

REGIONAL WATER DATA MANAGEMENT PROJECT

Project Update prepared for the Regional Advisory Committee

August 10, 2015

BACKGROUND

The California Department of Water Resources requires inclusion of a data management component in all IRWM plans. This stakeholder-driven, collaborative project is funded by the San Diego IRWM's 2011 Implementation Grant, and has the goal of developing a regional, web-based data management system (DMS). Water-related agencies and organizations in the region prioritized this project because their need for consistent, sharable data, and fewer gaps in data collection and analysis efforts.

More specific goals for the DMS include:

- Provide a snapshot of current data management efforts and priority data needs
- Establish basic design parameters for the future development of a regional, web-based, user-friendly system for sharing, disseminating, and supporting the analysis of water management data and information
- Assist in the assessment and management of watershed health and sustainability (WHS)

ADVISORY WORKGROUP

The project's Advisory Workgroup (AWG) consists of 12 members and four alternates. Members possess both knowledge of water policy and working experience with data management systems. In terms of categories of water data users and interests, Advisory Workgroup members cover:

- Water purveyors
- Wastewater
- Stormwater
- Flood
- Regulatory
- Meteorology
- Community and watershed
- Environmental
- Professional business (e.g., landscape contractors)
- Academia
- Geographic Information Systems

Over the course of the project, the AWG held six meetings. During this time the AWG completed the following:

- Reviewed and then recommended an approach to the stakeholder needs assessment and prioritization of data management efforts
- Recommended that one of the overall goals of the project include advancing the

assessment and management of watershed health and sustainability

- Helped to develop the structure for the stakeholder workshops and corresponding organization of the stakeholder group (SHG)
- Connected the project to a broad, diverse community of water resource data generators, managers and users, including their contact information
- Participated in the stakeholder workshops during the summer of 2014
- Reviewed a draft outline of the DMS design recommendations report, and provided strategic guidance on associated policy and technical issues, and
- Reviewed multiple iterations of a comprehensive DMS Recommendations Report, ultimately approving the final document on April 22, 2015

STAKEHOLDER GROUP WORKSHOPS

Based on the participant list developed with the AWG, more than 60 stakeholders participated in two workshops during the summer of 2014 to inform development of recommendations for the DMS. The stakeholders came from a variety of water-related professional backgrounds, agencies and organizations, and geographic areas of the IRWM region. Over the two workshops, stakeholders worked to:

- Verify and discuss the results of a pre-workshop survey that identified major data management efforts and issues
- Identify specific data needs in different parts of the watershed
- Prioritize potential data-related tasks that a DMS could address
- Develop a general definition of “watershed health and sustainability”
- Prioritize potential design features of a DMS, including those that would specifically advance watershed health and sustainability



DESIGN RECOMMENDATIONS REPORT

Based on input received from the stakeholder workshops, the project’s Planning Team – including technical experts from the Southern California Coastal Water Research Project – prepared an annotated outline of the DMS Design Recommendations Report. The AWG reviewed and commented on this at its November 2014 meeting. The Planning Team then prepared a full draft report based on this revised outline.

The AWG reviewed a draft of the full report at their January 2015 meeting. The public workshops in February 2015 (see below) focused on the same draft. The Planning Team revised the report to include suggestions from these meetings. The AWG approved a final DMS Design Recommendations Report at their April 22, 2015 meeting.

PUBLIC WORKSHOPS

On February 17, 2015, the Planning Team held two public workshops to educate interested parties about the need and goals for this effort; explain the proposed framework, functionality, and features of the DMS; and provide an opportunity to ask questions and provide feedback on any part of the draft design recommendations.

The detailed meeting summaries from all AWG meetings, SHG workshops and public meetings can be found on the Project's webpage:

http://www.projectcleanwater.org/index.php?option=com_content&view=article&id=231&Itemid=208

REPORT RECOMMENDATIONS

The following is a list of the report recommendations, as they appear in the document.

Chapter 2: Tasks for a Regional Water Data Management System

1. Develop a clear understanding of existing data, data gaps and data required to promote watershed health and sustainability.
2. Focus initially on a limited, common set of data which are collected and utilized by the majority of participating organizations.
3. Harvest data from existing systems where available and when possible, use web-services to access data on-the-fly.
4. Do not include historical data which does not conform to system standards as an early priority. This data requires a significant effort to prepare for inclusion in a DMS.
5. Identify the data requirements of users at each stage of the data workflow and develop the DMS to provide, locate and access those data efficiently and effectively.

Chapter 3: Design and Structural Recommendations

6. Use a federated data system structure for the San Diego IRWM data management system.
7. Subject historical data to the same metadata requirements as all other data in the system.
8. Adopt existing metadata standards to maximize compatibility with existing State and Federal data systems.
9. Adopt open data standards to ensure interoperability among federated systems.
10. Develop a governance structure to oversee data sharing concerns, including data privacy and quality control protocols.
11. Prioritize data types based on: (1) those that address watershed health and sustainability, (2) those that are readily available, and (3) those that are of high quality.
12. Develop simple, informative output tools that address planning and management priorities of the stakeholders. Complex output and analysis capabilities should only be developed after the core data is successfully registered to the global DMS catalog.
13. Develop a mechanism to host data for participants in the DMS who lack internal capacity to do so themselves.

14. Provide access tools for users to discover and retrieve data, and for administrative management of the DMS system using a web interface.
15. Provide an intuitive and easy-to-use interface based on user input and testing to ensure an effective user experience.
16. Use open source software tools and standards as a basis for the federated data structure.
17. Acknowledge, and plan for, integration with existing investments of partners' data systems. Existing investment and software products may already incorporate the required functionality to allow for integration with a federated data management system.
18. Use elastic cloud computing at the host organization to provide for adaptive infrastructure as the system and workload demands necessitate.
19. The DMS should provide end users and data system managers with data status information and provide managers the ability to indicated anticipate time until available.
20. Parse development of the DMS into manageable subcomponents based on the time and cost associated with each aspect of the data management system.

Chapter 4: Governance and Database Management Strategy

21. As a first step, develop a DMS governance structure to define priorities and requirements for data formats, quality assurance/quality control, documentation, data availability maintenance and funding.
22. Designate a staff position with specific responsibility to conduct system maintenance and updates to the global data catalog.
23. Develop written memorandums of understanding among participating organizations. These should address data and metadata standards and procedures should a member organization fall short of meeting expectations.
24. Plan regular system reviews every 3-5 years to evaluate the effectiveness and future priorities to guide maintenance and development of the DMS.

The final DMS Recommendations Report is available for download on the Project's Webpage:

http://www.projectcleanwater.org/index.php?option=com_content&view=article&id=231&Itemid=208

