangered Species Act Flexibility:** The U.S. Fish and Wildlife Service (FWS) is providing maximum flexibility in this drought year with respect to timing and amount of water deliveries for the management of threatened and endangered species. FWS has been working with Federal and state partners on real-time water operations and operations planning to look at all possible means to manage threatened and endangered species concerns while maximizing the potential for water exports, when additional natural flows are available.
- **Fish Migration Monitoring:** Reclamation provided funding to FWS for Delta Smelt Early Warning Surveys, to provide an early alert if smelt begin to move into the Central Delta. These surveys are intended to help maximize water deliveries while avoiding excessive entrainment. The FWS has also worked with the state of California to provide additional monitoring to support operation of the Delta Cross Channel gates to protect migrating salmon and steelhead.
- **Short Term Water Deviations:** To help alleviate the effects of the drought, the US Army Corps granted short term deviations for Prado dam and Whittier dam water control operations, allowing the dams to temporarily store more water.