

Delta RMP Technical Data Workgroups

The May 12, 2010 Delta RMP stakeholder meeting identified three monitoring and data management issues that, if resolved, would improve the ability to conduct future regional-scale analyses and assessments. The participants agreed that these issues formed a logical starting point for the Delta RMP; they include:

- The need to measure simultaneously the ancillary parameters (e.g., total organic carbon) necessary for interpreting measurements of potentially toxic compounds
- The value of data transfer formats that would streamline the transfer of key data types among program participants
- The value of a tiered, or hierarchical, system of quality assurance requirements suited to the different types of data being collected by monitoring programs and the different management questions they address

The following paragraphs discuss each of these issues in turn and identify the next steps needed to resolve them.

Ancillary data types

In many cases it is not possible to fully evaluate the potential effects of observed levels of contaminants without ancillary data collected at the same time and place. Many such ancillary data types are general chemistry parameters such as salinity or total organic carbon which are relatively inexpensive to collect and for which sampling methods are well developed. Thus, resolving this issue would be relatively straightforward and would involve the following steps:

- Establish a technical workgroup of chemists, toxicologists, and monitoring specialists.
- Define a core list of key contaminants of regional interest.
- Define the ancillary data types needed for the complete evaluation and assessment of monitoring data on these contaminants.
- Examine major current monitoring programs to determine whether needed ancillary data types are measured in concert with each key contaminant.
- Identify the adjustments needed (if any) to current monitoring programs to ensure that needed ancillary data are collected.
- Identify mechanisms for implementing these needed adjustments (e.g., permit modifications, decisions by program managers, revisions to programs' operating procedures).
- Implement program adjustments.

Data transfer formats

Regional analyses and assessments often encounter difficulty in obtaining data from a variety of sources and consolidating them into aggregated datasets for analysis. A useful method for resolving this problem, at least for core data types, is to develop standardized data transfer formats that facilitate the movement of data among different entities. These formats do not require participants to change their internal data formats or data management procedures. Instead, each participating entity develops two software routines, one that converts its internal data formats into the standardized transfer format used by all participants and another that converts data received in the standardized format into its internal data formats. Once these coding and decoding routines are developed, they enable the ready transfer and integration of core data types among participating programs.

The recently implemented California Environmental Data Exchange Network (CEDEN) may provide an analogous option that would accomplish much the same function. CEDEN is a distributed network of data centers intended to provide for the storage of and access to a wide variety of environmental data throughout the state. It is a central feature of the data management strategies for both the Surface Water Ambient Monitoring Program (SWAMP) and the California Water Quality Monitoring Council. Submitting data to CEDEN may accomplish much of what is intended by data transfer formats implemented at a regional level. SWAMP has offered to assist the Delta RMP in assessing data integration challenges within the region and determining whether and to what extent CEDEN could provide a solution for this issue.

Next steps include:

- Establish a technical workgroup of data managers, programmers, and SWAMP representatives.
- Define a set of core data types that are a high priority for regional data integration, based on expert judgment about the analyses and assessments likely to be performed at the regional or subregional scale.
- Identify the current locations of these data.
- Confirm the availability of technical support from SWAMP.
- Assess CEDEN's ability to store and/or provide access to these data types.
- Assess the relative difficulty, level of effort, reliability, and long-term effectiveness of the two alternatives represented by CEDEN and regional standardized data transfer formats.
- Choose the preferred alternative.
- If CEDEN, work with SWAMP and regional program staff to design and implement data submittal, access, and/or transfer mechanisms.
- If not CEDEN, design and implement standardized regional data transfer formats, with support from SWAMP technical staff.
- For either option, establish oversight and support procedures to ensure that solutions remain viable over the long term.

Tiered quality assurance structure

Inconsistencies in quality assurance approaches, gaps in quality assurance documentation, and inappropriate levels of quality assurance applied to some data types reduce both the efficiency of monitoring and the utility of monitoring data for regional assessments. However, because different programs differ in terms of the size and sophistication of the program, the intended use of the data, and historical program practices, it is not feasible to implement a single standardized approach for all programs in the region. A single approach, even if feasible, would not suit the varying needs of different programs.

On the other hand, it is necessary that efforts to integrate and analyze data from multiple sources have available some means to establish the relative quality of monitoring data and its suitability for different types of analyses. SWAMP has established data quality requirements for its own monitoring data and there are, in addition, broad requirements that permit-mandated monitoring programs produce data that are SWAMP comparable. To help meet those requirements, SWAMP has begun establishing a tiered structure for data quality that enables programs to select data quality requirements and the level of quality assurance detail appropriate to their needs. One benefit of achieving SWAMP comparability is that it would enhance programs' ability to submit their data to CEDEN. SWAMP has offered to assist the Delta RMP in examining how the SWAMP tiered quality assurance approach could best be applied to key monitoring programs through the following steps:

- Establish a technical workgroup of data management, quality assurance, and monitoring specialists, and SWAMP representatives.
- Define a set of core monitoring programs and data types that are a high priority for data integration.
- Describe current data quality objectives and quality assurance requirements for each program and data type.
- Assess the applicability of current SWAMP quality assurance tiers to the core programs and data types.
- Identify and implement needed revisions to the SWAMP quality assurance tiers to improve their regional applicability.
- Identify the adjustments needed (if any) to monitoring programs' current quality assurance procedures to ensure their comparability with the appropriate SWAMP quality assurance tier.
- Identify mechanisms for implementing these needed adjustments (e.g., permit modifications, decisions by program managers, revisions to programs' operating procedures).
- Implement program adjustments.