Tenets of a State Wetland and Riparian Area Monitoring Program (WRAMP)

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California Wetland Monitoring Workgroup

http://www.waterboards.ca.gov/water_issues/programs/monitoring_council/wetland_workgroup/

Issue

The State invests more than $$$ each year to restore and protect wetlands and riparian resources through longstanding public policies and programs, including the Porter-Cologne Water Quality Control Act, California Coastal Act, California Environmental Quality Act §15386 and §15381, McAteer-Petris Act, Public Resources Code §6000, Fish and Game Code §1600, US Clean Water Act §401, the California Wetlands Conservation Policy, and the Wetland and Riparian Area Protection Policy that is being developed by the State Water Resources Control Board (SWRCB).

The State cannot account for this investment because the ambient conditions of wetlands and riparian areas are not assessed, projects are monitored in disparate ways, there is little assurance of data quality, and the few existing data are not readily available. The State should be able to account for its investment in the health of wetlands and riparian areas.

Solution

The California Wetland Monitoring Workgroup (CWMW) of the State Water Quality Monitoring Council (Council) was formed in 2009 to recommend a wetland and riparian area monitoring program (WRAMP) that serves all State agencies and supports the Wetland and Riparian Area Protection Policy. The CWMW is designing a program based on the following tenets.

- Focus on public answers to basic questions: where are the wetlands and riparian areas, what is their health status, and are the policies, programs, and projects to restore and protect wetlands and riparian areas working?
- Minimize new program costs by leveraging existing programs and projects through their use of standardized core methodologies for mapping, assessment, quality assurance, data management, and reporting.
- Use the peer review process of the SWRCB to help assure the scientific credibility of core methodologies used in ambient assessment and project assessment.
- Implement through regional programs served by the Regional Data Centers of the SWRCB and delimited by the boundaries of its Regional Water Boards.
- Allow regions to augment the core methodologies to meet special local and regional information needs.
- Be coordinated statewide through the CWMW on an ongoing basis.

More specifically, the CWMW recommends that the Council instruct the CWMW to take the following actions.

1. Wetland and riparian mapping. To the extent possible, one set of definitions and protocols should be used to identify and map wetlands and riparian areas in California. This is essential for leveraging various mapping efforts to assess the regional and statewide distribution and abundance of these resources. The CWMW should be responsible for the definitions and mapping protocols, and DFG should be responsible for maintaining and updating wetland and riparian maps as guided by the CWMW. The Council should direct the CWMW to create a Mapping Committee to coordinate the development and implementation of mapping methods. The Mapping Committee should coordinate with other state mapping efforts, especially the vegetation mapping program of DFG, and the watershed mapping program of the California Interagency Watershed Mapping Committee. The goal should be a statewide standard basemap of aquatic habitats that is maintained by DFG based on the advice and review of the CWMW, with input from the basemap user communities

2. Wetland and riparian classification. There should be one standardized basemap of wetlands and riparian areas. However, the wetlands and riparian areas shown on the map can be classified in different ways, depending on the purpose of the classification. For example, wetlands might be classified differently with regard to wildlife support and flood control. To support the Wetland and Riparian Area Protection Policy, the CWMW should develop a classification system that helps identify the beneficial uses of wetlands and riparian areas. This does not preclude developing other classification systems for other purposes. The Council should instruct the CWMW and its Mapping Committee to develop a classification system that supports the Wetland and Riparian Area Protection Policy, and to develop guidelines for developing other classification systems based on the standardized definitions and protocols for identifying and mapping wetlands and riparian areas. The goals is for every effort to map wetlands and riparian areas in California to classify them using the system developed for the Wetland and Riparian Area Protection Policy, although additional classification systems can also be used.

3. Ambient assessment. The ambient condition of wetlands and riparian areas should be regularly assessed throughout the State. The Council should direct the CWMW to develop a technical plan of ambient assessment that can be incorporated into the Surface Water Ambient Monitoring Program (SWAMP) of the SWRCB. The SWRCB should be responsible for assessing the ambient condition of wetlands and riparian areas. The goal should be regular public reports on the health status and trends of wetlands and riparian areas to help assess and forecast the ecological effects of climate change and to assess the performance of the State's policies and programs to protect these natural resources.

4. Project assessment. Every human action on the ground that changes the extent or condition of a wetland or riparian area should be tracked through a public information system. The Council should direct the CWMW to develop and guide a technical plan for using standard habitat definitions, mapping methods, assessment methods, reporting methods, and the Wetland Portal to track such projects from their planning stages through their completion. It is essential that the wetland and riparian areas of the projects be mapped and assessed using the core methodologies. The plan should enable the State to compare projects to each other and over time, and to assess their cumulative effects on ambient condition. The goal is to understand the individual and cumulative benefits of wetland and riparian projects at a variety of scales from watersheds to regions and statewide.

5. Rapid assessment methods. The high cost of monitoring and assessment has been their main deterrent. Comprehensive monitoring of the functions and services of wetlands and riparian areas has never been accomplished for any region of the State and would require more people and money than have ever been available for such purposes. Nevertheless, the State needs to monitor and assess its wetlands and riparian areas. The CWMW recommends using cost-effective rapid assessment methods (RAMs) to assess ambient condition, and to combine rapid assessment with more intensive measures when they are needed to design projects or assess particular aspects of condition or project performance. The Council should direct the CWMW to create a RAM Committee to coordinate RAM development and implementation for all state agencies. The goal is to consistently assess the effects of policies, programs, projects, and climate change on the general health of wetlands and riparian areas at a variety of scales from watersheds to regions and statewide.

6. Intensive assessment methods. In technical terms, intensive assessment (IA) is the quantification of selected processes or health aspects of wetlands or riparian areas. IA is essential to answer questions about particular plant and animal species, water quality parameters, or other health aspects that are not individually assessed using RAMs. There are many more aspects of wetland and riparian health that might be assessed using IA than time and money allow. The Council should instruct the CWMW to develop and guide an approach to prioritize and develop IA methods. The goal is to provide standard methods of intensive assessment for key aspects of wetland and riparian health that RAMs do not adequately assess.

7. Targeted research. Successful monitoring and assessment programs are supported by research to develop methods of data collection, management, analysis, interpretation, and reporting. Past research has brought the State to the threshold of a cost-effective program for monitoring and assessing wetlands and riparian areas; the program will need a research component to maintain scientific excellence. The Council should instruct the CWMW to develop and guide a plan to identify and prioritize immediate and medium range future research needs. The goal is to create a research component of the wetland and riparian area monitoring program that

directly targets the highest priority needs for new or revised technical methodologies.

8. Data quality assurance and quality control. Having adequate assurances and control on data quality (QAQC) means the program generates data that meet the needs of wetland and riparian regulators and managers in terms of data representativeness, accuracy, and precision. QAQC has four main aspects.

   a. *Peer Review*. The Council should instruct the CWMW to develop and guide a plan for using the formal peer review process of the SWRCB to help assure the appropriateness and scientific credibility of the core methodologies for wetland and riparian mapping and assessment. The CWMW should also develop guidelines for establishing technical committees that incorporate informal peer review into their work, and to define the role of scientific publication of monitoring methods and results in peer review. The goal is to assure that data generated by the WRAPP are scientifically adequate to inform management and regulation of wetlands and riparian areas, and to assess the performance of policies, programs, and projects designed to protect these natural resources.

   b. *Training.* The Council should instruct the CWMW to develop and guide a plan for training agency staff and practitioners in the proper use of the core methodologies for mapping, data collection, data management, data analysis, data interpretation, and reporting. Training may occur via a variety of venues, but curricula and instructors should be coordinated to ensure consistent training throughout the user communities. The goal is to develop trainers and curricula that can be implemented through a large variety of educational programs.

   c. A*uditing.* The Council should instruct the CWMW to develop and guide a plan of third-party audits of selected monitoring data and reports. The audits would focus on the use of core methodologies for mapping, data collection, and data analysis. The goal is to maintain the scientific integrity of WRAMP by identifying and correctly misuse and misapplication of its core methodologies, especially in the context of project design and regulatory decisions.

   d. *Data management.* Data management is not only a main aspect of QAQC, it is also fundamental to data sharing and integration across projects, programs, and regions of the State. The Council should direct the CWMW to create a Data Management Committee to coordinate the development and implementation of a plan that assures WRAMP data meet minimum QAQC requirements for geo-referencing, numerical accuracy and precision, metadata, and other aspects of data quality and completeness. The CWMW should ensure that its Data Management Committee works closely with the State efforts to develop Regional Data Centers, the State Wetland Portal, the California Environmental Data Exchange Network (CEDEN), and other regional and statewide efforts to manage and share wetland and riparian data. A separate memorandum has been produced that covers data management more thoroughly (attached).

9. Outreach and Information Sharing. One goal of the WRAMP is to help make all publically funded data and information about wetlands and riparian areas readily available to agencies, the private sector, and the public. The primary mechanism for this communication should be the California Wetland Portal and its regional hubs. Training in Portal use should be broadly available to build a strong user community. The Council should instruct the CWMW to develop and guide an outreach and training plan to encourage Portal use, and for gaining insight from the user community about how the Portal might be improved. The Goal is to maximize the value of the California Wetland Portal.

10. Reporting. The WRAMP will generate large amounts of data that should be used on an ongoing basis by many interests throughout the State. Limited syntheses of core data might be automated through the Wetland Portal for a variety of scales from watersheds to regions and statewide. However, there should also be periodic reports authored by the CWMW or its member agencies that more broadly synthesize monitoring and assessment results. For example, the WRAMP should soundly support biennial reports to USEPA pursuant to §305(b) of the US Clean Water Act. The program should also generate reports on net change in wetland and riparian extent and health pursuant to the California Wetlands Conservation Policy and the SWRCB Wetland and Riparian Area Protection Policy. Production of these kinds of reports will require dedicated analyses of monitoring results and much coordination among the responsible agencies. The recent report from CWMW on estuarine wetland condition is a successful example. The Council should instruct the CWMW to develop a plan indicating what periodic reports should be developed from the WRAMP, what the reporting interval should be, and how the reports will be accomplished. The goal is to publically account for the public investment in the restoration and protection of wetlands and riparian areas.

Organization

The CWMW recognizes that wetlands and riparian areas vary significantly in natural form and function among the regions of the State, that each region has a community of experts best suited to account for this variability through data interpretation, and that implementing the WRAMP for all regions of the State at the same time is not practical or necessary to achieve WRAPP goals. The CWMW also recognizes that some monitoring of wetlands and riparian areas is already happening, although these efforts are not standardized or well coordinated at this time. Much of the existing efforts are related to permits issued under Fish and Game Code §1600, US Clean Water Act §401, or Waste Discharge Requirements pursuant to the Porter-Cologne Water Quality Control Act. Based on these considerations, the CWMW recommends the following.

- The WRAMP should consist of a network of regional and local programs coordinated by the CWMW through their use of standard methods for mapping, data collection, data management, data analysis, and public reporting.

- To account for the natural regional variations in wetlands and riparian areas, the core assessment methodologies of the WRAMP should be calibrated to reference conditions in the Level 3 Ecoregions of DFG.
- To support coordination of compensatory monitoring through State regulatory programs, to link the WRAMP to the Regional Data Centers of the SWRCB, and to support phased regional implementation of the WRAMP, The WRAMP should be administered at the regional level through the Regional Water Boards.

Achieving the goals of the WRAMP will require a detailed strategy. The Council should instruct the CWMW to develop a strategy that suggests the roles and responsibilities of local and State agencies, the associated costs per region and statewide, and alternative ways to meet the funding requirements.

Status and Next Steps

Substantial progress has been made to develop the WRAMP.

- The CWMW was formed, developed a charter, and effectively functions as the forum for statewide coordination of wetland and riparian monitoring and assessment.
- The CWMW serves as the primary inter-agency clearinghouse for technical memoranda produced by the Technical Advisory Team for the Wetland and Riparian Area Protection Policy. The memoranda to date cover wetland and riparian definitions and wetland delineation.
- The CWMW produced an interagency technical bulletin on implementation of the California Rapid Assessment Method (CRAM) for projects.
- A Committee of the CWMW was formed to coordinate further development and implementation of CRAM and other rapid assessment methods.
- A Committee of the CWMW was formed to develop standardized mapping protocols and a classification system for wetland and riparian areas.
- Wetland and riparian area mapping protocols have been developed and piloted.
- Initial statewide ambient assessments were completed for riverine wetlands (in coordination with the SWAMP program) and estuarine wetlands using CRAM.
- The first iteration of the Wetland Portal was developed and launched.
- The permit process for 401 and Waste Discharge Requirements is moving online with links to the Wetland Portal.
- Next steps in WRAMP development have been identified and Federal funds for them have been secured. These steps will yield further validation of CRAM, protocols for regional and statewide ambient assessment, online mapping tools for local data stewards, and pilot implementation of the Wetland and Riparian Area Protection Policy at the watershed scale.