

## **Challenges and Solutions for Managing Wetland Data in California**

### **Background for Briefing the Secretary of Resources and Secretary of CalEPA**

#### **Issue**

California currently lacks the ability to assess and track changes in wetland area (and condition) over time and to report these changes to the public and the legislature.

The ability to track changes in wetland extent and distribution over time is fundamental to all wetland programs in the State. It is a key element of the integrated wetland monitoring and assessment program recommended in the Natural Resource Agency's 2009 *State of the State's Wetlands Report (draft)*. It not only provides the basic ability to report on status and trends, but also provides a foundation for monitoring and assessment programs and allows for the evaluation of the effectiveness of regulatory and management programs. The Governor's "no net loss" policy requires accurate assessment of changes in wetland area over time. More recently, Senate Bill 1070 (statutes of 2006) established a mandate to bring monitoring data together from multiple agencies and organizations in a manner that permits broader-focused assessments and to make such information readily available to the public; hence this is one of the focal points of the interagency California Water Quality Monitoring Council.

#### **Challenges**

The ability to meet the mandate of SB1070 and the Governor's no net loss policy will require both technical and administrative changes to the way wetland data are currently collected and managed.

Data on wetland extent currently resides with at least half a dozen different agencies. Compilation of these data is hindered by the following technical factors and by the fact that *California lacks a central agency or group with the responsibility and authority to compile and manage data across wetland programs*.

1. Lack of a consistent database or central data management system. This makes it difficult to compile and share data across programs. Similarly, data compatibility between state and federal agencies is inconsistent.
2. Uneven data management across programs and agencies. The comprehensiveness and approach to data management are highly variable across agencies, varying from little to no organized data management to highly complex databases.
3. No standard data protocols. Each program is free to establish its own protocols, which are not consistent among programs. This makes data compilation and comparison across programs nearly impossible. Furthermore, when data protocols exist they are not readily available or clearly documented and metadata is typically absent.
4. Quality assurance processes are absent, unclear, or inconsistent. Agencies readily admit that there is uncertainty in their data, and the lack of common QA protocols makes it difficult to document the level of uncertainty in the data.

5. Data are often not geo-referenced. Information on wetland gains and losses is often not tied to a specific location. Therefore, it is difficult to determine if there is double counting over time within a given agency or over space and time between agencies.
6. California lacks a coherent wetland classification framework. Different state and federal agencies use one (or more) of several classification systems, which hinders or prevents the collection, storage, assessment, and presentation of wetland data in a consistent framework.

Some wetland data can currently be found on several web sites, including BIOS, CERES, and CAL-ATLAS. However, none of these systems serves to compile wetland data across all agencies, not all data are available to the public, and the sites are not well integrated. In addition, there is a wealth of data that resides with non-governmental agencies and joint ventures that is difficult to access. There is currently no means or incentive for these organizations to share or disseminate their data. As a result, *wetland data are not readily available within and between agencies/organizations, are not of known quality nor sufficiently comparable to permit regional or statewide assessments, and are often difficult to access by the public.*

### **Recommendations**

Instruct the California Wetland Monitoring Workgroup (CWMW) to establish a technical workgroup to review data sources and management for the major categories of activities and programs that affect wetlands in California, including permitting programs, unauthorized activities, agricultural restoration and, conservation programs, and grant or bond funded conservation and restoration activities. This workgroup should coordinate with governmental organizations under the California Natural Resources Agency, Cal/EPA, and relevant Federal programs to accomplish the following:

1. Adopt a common approach for wetland mapping and classification in California. To the extent possible, State agencies should use a common statewide definition of wetlands and riparian areas and a common classification system for wetlands and riparian areas that is tailored to California's wetlands. The Department of Fish and Game should be responsible for maintaining and updating wetland and riparian maps and making them readily available to the public. *The ultimate goal should be the production of a statewide standard basemap of state waters (topography, lakes, rivers and creeks, wetlands, nearshore marine areas).*
2. Develop data standards for reporting on wetland changes. The data standards should adopt a common wetland classification system and define how features such as open water or riparian ecosystem elements are identified and reported. These standards should be used across all wetland programs to allow for compilation and sharing of data across programs.
3. Develop consistent quality control and metadata requirements. Wetland data should be accompanied by information on the source and quality of the data, estimates of confidence in the accuracy of the data, and any notations or explanatory information from the source agency. This will aid in data interpretation and compilation and allow for appropriate qualification of the data sufficient to be able to determine whether data from multiple sources can be combined in broader assessment efforts.

4. Require that all wetland data be geo-referenced or associated with a map. Multiple agencies or programs often collect data on a given project. Requiring spatial attribution will allow mapping of wetland projects. This will reduce the potential for double counting of gains or losses, will aid in the assessment of cumulative effects, and will help support regional planning and assessment programs.
5. Require that all data be submitted to the Regional Data Centers. Several Regional Data Centers have been established by the State Water Board (as part of the California Environmental Data Exchange Network or CEDEN) to allow for regional compilation of water quality data from multiple programs. The data centers perform initial quality control and make the data available through the statewide data network. Ultimately, these data will be accessible to the public through the statewide wetland data portal. The workgroup should identify the most logical relationships between the wetland data portal and existing online data libraries, such as BIOS and CERES.

In addition to these technical tasks, a long-term strategy should be developed for ongoing coordination among wetland programs in California. Ultimately, there should be a single group or agency with the authority to coordinate wetland monitoring activities and to compile, manage and report on wetland data in California. An implementation work plan will need to be developed that includes funding strategies for the recommended actions.

#### **Who Should Be Involved?**

The data management strategy and implementation plan should be coordinated by a technical team (that is a subcommittee of the CWMW) that includes representatives from the Natural Resources Agency and Cal/EPA, the Southern California Coastal Water Research Project (SCCWRP), the San Francisco Estuary Institute (SFEI), and the Moss Landing Marine Lab (MLML). The technical team should be overseen and report to the California Wetland Monitoring Workgroup. In addition, the products of this workgroup should be vetted through the California Water Quality Monitoring Council. Ongoing coordination will occur through the CWMW its various committees. Potential participating agencies are listed in Appendix A.

#### **Costs Implications**

Ultimately, the recommended changes to wetland data management would be integrated into existing agency programs, and therefore be included in their budgets. Successful implementation of this data management strategy would improve efficiency across programs and could ultimately lead to lower overall costs by eliminating duplicative monitoring and assessment efforts and consolidating data management through the Regional Data Centers (as is recommended by the California Water Quality Monitoring Council).

Funding will be required to support the initial efforts of the technical team to implement the recommendations. Additional ongoing funding will be required by the CWMW and the Monitoring Council to oversee and enhance monitoring, assessment and reporting coordination efforts and by the Regional Data Centers for data management, quality control, training, reporting, and periodic updates/upgrades. *We recommend that the equivalent of one full-time position be funded at one of the*

State member agencies of the CWMW for ongoing coordination and management of the State's wetland data systems. In addition, the estimated initial and recurring statewide costs to implement each recommendation are summarized in Table 1. Detailed cost estimates are provided in Appendix B.

**Table 1. Estimated Statewide Costs to Implement Recommendations**

	<b>Recommendation</b>	<b>initial cost</b>	<b>annual cost</b>
1	Adopt Common Approach for Mapping and Classification	\$3,030,000	\$465,000
2	Develop Standards for Reporting on Wetland Change	\$65,000	\$31,250
3	Develop Quality Control and Metadata Requirements	\$90,000	\$300,000
4	Require All Data be Georeferenced and Mapped	\$115,000	\$300,000
5	Data Submittals to Regional Data Centers	\$0	\$62,500
	<b>Total</b>	<b>\$3,300,000</b>	<b>\$1,158,750</b>

**Funding Strategy**

Successful implementation of a coordinated wetland data management program will require sustainable funding and dedicated staff to coordinate among the key data providers and managers. Below is a discussion of three potential options for funding such a program, undoubtedly others exist.

1. Establish an endowment account that receives funds collected from fines and mitigation fees.

Under this option state regulatory agencies would direct fees from wetland mitigation projects and fines into an interest bearing account until the endowment target is reached. Once the endowment target is reached, fines and fees would no longer need to be directed to this account.

*Requirements:*

- Legislative buy-in and action for reallocation of state funds and to create an endowment account. (State budget bill would establish a new account.)
- Need Department of Finance (DOF) buy-in at a policy level.
- Need buy-in from affected agencies and departments.
- Governor's office buy-in would be dependent on determinations of DOF and other affected departments.

*Impediments/challenges/considerations:*

- State does not have a good track record in handling endowment accounts.
- An endowment held by a third-party, may generate a higher returns. However, DOF has not been supportive of endowment accounts being held by third-parties.
- Would need agreement among data holding departments on how funds would be allocated.
- SWRCB currently drafting *California Wetland and Riparian Policy*. Policy should discuss this option as one of the potential financing mechanism in the "monitoring and assessment" section.

2. Increase permit fees collected by regulatory agencies and direct a portion of these fees to a special account in the state budget.

Under this option permit fees resulting from a specified increase and collected by agencies such as the Coastal Commission, DFG, and SWRCB would be directed to a special state account.

*Requirements:*

- Legislature buy-in and action for allocation of state funds and to create new account. (State budget bill would establish new account.) It may be possible to use already existing accounts; e.g., SWRCB, DFG, Coastal Commission.
- Need Department of Finance (DOF) buy-in at a policy level.
- Need buy-in from affected agencies and departments at policy level.
- Governor's office buy-in would be dependent upon determinations of DOF and other affected departments.
- Increases in permit fees are subject to commission (e.g., Coastal Commission) and board (SWRCB) approval.
- Increases in permit fees are subject to Office of Administrative Law review and approval.

*Impediments/challenges/considerations:*

- Some departments (e.g., SWRCB) can't legally use enforcement generated fees to fund work that isn't part of its responsibility.
- Overcoming objection of the regulated community and related special interests.
- Would need agreement among data generating/managing departments on how funds would be allocated.
- SWRCB currently drafting *California Wetland and Riparian Policy*. Policy should discuss this option as one of the potential financing mechanism in the "monitoring and assessment" section.

3. Environmental License Plate Fund (ELPF)

Under this option a portion of ELPF monies (generated by DMW sales of environmental license plates) would be allocated to a designated wetland data management program or programs.

*Requirements:*

- Need California Transport Commission (CTC) and Natural Resources Agency Secretary buy-in at a policy level. Note: CTC and Resources Secretary approve the allocation of ELPF.
- DOF review and approval would be needed for department accepting funding. This review would be initiated by the submittal of a budget change proposal by the affected department or departments.
- Would require action from DOF and legislature if funds were diverted from ELPF to another account in the state budget.
- Would need agreement among data generating/managing departments on how funds would be allocated.

*Impediments/challenges/considerations:*

- Annual competition for ELPF monies is stiff and the fund is often oversubscribed
- Need the support of the wetlands conservation community because of competing uses for funds.

## **Appendix A – Potential Partner Agencies**

### Potential State Agency Participants:

- California Department of Fish and Game
- California State Coastal Conservancy
- California Coastal Commission
- Bay Conservation and Development Commission
- State Lands Commission
- California Department of Parks and Recreation
- California Wildlife Conservation Board
- California Department of Water Resources
- California Department of Forestry and Fire Protection
- State Water Resources Control Board
- Regional Water Quality Control Boards

### Potential Federal Agency Participants:

- US Environmental Protection Agency
- US Army Corps of Engineers
- NOAA National Marine Fisheries Service
- USDA Forest Service
- US Fish and Wildlife Service
- USDA Natural Resources Conservation Service

## Appendix B – Detailed Cost Estimates

<i>Recommendation</i>	<i>unit cost</i>		<i>units</i>	<i>total</i>	<i>interval</i>	<i>notes</i>
<b>1 Adopt Common Approach for Mapping and Classification</b>						
a. complete state wetland map	\$3,000	quad	1,000	\$3,000,000	one time	
b. develop mapping and classification protocols				\$30,000	one time	this is in addition to existing TAT funding
c. training on mapping protocols & S&T	\$2,500	class	6	\$15,000	annual	training may decrease over time
d. ongoing map updates and data management	\$100	hour	750	\$75,000	annual	assume GIS tech level work
e. implementation of status and trends program	\$1,500	plot	250	\$375,000	annual	assume 250 plots/yr on an ongoing basis
<b>2 Develop Standards for Reporting on Wetland Change</b>						
a. develop approach and procedures	\$125	hour	300	\$37,500	one time	assume scientists level work
b. vetting and review of procedure	\$125	hour	100	\$12,500	one time	assume approximately 10 meetings
c. training of agency staff	\$2,500	class	6	\$15,000	one time	six classes correspond to six DFG regions
d. estimation of wetland change	\$125	hour	250	\$31,250	every 5 yrs	
<b>3 Develop Quality Control and Metadata Requirements</b>						
a. develop approach and procedures	\$125	hour	500	\$62,500	one time	assume scientists level work
b. vetting and review of procedure	\$125	hour	100	\$12,500	one time	assume approximately 10 meetings
c. training of agency staff	\$2,500	class	6	\$15,000	one time	six classes correspond to six DFG regions
d. ongoing data QA/QC	\$100	hour	3,000	\$300,000	annually	assume 1500 "projects"/yr, which is approx 404 permits/yr
<b>4 Require All Data be Georeferenced and Mapped</b>						
a. develop new agency programs and policies	\$125	hour	600	\$75,000	one time	could be internal agency costs
b. public review and vetting process	\$125	hour	200	\$25,000	one time	assume 10 meetings + prep and follow up
c. training of agency staff	\$2,500	class	6	\$15,000	one time	six classes correspond to six DFG regions
d. ongoing data management and QA	\$100	hour	3,000	\$300,000	annually	assume 1500 "projects"/yr, which is approx 404 permits/yr
<b>5 Data Submittals to Regional Data Centers</b>						
a. development of RDC infrastructure and capacity				\$0	one time	assume existing committed funding for this
b. ongoing data management				\$0	annually	these costs already accounted for in previous line items
c. reporting	\$125	hour	500	\$62,500	annually	assumer four data centers