

Water Quality Monitoring Council's Comprehensive Strategy Supports California Water Action Plan Implementation

The California Water Quality Monitoring Council is uniquely positioned to address a need that is not being met by other organizations and coordination efforts, namely to build a collaborative framework among the many disparate governmental programs that monitor and assess the quality of California's water resources. Monitoring programs have traditionally been designed to address individual organizational mandates. As a result, the data are largely not accessible to others. Even where they are accessible, inconsistent monitoring objectives, sampling protocols, analytical techniques, and quality assurance measures make the data basically useless to other organizations that would otherwise benefit from those data.

With often minor adjustments, water quality and associated ecosystem health data generated by one organization could be available and useful in addressing the questions of other organizations. Taken together, the potential impact of such changes would be huge – broader and more detailed answers to critical management questions regarding the status of our waters and aquatic ecosystems, public health and welfare issues related to water quality, and the effectiveness of agency programs to manage our water resources. No individual organization has sufficient budgetary resources to be able to generate all of the information needed to make truly informed decisions. By making data useable to others and sharing those data, each organization will have so much more information with which to address their water resource questions. This level of change cannot be achieved by merely creating another data library, but by truly integrating the monitoring efforts of a myriad of governmental agencies and supporting non-governmental organizations. This is precisely what the Monitoring Council was created to accomplish. And management support is critical to the success of its mission.

The January 30, 2015 [California Water Action Plan Implementation Report 2014-2018](#) identifies a number of key actions to move our state toward sustainable water resource management. A number of the report's listed achievements to date and activities for the next four years are directly supported by the efforts of the Monitoring Council and its collaborative interagency workgroups. The report identifies a number of outcomes that depend on "commitments to:

- **"Align and integrate state services** toward achieving the outcomes with a common vision of what sustainable management of water resources means for California.
- **"Assess performance** in achieving the outcomes using mutually agreeable, tangible metrics and delivering assessment reports to the Legislature annually."

The Monitoring Council's [A Comprehensive Monitoring Program Strategy for California](#) (*Strategy*) is precisely designed to accomplish these two outcomes. The *Strategy* calls for bringing together subject matter experts at the working level from numerous governmental agencies and non-governmental organizations to focus on delivering water quality and related ecosystem data and assessment information to decision makers and the public that directly addresses their questions. As envisioned in the *Strategy*, the collaborative process identifies where data gaps, inconsistent methods and assessment metrics, and data management protocols prevent existing programs from meeting the collective information needs of resource managers and regulators and where better alignment of monitoring programs can address these issues.

Nine interagency workgroups now operate under the overarching guidance of the Monitoring Council's *Strategy* to foster collaboration among the many governmental agencies and non-governmental organizations that monitor and assess the condition of California's water resources. These workgroups have created six My Water Quality internet portals (www.MyWaterQuality.ca.gov) and are working on others to bring data and information to decision makers and the public in a manner that directly addresses their questions:

- Is our water safe to drink?
- Is it safe to swim in our waters?

- Is it safe to eat fish and shell fish from our waters?
- Are our aquatic ecosystems healthy?
 - Our wetlands
 - Our estuaries
 - Our streams, rivers and lakes
 - Our ocean and coastal waters
- What stressors and processes affect our water quality?
 - Harmful algal blooms and the cyanotoxins they produce

The Monitoring Council's *Strategy* includes a set of performance measures with which the Council's workgroups are to evaluate existing monitoring and assessment programs. The workgroups then develop recommendations to better align and integrate related monitoring efforts of state agencies and others by fostering a degree of standardization necessary to allow data and information from multiple sources to be combined for broader and more in-depth assessments of the condition of our water resources. Using these performance measures, the Monitoring Council's workgroups have developed defensible protocols to standardize water resource mapping, classification, monitoring, and assessment as well as tools for data management and visualization that allow data from multiple sources to be combined to address key management questions. These accomplishments are even more remarkable considering that they were made largely through voluntary efforts and without dedicated funding.

As an example, in 2010, the Natural Resources Agency released the [State of the State's Wetlands report](#) to address a gubernatorial mandate that there be no net loss of wetlands over time. The report concluded that this question could not be answered because there was no single definition of "wetland" and no standardized mapping or condition assessment protocols between the many governmental organizations involved in managing California's wetlands. The Monitoring Council's [Wetland Monitoring Workgroup](#) has coordinated twenty four state and federal agencies and supporting organizations to develop standardized definitions, mapping and monitoring protocols, and data management tools that will allow the state to accurately address this question in the future. And these protocols are the technical underpinnings behind the State Water Board's new [Wetland and Riparian Area Protection Policy](#).

Key actions identified in the *Water Action Plan Implementation Report* include:

- **Action 3 - Achieve the Co-Equal Goals for the Delta** – The Delta Stewardship Council and Delta Conservancy are working with the Monitoring Council's Wetland Monitoring, Estuary Monitoring, and Data Management workgroups to promote cross-agency collaboration in Delta mapping, monitoring, assessment and to bring the resulting information together to promote adaptive management of Delta resources. Protocols and tools developed by Monitoring Council workgroups are being used to promote more consistent gathering and synthesis of critical data on Delta habitat restoration, water quality conditions, and biological resources to better inform resource management decisions. These workgroups are "enhancing the Delta Stewardship Council's programs to support inter-agency science investigations, bolstering Delta science programs to better implement federally-mandated biological opinions, and developing coordinated Delta restoration grant programs by CDFW, DWR, and the Delta Conservancy using Proposition 1 funding."

[EcoAtlas](#), developed by the Wetland Monitoring Workgroup, will be used to track habitat restoration projects in the Delta under Proposition 1 grant agreement language proposed by the Delta Conservancy. The [Estuary Monitoring Workgroup](#)'s data visualization tools are being used to develop more thorough interactive web-based information about the Delta's biological resources and numerous factors that affect species abundance and distribution. The Estuary Workgroup is turning an annual Delta [Water Quality Conditions](#) report required by Water Rights Decision 1641 into an interactive web-based tool to allow users to gain much more from the

data, not only at the State Water Board, but at many other agencies and organizations that work on Delta water quality. This workgroup is also coordinating with the US Fish and Wildlife Service to bring their Delta Juvenile Fish Monitoring Program data to the web, allowing key threatened and endangered fish species information to be available within two to three days of sampling, enhancing the use of these data in adaptive management. The Monitoring Council has played a role in development of the Delta Stewardship Council's [Environmental Data Summit White Paper](#). The Monitoring Council's Data Management Workgroup is poised to advance implementation of the White Paper's recommendations to open up the silos of environmental data that currently exist in the numerous governmental programs that are responsible for various aspects of Delta resource regulation and management.

Tools such as these have utility not only in the Delta, but are being made available for use to water resource management and habitat restoration efforts statewide.

- **Action 4 - Protect and Restore Important Ecosystems** – In addition to those Monitoring Council activities discussed above for Action 3, the Monitoring Council's [Healthy Streams Partnership](#) guided development of the first multi-metric assessment of the health and vulnerability of California watersheds. In coordination with USEPA's Healthy Watersheds Initiative, the report, [California Integrated Assessment of Watershed Health: A Report on the Status and Vulnerability of Watershed Health in California, 2013](#), is designed to help prioritize watershed protection and restoration efforts by identifying where application of limited resources can achieve the greatest impact. Watersheds with both high health and high vulnerability scores would receive a greater priority for protection, while those with low health and low vulnerability would receive greater priority for restoration programs. Similar indices and related decision tools could be created for other aquatic habitat types.

The Healthy Streams Partnership has recently begun discussions with staff of the Department of Fish and Wildlife to bring instream flow criteria to the web. This information would help water managers determine flows that are protective of specific key fish species at critical life stages. Instream flow criteria would be added to the existing [Healthy Streams Portal](#), which already presents toxicity and bioassessment information. Flow and water quality information would be combined within the same portal.

A number of the Monitoring Council's collaborative workgroups are developing metrics of ecosystem health, most notably for streams, wetlands and the Bay-Delta, by which to determine their status, trends over time, and the stressors responsible for declines in ecosystem health. With increased management support and funding, similar efforts could be extended to other ecosystems, such as California's estuaries and ocean and coastal environments. Efforts like these require the combined efforts of researchers from a number of agencies and organizations.

Data on contaminants accumulated within fish tissues collected and assessed by the Monitoring Council's [Bioaccumulation Oversight Group](#) is in forming the development of [safe-eating guidelines](#) by Cal/EPA's Office of Environmental Health Hazard Assessment as well as Total Maximum Daily Loads by the State and Regional Water Boards to return the State's waters to compliance with water quality standards.

- **Action 5 - Manage and Prepare for Dry Periods** – The Monitoring Council's Healthy Streams Partnership and Wetland Monitoring Workgroup are already tracking sets of reference sites, sites that are relatively undisturbed by human activities. These existing monitoring programs are gathering data on the status of these reference streams and wetlands and trends in condition over time, by which the effects of climate change and drought could be measured.

Water quality and the health of aquatic ecosystems are inextricably linked to the availability and abundance of water for in-stream uses. Managing and preparing for drought requires information on how flow limitations can affect the health of our water resources. The Monitoring

Council's workgroups and portals are already investing in sound methods, protocols, data access, management, and visualization tools to keep decision makers better informed about the quality of our waters and health of related ecosystems. With increased funding and management support, these efforts could be expanded to include direct impacts of climate change as they affect stream flows. Water consumption data submitted by cities and water purveyors to the State Water Board could also be included.

- **Action 7 - Provide Safe Water for All Communities** – The Monitoring Council's [Safe Drinking Water Workgroup](#) has brought together water quality, water supply, and drinking water interests to develop a new My Water Quality portal to address the question, "Is our water safe to drink?" A [mockup of this portal](#), recently approved by the Monitoring Council, will tell the story of drinking water from source to tap, highlighting the important actions of all the agencies and organizations that are involved along the way. Through this new portal, citizens will be better informed about the quality of their drinking water, what events and factors threaten drinking water safety, and what is being done to deliver safe drinking water to customers.
- **Action 9 - Increase Operational and Regulatory Efficiency** – This action calls for effectively integrating all of the activities that agencies and organizations are undertaking to improve the Delta ecosystem. It "calls for increased coordination among agencies to improve operational and regulatory efficiency, including improved coordination of State Bay Delta actions" to help "ensure that integrated, collaborative and transparent science informs policy and management decisions." A key tenet of the Monitoring Council's enabling legislation, SB 1070, and the *Strategy* that the legislation required the Council to develop, is that increased collaboration promotes increased efficiency. By bringing together experts from numerous governmental agencies and non-governmental organization through its workgroups, the Monitoring Council is forming important and lasting relationships between key regulatory and resource management personnel and the researchers that work to inform their decisions. By implementing a portal design that focuses on directly addressing management questions, the *Strategy* both requires and motivates parties to solve monitoring and assessment coordination and data integration problems. The presence of the portals provides a conceptual framework that initiates dialogues between existing and emerging programs thereby providing the opportunity to think more broadly than they would otherwise do, and enabling broader-based assessments than were heretofore possible. By improving access to water quality and aquatic ecosystem information, the My Water Quality portals increase the transparency of the programs that generate the information, building credibility. The portals allow agency decision makers, legislators, and public to understand what they are getting for dollars spent on water resource related programs, getting beyond the bean counting – Are water resource conditions actually getting better?

The *Water Action Plan Implementation Report* identifies **Other Work to Support Action Plan Implementation**. "Accomplishing the array of discrete actions articulated in the Action Plan requires a significant new investment of public resources, as well as state agency alignment and oversight, and a concerted focus on outcomes. In addition, continued support by the Legislature and the public is required for the many water-related efforts not explicitly referenced in the Action Plan (e.g., the measurement, analysis, integration, and sharing of essential water management data)." This is exactly what is being accomplished by the collaborative workgroups of the California Water Quality Monitoring Council through implementation of [A Comprehensive Monitoring Program Strategy for California](#). The Monitoring Council is uniquely positioned to address interagency coordination at the staff level, increasing access to data and developing broader and more in-depth information that regulatory agencies and resources managers need to address the challenges spelled out in the Water Action Plan. To achieve the goals of SB 1070, the *Strategy*, and the actions identified in the *California Water Action Plan Implementation Report*, the Monitoring Council' efforts deserve both direct management support and dedicated funding.