Photograph by Jay Davis

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REGIONAL MONITORING PROGRAM
FOR WATER QUALITY IN THE SAN FRANCISCO ESTUARY

ENVIRONMENTAL DATA MANAGEMENT

Evaluating Internal Performance

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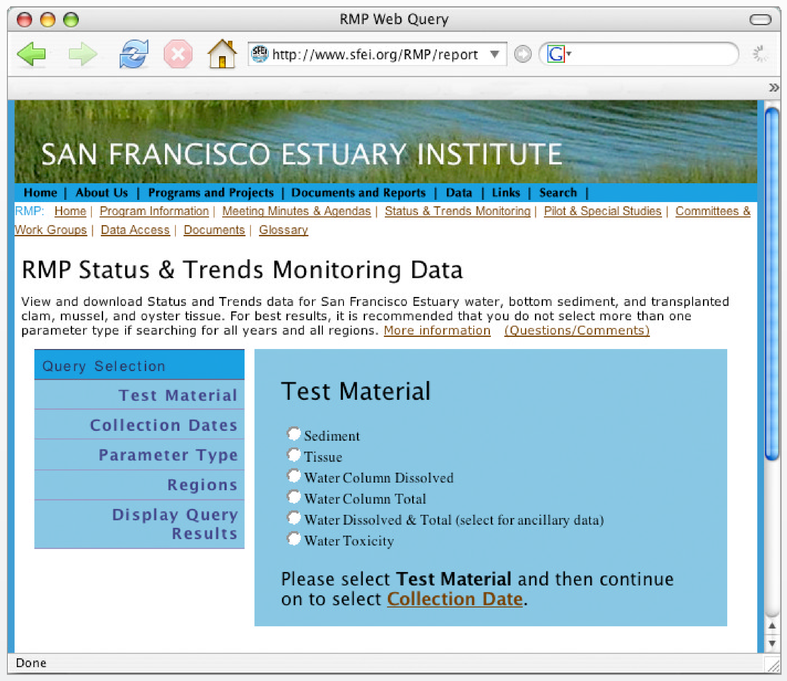
Abstract

During the recent review of the California Integrated Water Quality System (CIWQS), the Panel proposed several recommendations to better meet the goal of acquiring, managing, and reporting water quality information. In an effort to learn from these lessons and avoid some of the common data management mistakes, the Regional Monitoring Program for Water Quality (RMP), a long-term monitoring program that manages environmental data from the San Francisco Bay and Delta, has started tracking several measures to evaluate the performance and success of the Program in meeting its strategic goals.

Recommendations from the CIWQS review included rebuilding key constituencies, addressing data quality issues, producing key reports, and improving user interfaces. To build key constituencies, RMP data are accessible through a web-based data retrieval tool and are comparable with the statewide Surface Water Ambient Monitoring Program (SWAMP) database and quality assurance/quality control (QA/QC) standards. To address data quality issues, a rigorous QA/QC review is performed on all data and corrections to the database are tracked to maintain the accuracy of reported data. To produce key reports, the RMP tracks the timeliness of receiving data from the labs and completion of internal data review and uploading procedures to ensure data are available for timely reporting. In addition, a motivated data management team with diverse and overlapping scientific and analytical skills helps to accommodate fluctuating work loads. To improve user interfaces, the RMP's web-based data retrieval tool is updated regularly based on user input.

The tracking of data management performance measures permits program managers to identify and address areas for improvement and to meet the goals of efficiently managing and reporting reliable data on a timely basis.



To build key constituencies, RMP data are accessible through a web-based data retrieval tool and are comparable with the statewide SWAMP database and QA/QC standards. To improve user interfaces, this tool is updated regularly based on user input.

Partial list of changes made to database in 2007

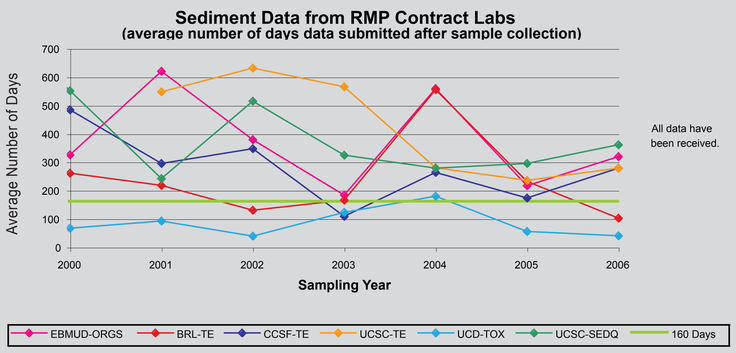
Change Date	Matrix	Cruise Date(s)	Description of change	% of total records changed	Number of records changed	Analyte(s) affected
2006			Average % changed	0.006	188	
1/2/07	Tissue	1993	Added missing % lipids records for PAHs.	0.003	17	% lipids
1/10/07	Sediment	1999	Recalculated MDLs and updated qualifiers for reanalzyed samples.	0.085	437	TOC, TN
3/12/07	Water	2002-2006	Updated coeluting parameter names per lab.	0.084	522	PAHs
4/10/07	Water	1993-1996	Converted MDLs from ppt to ug/L to match the units results are reported in.	0.031	196	Ag
4/18/07	Water	All years	Revised the units for conductivity from umho to umho/cm.	0.123	768	Conductivity
5/10/07	Sediment	Various	Removed duplicate records.	0.005	31	pH, Depth
5/17/07	Sediment	1993	Changed qualifiers from NR to ND as originally reported.	0.003	16	o,p-DDTs
6/14/07	Water	1993-2005	Updated the total water organic sums since calculated differently than in	0.004	28	Organics
2007			Average % changed	0.089	2303	

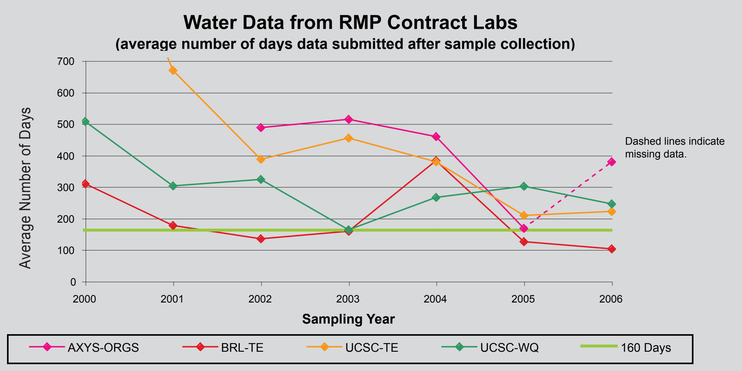
To address data quality issues, a rigorous QA/QC review is performed on all data and corrections to the database are tracked to maintain the accuracy of reported data.

Matrix of staff members' skills

	Individual Staff										
Data Management and QA Review Skills	A	B	C	D	E	F	G	H	I	J	K
EDD Review		x				x			x		
EDD Uploading	x	x			x	x	x	x	x	R	
QA Review			x	x	R	x			x		
Ratio Checking				x							
Database Design		x						x			
Database Maintenance		x	x			x		x	x		
Web Query Tool Coding		x									x
R=Redundancy developed this year.											

To accommodate fluctuating work loads and allow timely reporting, on-going education/training ensures a motivated data management team with overlapping scientific and analytical skills.





To ensure data are available for timely reporting, the RMP tracks the timeliness of data received from the labs.

Acknowledgements

The maintenance of the RMP Status and Trends database is a collaborative effort of numerous individuals at the San Francisco Estuary Institute, the San Francisco Bay Regional Water Quality Control Board, Applied Marine Sciences, and participating analytical laboratories. Currently, seventy (70) discharger permit holders fund the RMP. We appreciate Linda Wanczyk's assistance for the design and layout of this poster.