California Water Quality Monitoring Council

Data Management Workgroup

Charter

(12/05/12)

Background

The California Water Quality Monitoring Council approved the formation of a Data Management Workgroup (DMWG) in its recommended Comprehensive Monitoring Program Strategy for California released in December 2010. The DMWG ~~will~~ has since supported data management efforts of existing and future theme-specific workgroups, as well as playing a coordinating role where data-related issues ~~requirements~~ cut across multiple themes.

Current workgroups include:

- Beach Water Quality Work Groups
- Bioaccumulation Oversight Group
- California CyanoHAB Network
- California Estuary Monitoring Workgroup
- California Wetland Monitoring Workgroup
- California Water Quality Monitoring Collaboration Network
- Groundwater Ambient Monitoring and Assessment (GAMA) Program
- Healthy Watersheds Partnership
- Ocean and Coastal Ecosystem Health
    - Multi-Agency Rocky Intertidal Network (MARINe)
- Safe Drinking Water Workgroup
- Groundwater Ambient Monitoring and Assessment (GAMA) Program
- Safe-to-Swim Workgroup

In time, however, as the workgroups' needs have matured, so have evolved the definitions of "data sharing," "transparency," and "big data." The Data Management Workgroup must, in turn, adapt to meet new challenges. Individuals, agencies, and organizations throughout the state still need easy and reliable access to regional-scale scientific and geospatial information to make informed, science-based decisions. However, as greater ambitions for sharing have emerged, the scale of the questions to address has expanded, while a consensus has formed to identify the opportunities that State agencies are currently missing. Accordingly, the degree of coordination necessary to achieve information management objectives has also grown.

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The California Water Quality Monitoring Council has identified access to statewide monitoring data via theme-based portals as a core element of their strategy. As a measure of these trends, multiple data-related initiatives are progressing through State agencies at varying degrees of maturity. While still focusing on the current Monitoring Council work groups, the DMWG now has the opportunity to help coordinate and optimize environmental data initiatives. The result of a highly collaborative effort, a white paper issued by the Delta Stewardship Council called "Enhancing the Vision for Managing California's Environmental Information" recently enumerated some key recommendations to help advance data-sharing opportunities and potential analyses. Common principles include maintaining high data quality by housing data as close as possible to where it is generated, increasing access to data through a distributed but federated exchange network of agency data systems, increasing comparability within and among data types based on access to metadata that clearly documents data quality, point of origin, and other critical elements, and improving data integration through adoption of appropriate data standards and data visualization tools.

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- Beach Water Quality Work Groups
- Bioaccumulation Oversight Group
- California Estuary Monitoring Workgroup
- California Wetland Monitoring Workgroup
- California Water Quality Monitoring Collaboration Network
- Groundwater Ambient Monitoring and Assessment (GAMA) Program
- Healthy Streams Partnership
  - Multi-Agency Rocky Intertidal Network (MARINe)

In addition to looking inward toward the theme-specific workgroups, the Monitoring Council's DMWG will look outward to other partners within and outside of state government.

Purpose

The DMWG will continue to serve as a resource to the other workgroups, but will do so chiefly by advancing the recommendations articulated in the white paper cited above. By optimizing the efforts of the various data initiatives and encouraging their embrace of the white paper's "vision," the DMWG can help to maximize semantic consistency, data interoperability, and adherence to modern definitions of transparency. establish the overall approach to make use of and integrate existing data management systems into a distributed system of databases, catalogs, and assessment and mapping tools to enable users to access data, metadata, and assessment products from a single entry point, or web portal. In support of the Council's

Comprehensive Strategy, a key responsibility of the DMWG is to ensure that the theme-specific workgroups will:

- Assist Monitoring Council workgroups identifying methodologies for assessing data needs and quality.

- Assess and recommend best practices for development of structured data formats and data management strategies complying with appropriate national and state guidelines.

- Identify data that cuts across multiple themes and opportunities to coordinate and share these data among workgroups.

- Assess and recommend IT tools and standards facilitating development of portals meeting Monitoring Council web development guidelines.

- Serve as a resource to assist other workgroups to evaluate technologies in the areas of data management, web applications and geospatial information management.

- Serve as a resource to workgroups for communicating, and where necessary, translating into clear, non-technical language recommendations regarding data management in support of individual workgroup's efforts.

Goals:

1. Coordinate closely with theme-based workgroups to help them meet their needs for data and data-sharing solutions. Provide sample mappings between various existing data systems.

2. The DMWG will develop recommendations and guidelines for data management (federated system), web development, and geospatial data in plain English to make it accessible to the workgroups.

3. Where applicable, provide recommendations and/or evaluation of tools and software stacks appropriate to meeting the needs (analytical/business needs) of the workgroups while maintaining compatibility with guidelines. (DMWG develop an IT standards cookbook as a framework for developers).

4. Serve as a point of contact to data producers, data users, data managers, tool developers, and GIS experts toward the Council's data goals.

   - Develop or recommend an existing metadata catalog
   - Develop a library of existing/recommended standards

As required, the DMWG will establish sub-committees to carry out specific tasks including data

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prioritization and structure, IT infrastructure, and outreach.

Currently, a number of web repositories, data display applications and tools are successfully serving state-level or subject-specific audiences. The DMWG will identify and assess existing and available tools, data structures and methods that meet the needs of the theme specific workgroups to identify best practices and to provide recommendations to the objectives of the theme specific workgroups.

The goal is to achieve only that degree of standardization necessary to meet users' needs and to assure that the Monitoring Council and its data management strategy align with State and Federal initiatives and takes advantage of opportunities to utilize useful tools and approaches developed elsewhere.

The DMWG will provide a common forum for workgroups to bring forward questions and/or needs relating to portal development and integration. To facilitate this process the workgroup will develop a methodology to assist in the assessment of options, and selecting and/or recommending best practices to achieve workgroup and council objectives.

Role of the Steering Committee

The newly constituted Steering Committee has been convened to guide and authorize the work performed by the DMWG. Recently, the workgroup reached an impasse. To assist in the implementation of the white paper recommendations, the DMWG requires more coordinating influence. Working with a committee of leaders can help to ensure that the DMWG remains focused on outcomes that are meaningful, influential, and timely. And those leaders can, in turn, benefit from the collective input of the DMWG in helping to offer useful input and bridge across both professional and bureaucratic divisions. The DMWG, working in the shadow of so many diverse, innovative initiatives, can help to optimize connections of information exchange and return maximum value to the State's investments.

The Steering Committee will take among its primary tasks the following (with options for refocusing as time goes on):

- Review the recommendations enumerated in the white paper;
- Identify challenges to implementation of the recommendations;
- Propose recommended strategies for overcoming these challenges, so they can be included in the forthcoming Science Action Agenda;
- Evaluate the practicality and efficacy of specific forms of interagency coordination/collaboration;
- Foster communication among the various data initiatives and the higher authorities leading them; and
- Review and approve the charter, strategic goals, and annual work plans of the DMWG.

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Structure and Function:

The DMWG serves as the "consultant of expertise" to the Monitoring Council for the purpose of addressing questions and providing recommendations relating to data and IT tasks. A primary role of the DMWG is to respond to the needs of the theme-specific workgroups on issues of

water quality and geospatial data access, management, and sharing and to ensure a level of consistency and compatibility across portals necessary to meet the Monitoring Councils objectives.

The workgroup shall comprise members drawn from agencies and organizations involved with water quality data management in California. These may include governmental agencies, NGO, industry, and academic representatives similar to, but not limited to those represented on the Water Quality Monitoring Council.

The DMWG will operate by consensus. Should a situation arise where consensus is not achievable, alternative views may be presented as a minority opinion.

What the DMWG is NOT:

The DMWG is an advisory body to the Monitoring Council and its workgroups. The DMWG does not provide any direct services, such as:

- Recommendations regarding appropriateness of data analysis methods;
- Database development, programming or support;
- Web development, infrastructure or support;
- Maintenance or updates to portals.