Senior Scientist

Raymond M. Valente

Education

M.S., Marine Science, Marine Sciences Research Center, Stony Brook University, NY, 1985

B.A., Environmental Science, University of North Carolina at Wilmington, NC, 1981

Areas of Specialization

Marine environmental monitoring and impact assessment

Benthic ecology and sediment quality investigations

Sediment Profile Imaging

Dredged material characterization, monitoring and management

Contaminated Sediment Management

QA/QC of environmental monitoring

Professional Memberships

Estuarine Research Federation
Southeast Estuarine Research Society
Society of Environmental Toxicology and Chemistry (SETAC)

Employment History

2003-present – *Senior Scientist,* Germano& Associates, Bellevue, WA

2003 -present – *President*, RMV Environmental, St. Marys, GA

1996 - 2003: *Senior Marine Scientist and Project Manager*, Science Applications International Corporation (SAIC), Newport, RI

1994 - 1996: *Senior Scientist*, Science Applications International Corporation, Hong Kong

1990 - 1994: *Quality Assurance Specialist*, Science Applications International Corporation, Narragansett, RI

1986 - 90: *Staff Scientist*, Science Applications International Corporation, Newport, RI

Experience Summary

Ray Valente is a senior marine scientist and project manager with over eighteen years of experience in marine environmental monitoring and impact assessment. He has successfully led hundreds of investigations involving biological and chemical sampling to characterize marine and estuarine benthic habitats and to monitor the environmental impacts of dredging and dredged material disposal.

Under contracts with the US Army Corps of Engineers and US Environmental Protection Agency, Mr. Valente has managed interdisciplinary marine ecological and oceanographic monitoring investigations at dredged material disposal and contaminated sediment capping sites on the U.S. East and West Coasts. He also managed a project during 2002-3 to prepare a series of publication-quality scientific papers and a website on the topic of benthic habitat mapping, under a contract with the NOAA Coastal Services Center in Charleston, SC. On an International Assignment in Hong Kong from 1994 to 1996, Mr. Valente conducted several major benthic ecological and sediment contaminant monitoring studies for the Civil Engineering Department's Dredged Material Management Program. Prior to 1994, he was a key participant in the design and implementation of the EPA's Environmental Monitoring and Assessment Program (EMAP-Estuaries).

Mr. Valente is a leading expert in the seafloor mapping technique known as Sediment-Profile Imaging (SPI), having collected and analyzed thousands of images from diverse benthic habitats in the U.S. and overseas. He has authored hundreds of technical reports and scientific papers and possesses specific expertise in benthic ecology, benthic habitat mapping, organism-sediment relationships, characterization of sediment quality, dredged material monitoring and management, development of quality assurance/quality control (QA/QC) programs for marine environmental monitoring, and the statistical design and analysis of chemical and biological sampling programs.

WORK EXPERIENCE

Disposal Area Monitoring System (DAMOS) Program. For over 17 years, Mr. Valente has been a key contributor to this long-running program sponsored by the Corps of Engineers New England District, involving intensive environmental monitoring at 11 open water dredged material disposal sites. As Deputy Program Manager from 1999 to 2003, Mr. Valente was responsible for supervision of a staff of 3 to 5 junior scientists, planning and implementation of interdisciplinary monitoring studies, data analysis, reporting, and QA/QC oversight.

Long-term Monitoring of Sand Capping Projects in the New York Bight: Under multiple contracts with the Corps of Engineers-New York District, Mr. Valente has led multidisciplinary environmental monitoring studies to: 1) evaluate the long-term stability of sand caps used for isolating dioxin-contaminated sediments at the former Mud Dump Site (MDS), and 2) assess the efficacy of on-going capping operations over the 9-sq.mile Historic Area Remediation Site (HARS). During the summer of 2002, Mr. Valente was Project Manager for a series of monitoring studies valued at more than $600K. A suite of sampling techniques (bathymetry, side-scan sonar, sub-bottom profiling, SPI and sediment planview photography, benthic community analysis, sediment toxicity testing, vibra-coring) were used to evaluate cap material thickness, spatial distribution, and benthic recolonization status.

In-Situ Capping of Contaminated Sediments on the Palos Verdes Shelf: Summer 2000 Demonstration Project: Mr. Valente was a Principal Investigator on this EPA Region 9-sponsored project (>$1.5M value) to evaluate the feasibility of using sand to cap DDT-contaminated sediments on the PV Shelf. He was responsible for developing the Project Work Plan (including Field Sampling Plan, DQO and QAPP sections), planning and implementation of the Sediment Profile Imaging (SPI) and Benthic Community monitoring components, and interpreting/reporting of results.

Benthic Habitat Mapping Project, NOAA Coastal Services Center (CSC): As Project Manager during 2002-3, Mr. Valente was responsible for overseeing the preparation of six publication-quality manuscripts dealing with various aspects of estuarine benthic habitat mapping; these papers are being translated into a series of short articles that will be incorporated into an official CSC website designed to educate coastal managers on this topic. Mr. Valente developed the outline for each scientific paper, authored one of the papers, acted as technical editor for the other five papers, supervised the activities of university subcontractors responsible for short article preparation, interacted frequently with CSC personnel, and maintained overall fiscal and technical responsibility for the project.

Sediment-Profile Imaging Surveys: Mr. Valente has been responsible for planning, managing and/or participating in numerous sediment-profile imaging surveys to characterize physical and biological seafloor conditions and assess overall benthic habitat quality in a wide variety of inshore, estuarine and near-coastal environments. Projects have included baseline characterizations of benthic habitats at potential dredged material disposal sites in Rhode Island Sound (under subcontracts to ENSR and Battelle over the period 1996 to 2002), a series of surveys conducted over the period 1999 to 2003 to evaluate the potential effects of degraded benthic habitat quality and sediment anoxia in western Long Island Sound as potential causative agents in the massive 1999 lobster die-off (contracts with EPA, NY DEC and CT DEP), surveys to map benthic habitats in the Hudson River (under a 2001 subcontract to MSRC at Stony Brook University), and surveys to examine to the effects of bottom trawling on soft-bottom habitats in Massachusetts Bay (2002-3 NOAA study conducted under subcontract to CR Environmental).

Dredged Material Management Program (DMMP), State of Massachusetts: Under a subcontract with the Maguire Group, Inc., Mr. Valente was responsible for leading SAIC's efforts over the period 1998 to 2003 to support the Massachusetts Coastal Zone Management Agency (MCZM) in their efforts to develop a state-wide DMMP. Efforts were focused on screening potential aquatic disposal sites in various harbors (e.g., Salem, Gloucester, New Bedford), conducting a suite of baseline field surveys at candidate open-water sites in Buzzards Bay, and preparation of a draft Environmental Impact Statement for state designation of a new Buzzards Bay dredged material disposal site.

Hong Kong Sediment-Profile Imaging Surveys: Over the period 1994 to 1996, Mr. Valente planned and successfully executed six major surveys of benthic habitat quality in Hong Kong territorial waters, involving traditional grab sampling and sediment-profile imaging. He was responsible for statistical sampling design, management of field work, statistical assessment of results, and report writing. The results were used to map bottom features and assess the impact of anthropogenic stressors on Hong Kong's benthic marine environment.

East Sha Chau Contaminated Mud Pit Monitoring and Assessment, Hong Kong: From 1994 to 1996, Mr. Valente served as Principal Investigator for sampling and assessment of sediment contamination as part of a multidisciplinary monitoring program to determine the ecological impacts of contaminated mud disposal and capping in a shallow-water estuary. He was responsible for developing sampling and QA/QC protocols, overseeing the collection and laboratory analysis of sediment chemistry samples, interpretation and reporting of results.

Seabed Kill Investigation in Mirs Bay, Hong Kong: Mr. Valente was Principal Investigator for a rapid response field survey to investigate the ecological effects of hypoxic water intrusion in Mirs Bay, Hong Kong during the summer 1994. He was responsible for conducting sediment-profile imaging, water quality sampling, data analysis, and reporting.

US Environmental Protection Agency's Environmental Monitoring and Assessment Program (EMAP): Over the period 1990 to 1994, Mr. Valente was a key participant in the design and implementation of the U.S. EPA's Environmental Monitoring and Assessment Program (EMAP-Estuaries), a large-scale marine environmental monitoring effort involving extensive biological and chemical sampling in estuaries throughout the United States. As Quality Assurance Manager for EMAP-Estuaries, he was responsible for developing and documenting field sampling protocols and laboratory methods, writing the Quality Assurance Project Plan, and managing a comprehensive QA/QC Program. Mr. Valente was actively involved in assessment and reporting activities, particularly in the interpretation of sediment contaminant and toxicity test results in relation to benthic community condition.

U.S. Army Corps of Engineers DAMOS Program: From 1986 to 1990, Mr. Valente served as an SAIC Staff Scientist and Deputy Program Manager on the US Army Corp of Engineers Disposal Area Monitoring System (DAMOS) program, involving planning, execution and reporting of multidisciplinary environmental monitoring studies at dredged material disposal sites along the US East and Gulf Coasts. Specific duties included water and sediment sampling in a variety of aquatic environments, participation in precision bathymetric and sidescan sonar surveys, conducting sediment-profile imaging surveys, technical and statistical interpretation of study results, and preparation of reports, scientific journal articles and technical presentations at scientific meetings.

Various Sediment-Profile Imaging Surveys in U.S. and Overseas: Over the period 1986 to 1990, Mr. Valente performed a series of studies involving sediment-profile imaging, including synoptic monitoring of estuarine eutrophication gradients in Narragansett Bay, RI, bottom characterization studies for sewage outfall siting in Boston Harbor, MA, and studies to determine the effects of aquaculture operations on bottom sediments in Galway Bay, Ireland.

PUBLICATIONS

Solan, M., J.D. Germano, D.C. Rhoads, C. Smith, E. Michaud, D. Parry, F. Wenzhöfer, B. Kennedy, C. Henriques, E. Battle, D. Carey, L. Iocco, R. Valente, J. Watson, and R. Rosenberg. 2003. Towards a greater understanding of pattern, scale, and process in marine benthic systems: a picture is worth a thousand worms. Journal of Experimental Marine Biology and Ecology 285-286: 313-338.

Valente, R.M. and T. Fredette. 2002. Benthic recolonization of a capped dredged material mound at an open water disposal site in Long Island Sound. Proceedings of Dredging '02: Third Specialty Conference on Dredging and Dredged Material Disposal, May 5-8, Orlando, Florida. American Society of Civil Engineers, Reston, VA.

Paul, J. F., K. J. Scott, D. E. Campbell, J. H. Gentile, C. S. Strobel, R. M. Valente, S. B. Weisberg, A. F. Holland, and J. A. Ranasinghe. 2001. Developing and applying a benthic index of estuarine condition for the Virginian Biogeographic Province. Ecological Indicators 1: 83-99.

Valente, R. M., T. Waddington, J. Infantino, and G. Tufts. 2001. Palos Verdes Shelf Pilot Capping: Use of Side-Scan Sonar, Sediment-Profile Imaging and Planview Photography for Resolving Cap Material Distribution and Thickness. pp. 381-396 In: R.Randall [Ed.], Proceedings of the Western Dredging Association Twenty-first Technical Conference, Houston, TX. Center for Dredging Studies, Civil Engineering Department, Texas A&M University, College Station, TX (CDS Report No. 373).

Valente, R. M., S. M. McChesney and G. Hodgson. 2000. Benthic recolonization following cessation of dredged material disposal in Mirs Bay, Hong Kong. Journal of Marine Environmental Engineering 5: 257-288.

Johnston, R. K. and R. M. Valente. 2000. Specifying and Evaluating Quality Requirements for Analytical Chemistry. Technical Memorandum 99-01, Marine Environmental Support Office, Space and Naval Warfare Systems Center, San Diego, CA, 32 pp.

Valente, R. M., S. E. McDowell and B. May. 1998. Monitoring of the 1997 Category II Capping Project at the New York Mud Dump Site. Proceedings of the 15th World Dredging Conference (WODCON), June 28 - July 2, 1998, Las Vegas, NV. World Organization of Dredging Associations.

Valente, R. M., H. Hung, S. McChesney and G. Hodgson. 1998. An investigation of benthic recolonization at a backfilled marine borrow pit in Hong Kong. In: B. Morton [Ed.], Proceedings of the Third International Conference on the Marine Biology of the South China Sea. Hong Kong, 28 October – 1 November 1996. Hong Kong University Press.

Valente, R. M., D. C. Rhoads, J. D. Germano and V. J. Cabelli. 1992. Mapping of benthic enrichment patterns in Narragansett Bay, RI. Estuaries 15:1-17.

Parker, J. P. and R. M. Valente. 1988. Long-term sand cap stability: New York dredged material disposal site. Contract Report CERC-88-2, US Army Engineer District, New York.

Valente, R. M., E. M. Cosper and C. F. Wurster. 1987. Interactive effects of copper and silicic acid on resting spore formation and viability in a marine diatom. J. Phycol. 23: 156-163.

PRESENTATIONS

Valente, R.M. 2003. Benthic colonization of red clay dredged material in the New York Bight. New England Estuarine Research Society Spring Meeting, May 8-10, Fairhaven, Massachusetts.

Valente, R.M. and T. Fredette. 2002. Benthic recolonization of a capped dredged material mound at an open water disposal site in Long Island Sound. Dredging '02: Third Specialty Conference on Dredging and Dredged Material Disposal, May 5-8, Orlando, Florida.

Valente, R.M. and C. Cuomo. 2002. Sediment anoxia and bottom water ammonia and sulphide as potential factors in lobster mortality in Long Island Sound, USA. Benthic Dynamics Conference: In-situ surveillance of the sediment-water interface. University of Aberdeen, Scotland, March 25-29, 2002.

Valente, R. M., T. Waddington, J. Infantino, and G. Tufts. 2001. Palos Verdes Shelf Pilot Capping: Use of Side-Scan Sonar, Sediment-Profile Imaging and Planview Photography for Resolving Cap Material Distribution and Thickness. Western Dredging Association Twenty-first Technical Conference, June 24-27, 2001, Houston, TX.

Valente, R. M. 2000. Use of seafloor visualization tools for dredged material monitoring and management. Conference on Dredged Material Management: Options and Environmental Considerations, Massachusetts Institute of Technology, December 3-6, 2000, Cambridge, MA.

Valente, R. M. 1999. Evaluation of candidate dredged material disposal sites in Narragansett Bay and Rhode Island Sound using REMOTS® sediment-profile imaging. 34th Annual Meeting of the Geological Society of America (Northeast Section), March 22-24, 1999, Providence, RI.

Valente, R. M. and E. C. DeAngelo. 1998. Remote Ecological Monitoring of the Seafloor (REMOTS® System): Selected Sediment Profile Images from the New York Mud Dump Site. Organism-Sediment Interactions Symposium, October 1998, Belle Baruch Marine Science Center, Georgetown, SC.

Valente, R. M. 1997. Benthic recolonization following cessation of dredged material disposal in Mirs Bay, Hong Kong. Biennial International Estuarine Research Federation Conference (ERF '97), October 1997, Providence, RI.

Valente, R. M., D. C. Rhoads, J. D. Germano, V. J. Cabelli, Y. Krieger and S. Muslow. 1992. Benthic habitats as long-term time integrators of organic enrichment in Narragansett Bay. 20th Annual Marine Benthic Ecology Meeting, Newport, Rhode Island, March 26-29.

Valente, R. M. 1991. Quality assurance of field dissolved oxygen measurements on the EMAP-Estuaries program. Society of Environmental Toxicology and Chemistry 12th Annual Meeting, Seattle, Washington, Nov. 3-7.

Valente, R. M. 1991. An overview of the EMAP-Estuaries quality assurance program. NOAA National Status and Trends Program Annual Meeting, Beaufort, North Carolina, Dec. 10-12.

Rhoads, D. C., R. M. Valente, and J. D. Germano. 1989. REMOTS® mapping of benthic enrichment

gradients in Narragansett Bay, RI. Tenth Biennial International Estuarine Research Conference, Baltimore, Maryland, Oct. 8-12.

Valente, R. M. 1988. Disposal site monitoring using REMOTS® sediment-profile photography in combination with precision bathymetry. Fifth DAMOS Symposium, Cambridge, Massachusetts, Dec. 7.

SELECTED TECHNICAL REPORTS

Valente, R. M. and C. Cuomo. 2001. Investigations into the Cause of American Lobster Mortality in Long Island Sound, Volume I: REMOTS® Sediment-Profile Imaging and Water Quality Monitoring from August to December 2000. Prepared for New England Interstate Water Pollution Control Commission and U.S. Environmental Protection Agency, Long Island Sound Program Office, Stamford, CT.

Valente, R. M. 2001. November 2000 Baseline Characterization of Benthic Macroinvertebrate Communities at Two Candidate Dredged Material Disposal Sites in Buzzards Bay, MA. SAIC Report No. 550 prepared for Massachusetts Coastal Zone Management Agency, Boston, MA.

Valente, R. M. and G. Tufts. 2001. November 2000 REMOTS® Sediment-Profile Imaging Survey at Two Candidate Dredged Material Disposal Sites in Buzzards Bay, MA. SAIC Report No. 548 prepared for Massachusetts Coastal Zone Management Agency, Boston, MA.

Valente, R. M. and G. Tufts. 2001. November 2000 Baseline Characterization of Sediment Chemistry at Two Candidate Dredged Material Disposal Sites in Buzzards Bay, MA. SAIC Report No. 536 prepared for Massachusetts Coastal Zone Management Agency, Boston, MA.

McDowell, S., C. Phillips, R. M. Valente, and others. 2000. Project Work Plans for the Palos Verdes Pilot Capping Monitoring Program: Baseline, Interim and Post-cap Monitoring Phases. Submitted to U.S. Army Corps of Engineers Los Angeles District and Region 9 of U.S. EPA.

Valente, R. M. 1999. Study and Analysis of Potential In-Water Dredged Material Disposal Sites in Narragansett Bay, RI. SAIC Report No. 473 prepared for Rhode Island Coastal Zone Management Council, Providence, RI.

Valente, R.M. and E. DeAngelo. 1999. The 1997 Category II Capping Project at the New York Mud Dump Site: Results from the One-Year Postcap Bathymetry and REMOTS® Surveys of April 1999. SAIC Report No. 474 prepared for U.S. Army Corps of Engineers, New York District.

Valente, R. M. 1998. August 1998 REMOTS® Survey of Historic Area Remediation Site (HARS) Cells 1, 2 and 3. Prepared for U.S. Army Corps of Engineers, New York District.

Valente, R. M. 1998. Synthesis of Monitoring Results for the 1993 Dioxin Capping Project at the New York Mud Dump Site. SAIC Report No. 430 prepared for U.S. Army Corps of Engineers, New York District.

Carey, D. and R. M. Valente. 1997. Dredged Sediment Management Study: Long Island Sound Regulatory Summary Document. Prepared for Connecticut Department of Environmental Protection, Office of Long Island Sound Programs.

Valente, R.M. 1997. The 1997 Category II Capping Project at the New York Mud Dump Site: Results of the August 1997 Post-disposal REMOTS® Survey. SAIC Report No. 414 prepared for U.S. Army Corps of Engineers, New York District.

Valente, R. M., G. Hodgson, and S. McChesney. 1996. December 1995 Investigation of Benthic

Recolonization at the Mirs Bay Disposal Site. Report submitted by SAIC/Binnie Consultants Limited to the Geotechnical Engineering Office, Civil Engineering Department, Hong Kong Government.

Valente, R. M. and G. Hodgson. 1995. 1994 Hypoxia and Mass Mortality Event in Mirs Bay. Binnie Consultants Limited Technical Report No. 0603/OTR-28. Geotechnical Engineering Office, Civil Engineering Department, Hong Kong Government.

Valente, R.M. 1995. REMOTS® and Grab Survey to Assess Benthic Recolonization Following Backfilling at East Sha Chau (East) Marine Borrow Pit. BCL Report No. 0603/OTR-34. Geotechnical Engineering Office, Civil Engineering Department, Hong Kong Government.

Weisberg, S. B., J. B. Frithsen, A. F. Holland, J. F. Paul, K. J. Scott, J. K. Summers, H. T. Wilson, R. M. Valente, D. G. Heimbuch, J. Gerritsen, S. C. Schimmel, and R. W. Latimer. 1993. EMAP-Estuaries Virginian Province 1990 Demonstration Project Report. EPA 600/R-92/100. U.S. Environmental Protection Agency, Environmental Research Laboratory, Narragansett, RI.

Valente, R. M. and C. J. Strobel. 1993. EMAP-Estuaries Virginian Province: Quality Assurance Project Plan for 1993. U. S. Environmental Protection Agency, Office of Research and Development, Environmental Research Laboratory, Narragansett, Rhode Island.

Valente, R., J. Parker, and S. Browning. 1990. Preliminary Field Operations in Support of Disposal Site Designation in the Rhode Island Sound Region. DAMOS Contribution No. 79 (SAIC Technical Report 88/7525&C69), New England Division, U.S. Army Corps of Engineers, Waltham, Massachusetts.

Rhoads, D. C., J. D. Germano, R. M. Valente and K. Kelly. 1988. REMOTS® Reconnaissance Mapping of Near-Bottom Dissolved Oxygen and Benthic Facies: Long Island Sound August 1987. SAIC Technical Report No. 88/7502&175. Submitted to U.S. Environmental Protection Agency, Region 1, Boston, Massachusetts.

Valente, R. M. and J. D. Germano. 1987. REMOTS® Survey of Broad Sound, Massachusetts Bay. SAIC Technical Report No. 87/7511&141. Submitted to Stone and Webster Engineering Corporation, Boston, MA.