

U.S. Geological Survey
Woods Hole Coastal &
Marine Science Center
Woods Hole, MA 02543

MARINNA MARTINI

(508) 457-2326 voice
(508) 457-2313 FAX
mmartini@usgs.gov

EXPERTISE

My strengths are systems engineering, oceanographic mooring design, project management, field logistics and planning, and time series analysis in MATLAB. Other skills include government acquisition, technical writing, programming (C, C++, MATLAB, Perl, etc. in DOS, windows, UNIX and embedded platforms), instrument system design, construction, testing and life cycle management.

PROFESSIONAL ACCOMPLISHMENTS

Lead engineer of the Sediment Transport Instrumentation Facility at the USGS in Woods Hole, 2000 – present.

Provide technical consulting services to senior scientists within the USGS nationwide in support of physical oceanographic and sediment transport studies. Manage projects, lead work in the field. Design, develop and test equipment as needed. Develop data processing software. Supervise and train technicians and interns who work at USGS in Woods Hole and other USGS Centers.

- Supervising or participating in ~500 mooring and tripod deployments since 1990 at sites from 1 m to 3,000 m;
- Systems design and management of the moving arm tripod project, which measured real time optical and acoustic profiles of particles near the sea floor (see <http://soundwaves.usgs.gov/2011/11/fieldwork2.html>);
- Designing the first moorings to survive a turbidity flow in Monterey Canyon;
- Managing the deployment of a tripod array that survived to collect landmark data off Cape Hatteras, NC in winter

Electronics Engineer, 1990 - 2000, U.S. Geological Survey , Woods Hole, MA.

- Conduct field work as part of the Sediment Transport Group.
- Design, develop, maintain, calibrate and test equipment as needed.
- Develop data processing software.

Research Assistant, 1987 - 1990, University of New Hampshire, Durham, NH.

- Design, development, calibration and care of instrumentation,
- Software development, the processing and analysis of hydrographic data,
- Instruction and preparation of laboratory classes, teaching the use and care of the laboratory's equipment, and safety at sea.

Member of Technical Staff, TRW Federal Systems Group, McLean, VA, 1986-1987. Assist the Navy's Life Cycle Manager for the Landing Craft, Air Cushion Vehicle (LCAC): Assess viability, cost and monitoring of craft design changes, technical manuals, test equipment and develop programs for reliability, availability and maintainability of the LCAC. Perform on site inspections at the shipyard.

EDUCATION

M.S., University of New Hampshire, 1990 (ocean engineering, instrumentation)

B.S., United States Merchant Marine Academy, 1986 (marine & systems engineering)

THESIS

Master's Thesis, University of New Hampshire: A Profiling System Design, Construction and Testing, committee Kenneth Baldwin, Jim Irish, Gerry Needell, Neal Pettigrew.

LICENSES

U.S. Coast Guard Merchant Marine License, 3rd Assistant Engineer, unlimited horsepower, current since 1986.
Completed Engineer in Training Exam, 1987.

PROFESSIONAL AFFILIATIONS

Marine Technology Society IEEE
Oceanic Engineering Society

PUBLICATIONS:

- Sherwood, C.R., Dickhudt, P.J., Martini, M.A., Montgomery, E.T., and Boss, E.S., 2012, Profile measurements and data From the 2011 Optics, Acoustics, and Stress In Situ (OASIS) project at the Martha's Vineyard Coastal Observatory: U.S. Geological Survey Open-File Report 2012-1178, at <http://pubs.usgs.gov/of/2012/1178/>
- Armstrong, Brandy N.; Warner, John C.; Voulgaris, George ; List, Jeffrey H.; Thieler, E. Robert; Martini, Marinna A.; Montgomery, Ellyn T., 2011. Carolinas Coastal Change Processes Project data report for observations near Diamond Shoals, North Carolina, January-May 2009. U.S. Geological Survey Open-File Report 2011-1156, HTML Document; Metlab M-files Downloads; Metadata, <http://pubs.usgs.gov/of/2011/1156/>
- Ganju, Neil K.; Dickhudt, Patrick J.; Thomas, Jennifer A.; Borden, Jonathan ; Sherwood, Christopher R.; Montgomery, Ellyn T.; Twomey, Erin R.; Martini, Marinna A., 2011. Summary of oceanographic and water-quality measurements in West Falmouth Harbor and Buzzards Bay, Massachusetts, 2009–2010. U.S. Geological Survey Open-File Report 2011-1113, at <http://pubs.usgs.gov/of/2011/1113/>
- Rosenberger, Kurt ; Noble, Marlene A.; Sherwood, Christopher R.; Martini, Marinna M.; Ferreira, Joanne T.; Montgomery, Ellyn, 2011. Palos Verdes Shelf oceanographic study; data report for observations December 2007–April 2008. U.S. Geological Survey Open-File Report 2010-1240, v, 27 p.; Figures; Appendices, <http://pubs.usgs.gov/of/2010/1240/>
- Cote, J.M., Hotchkiss, F.S., Martini, M.A., Denham, C.R., and Ramsey, A.L. "Acoustic Doppler current profiler data processing system manual." U.S. Geological Survey Open-File Report 00-458, Version 7. <http://pubs.usgs.gov/of/2000/of00-458/>
- Foote, K.G.; Martini, M.A.; , "Standard-target calibration of an acoustic backscatter system," OCEANS 2010 , vol., no., pp.1-5, 20-23 Sept. 2010.
- Martini, M.A.; Foote, K.G.; , "Measurements of echo stability of an acoustic backscatter system," OCEANS 2010 , vol., no., pp.1-7, 20-23 Sept. 2010.
- Montgomery, E., Martini, M., Sherwood, C., USGS Sediment-Transport Investigators Calibrate Tripod-Mounted Underwater Sonars in a Large Tank at the University of New Hampshire, Soundwaves, March 2010. <http://soundwaves.usgs.gov/2010/03/research2.html>
- Butman, Bradford; Alexander, P. Soupy; Bothner, Michael H.; Borden, Jonathan; Casso, Michael A.; Gutierrez, Benjamin T.; Hastings, Mary E.; Lightsom, Frances L.; Martini, Marianna A.; Montgomery, Ellyn T.; Rendigs, Richard R.; Strahle, William S., 2009. Long-Term Oceanographic Observations in Massachusetts Bay, 1989-2006. U.S. Geological Survey Data Series 74, Available online and on DVD-ROM, <http://pubs.usgs.gov/ds/74/>
- Martini, M., Armstrong, B., Warner, J.C., "High resolution near-bed observations in winter near Cape Hatteras, North Carolina," OCEANS 2009, MTS/IEEE Biloxi - Marine Technology for Our Future: Global and Local Challenges, vol., no., pp.1-10, 26-29 Oct. 2009.
- Montgomery, Ellyn T.; Martini, Marinna A.; Lightsom, Frances L.; Butman, Bradford, 2008. Documentation of the U.S. Geological Survey Oceanographic Time-Series Measurement Database. Geological Survey (U.S.) Open-File Report 2007-1194, Available online, <http://woodshole.er.usgs.gov/pubs/of2007-1194/>
- Martini, M.A. Butman, B., and Mickelson, M. "Evaluation of the long-term performance of new Oxygen Sensors in Coastal Waters," Journal of Atmospheric and Oceanic Technology, Vol. 24, pp. 1924-1935, 2007.
- Martini, M.; Butman, B.; Ware, J.; Frye, D., "Field Tests of Acoustic Telemetry for a Portable Coastal Observatory," OCEANS 2006 , vol., no., pp.1-6, 18-21 Sept. 2006.
- Sullivan, C.M., Warner, J.C., Martini, M.A., Lightsom, F.S., Voulgaris, G., and Work, P. "Wave Data Processing Toolbox Manual Version 1.0", U.S. Geological Survey Open File Report 2005-1211, 2006.
- Coté, J.M., Hotchkiss, F.S., Martini, M.A., Denham, C.R., and Ramsey, A.L. "Acoustic doppler current profiler data processing system manual." U.S. Geological Survey Open-File Report 00-458, Version 6 (2006).

- Sullivan, Charlene M.; Warner, John C.; Martini, Marinna A.; Voulgaris, George; Work, Paul A.; Haas, Kevin A.; Hanes, Daniel, 2006. South Carolina Coastal Erosion Study, Data Report for Observations, October 2003 - April 2004. Open-File Report 2005-1429, <http://pubs.usgs.gov/of/2005/1429/>
- Martini, M., Lightsom, F.L., Sherwood, C.R., Xu, J., Lacy, J.R., Ramsey, A. and Horwitz, R., AHydratools, a MATLAB Based Data Processing Package for Sontek Hydra Data. Proceedings of the IEEE/OES Eighth Working Conference on Current Measurement Technology, ISBN 0-7803-8989-1, pp. 147-151, Southampton, UK, 28-29 June, 2005.
- edited by Bothner, Michael H.; Butman, Bradford; contributing authors Alexander, P. Soupy; Blackwood, Dann S.; Borden, Jonathan; Casso, Michael A.; Crusius, John; Goudreau, Joanne; Kalnejais, Linda H.; Lamothe, Paul J.; Martin, William R.; Martini, Marinna A.; Milbert, Sandra M.; Rendigs, Richard R.; Sayles, Frederick L.; Signell, Richard P.; Valentine, Page C.; Warner, John C., 2005. Processes influencing the transport and fate of contaminated sediments in the coastal ocean - Boston Harbor and Massachusetts Bay. Open-File Report 2005-1250, Unpaginated, <http://pubs.usgs.gov/of/2005/1250/>
- Butman, B., Alexander, P.S., Harris, C.K., Traykovski, P.A., Buchholtz ten Brink, M.R., Lightsom, F.S., and Martini, M.A. "Oceanographic observations in the Hudson Shelf Valley, December 1999 - April 2000: data report." U.S. Geological Survey Open-File Report 02-217, 2003.
- Martini, M., AUSGS Capabilities for Studying Sediment Transport in the Ocean, Proceedings of the Federal Interagency Sediment Monitoring Instrument and Analysis Research Workshop, September 9-11, 2003, Flagstaff, Arizona, U.S. Geological Survey Circular 1276, (2005).
- Martini, M. and Ramsey, A., Evaluation of an RDI 1200 kHz ADCP using fast ping rates to measure near bottom mean currents [abs.]. Proceedings of the IEEE/OES 7th Working Conference on Current Measurement Technology, ISBN 0-7803-7813-X/03, p. 250, (2003).
- Butman, B., Bothner, M.H., Lightsom, F.L., Gutierrez, B.T., Martini, M.A., and Strahle, W.S. "Long-term oceanographic observations in western Massachusetts Bay offshore of Boston, Massachusetts: data report for 1989-2000." U.S. Geological Survey Digital Data Series DDS-74, DVD-ROM (2002).
- Ware, J., Frye, D., Hogg, N., Koshi, P., Butman, B., and Martini, M. "Acoustically linked ocean observatories; initial results from three installations [abs.]." Eos, Transactions, American Geophysical Union, American Society of Limnology and Oceanography, 2002 Ocean Sciences Meeting, Supplement 84, no. 4 (2002).
- Cote, J.M., Martini, M and Hotchkiss, F., 2000, Post-processing Methods to Improve ADCP Velocity Measurements [poster]. ASLO-AGU Ocean Sciences Meeting, Abstracts published as supplement to Eos, Transactions, American Geophysical Union, Vol. 80, No. 49, Dec. 7, pp. 193-194, (1999).
- Martini, M. and Clay, P., An inter-comparison test of an RD Instruments= workhorse ADCP mounted in a new trawl resistant bottom mount, an RD Instruments= broadband ADCP and a vector measuring current meter,@ Proceedings of the Oceanology International Conference, vol. 1, pp. 257-267, (1998).
- Morrison, A.T.I., Williams, J.A.I., and Martini, M., "Calibration of the BASS acoustic current meter with carrageenan agar." Institute of Electrical and Electronics Engineers-Oceanic Engineering Society (IEEE-OES), OCEANS '93, Proceedings 3 (1993).
- Strahle, W.J., Martini, M.A., and Davis, R.E., "Instrument packages to study long-term sediment transport processes in a shallow bay." Marine Technology Society Journal (MTS), Proceedings 2, (1994).
- Strahle, W.J., Worriolow, S.E., Fucile, P.D., and Martini, M.A., "New recording package for VACM provides sensor flexibility." Marine Technology Society Journal (MTS), Proceedings, (1994).
- Strahle, W.J., Perez, C., and Martini, M.A., "Antifouling leaching technique for optical lenses." Institute of Electrical and Electronics Engineers-Oceanic Engineering Society (IEEE-OES), Proceedings, OCEANS OSATES '94 Conference, (1994).
- Martini, M.A. and Williams, A., "Benthic Acoustic Stress Sensor (BASS): electronics check-out procedures." U.S. Geological Survey Open-File Report 93-722, (1993).
- Martini, M. and Strahle, W. "A multi-sensor oceanographic measurement system for coastal environments [abs.]." Institute Electrical Electronic Engineers and Marine Technical Society, Proceedings 2 (1992).
- Martini, M., Irish, J.D. and Bradley, A.M., "In Situ Evaluation of Ocean Profiling Sensors," Marine Tech. Soc. Conference Proceedings, vol. II, pp. 338-343, (1990).
- Irish, J.D.; Martini, M.; Needell, G.J.; , ""Thoughtful" CTD Profiling System," OCEANS '89. Proceedings , vol.5, no., pp.1636-1641, 18-21 Sep 1989.
- Martini, M.; Irish, J.D.; , "Removing Ship's Motion Effects From CTD Data," OCEANS '89. Proceedings , vol.5, no., pp.1615-1620, 18-21 Sep 1989.

FIELD AND MARITIME EXPERIENCE HISTORY:

- 2012 R/V Bold, SEABOSS sampling cruise, 350 stations to characterize the Massachusetts Coastal Zone Management area previously mapped by USGS and others.
- 2012 R/V Connecticut, deploy and recover 9 tripods and 6 buoys (two cruises) off Fire Island, NY.
- 2011 Create a moving arm and underwater node interface for our existing tripod: Sherwood, C., Mechanical Arm + Internet = Realtime Profiles of Particles Near the Seafloor, Soundwaves, Nov./Dec. 2011.
<http://soundwaves.usgs.gov/2011/11/fieldwork2.html>
- 2010 R/V Tommy Munro, two cruises, Deepwater Horizon oil spill response, service tripods and final recovery
- 2010 R/V Acadiana, Deepwater Horizon oil spill response, deploy 4 ADCP tripods around the Chandeleur Islands, LA.
- 2010 Field work in West Falmouth Harbor, MA.
- 2010 Acoustic target calibration testing at the Woods Hole Oceanographic Institution.
- 2010 Field work at Cape Hatteras, NC. Instrumentation and general shore support.
- 2010 Calibration of a sonar at the University of New Hampshire.
- 2009 R/V Tioga, deploy and recovery tripods in Buzzards Bay, MA, to support estuarine studies
- 2009 R/V Connecticut, deploy and recover tripods and moorings (two cruises) on Diamond Shoals, Cape Hatteras, NC. <http://soundwaves.usgs.gov/2009/04/fieldwork3.html>
- 2007 R/V Connecticut, deploy and recover tripods (two cruises) at the Martha=s Vineyard Observatory, follow up study, http://www.onr.navy.mil/sci_tech/32/reports/docs/06/cgsherwo.pdf
- 2007 R/V Gordon Sproul, deploy moorings and tripods off Palos Verdes, CA. <http://walrus.wr.usgs.gov/pv/>
- 2006 R/V Connecticut, recovery moorings and tripods deployed in the Hudson Shelf Valley.
<http://woodshole.er.usgs.gov/project-pages/newyork/>
- 2006 M/V Samantha Miller, deploy moorings and tripods to measure sediment transport and circulation in the Hudson Shelf Valley. <http://woodshole.er.usgs.gov/project-pages/newyork/>
- 2005 R/V Argo Maine, replace moorings and tripods in Massachusetts Bay supporting the Massachusetts long term monitoring project <http://pubs.usgs.gov/ds/74/index.html>
- 2005 R/V Connecticut, deploy and recover tripods (two cruises) at the Martha=s Vineyard Observatory, http://www.onr.navy.mil/sci_tech/32/reports/docs/06/cgsherwo.pdf
- 2004 R/V Oceanus, aborted attempt to deploy a tripod in the Gulf of Lyon, France, part of EuroStrataform. French permission never received.
- 2003-2004 R/V Dan Moore deploy moorings and tripods to describe the physical processes that control the transport of sediment in Long Bay, specifically off the coast of Myrtle Beach, South Carolina, <http://woodshole.er.usgs.gov/project-pages/scarolina/html/po.htm>
- 2003 R/V Connecticut, turn around moorings and tripods in Massachusetts Bay, MA circulation study.
- 2003 R/V Point Sur, recover 3 subsurface moorings designed to collect flow and sediment data from turbidity flow events. <http://soundwaves.usgs.gov/2004/02/>
- 2003 R/V Asterias, deploy and recover tripods for instrumentation test off Martha=s Vineyard, MA
- 2002 R/V Point Sur, deploy 3 subsurface moorings designed to collect flow and sediment data from turbidity flow events. <http://soundwaves.usgs.gov/2004/02/>
- 2002 R/V Edwin Link, turn around tripods in the Adriatic Sea, part of EuroStrataform.
<http://soundwaves.usgs.gov/2003/01/fieldwork.html>
- 2000 R/V Endeavor, deploy moorings in the Gulf of Maine.
- 2000 R/V Endeavor, recover moorings and tripods in the Hudson Shelf Valley.
<http://woodshole.er.usgs.gov/project-pages/newyork/>
- 2000 R/V Gordon Sproul, deploy moorings and tripods in Santa Monica Bay, CA.,
<http://walrus.wr.usgs.gov/socal/smbay/>
- 2000 R/V Connecticut, recover tripod with ROV that was deployed in the Hudson Shelf Valley,
<http://pubs.usgs.gov/of/2002/of02-217/> , <http://woodshole.er.usgs.gov/project-pages/newyork/>
- 1999 R/V Oceanus, deploy and service moorings on Georges Bank, MA for the GLOBEC experiment, three cruises.
- 1999 R/V Edwin Link, supporting the GLOBEC program, circulations studies on Georges Bank, MA,
<http://globec.whoi.edu/globec-dir/reports/e19906/e19906.htm>
- 1998 R/V Gordon Sproul, circulation studies in Santa Monica Bay, CA,
<http://walrus.wr.usgs.gov/socal/smbay/>,

- 1998 R/V Point Sur, recover moorings in Monterey Canyon, CA
- 1998 R/V Oceanus, Deploy and recover 8 moorings in the Gulf of Maine for a circulation modelling study (two cruises), Fong, D.A., Geyer, W.R, and R.P. Signell, 1997. The wind-forced response of a buoyant coastal current: observations of the western Gulf of Maine plume, *Journal of Marine Systems*, 12, 69-81.
- 1997 NOAA Mac Arthur, deploy moorings to study oceanic circulation on the shelf, develop sediment transport models, and study El Nino events.
- 1997 R/V Point Sur, deploy 2 subsurface moorings on canyon walls and one out in the canyon fan designed to collect flow and sediment data from turbidity flow events.
- 1997 R/V Point Sur, recover moorings, Monterey Canyon, CABarry, J.P., Paull, C.K., Xu, J.P., Buck, K.R., Whaling, P., Ussler, W. III, and Caress, D., The tempo and intensity of turbidity flows in Monterey Canyon [abs.]: Ocean Sciences Meeting, Honolulu, Hawai'i, February 20-24, 2006
- 1997 R/V Oceanus, deploy and service moorings on Georges Bank, MA for the GLOBEC experiment, three cruises.
- 1996 R/V Point Sur, mooring work (two cruises), Monterey Canyon, CA
- 1996 R/V Dan Moore, deploy tripods to measure bottom currents and waves to investigate the flow field and sediment transport in a rippled scour depression offshore of Wrightsville Beach, NC.
- 1996 R/V Kila, deploy a mooring in Mamala Bay, HI, to determine how the dredged material-- and any associate pollutants might be moved or reworked by oceanographic processes and redistributed after disposal.
- 1994 R/V Gordon Sproul, recover moorings from Monterey Canyon, CA.
- 1994 R/V Gulf Challenger, deploy/recover moorings in the Gulf of Maine, three cruises.
- 1993 R/V Argo Maine, deploy moorings and tripods to study Gulf of Maine circulation.
- 1993 R/V Gordon Sproul, moorings off Paols Verdes, CA.
- 1993 R/V Gordon Sproul, deploy moorings in Monterey Canyon, CA.
- 1993 R/V Asterias, recover mooring in Massachusetts Bay, part of the long tern circulations study.
- 1992 R/V Gordon Sproul, recover moorings off Palos Verdes, CA.
- 1992 USC Ship R/V John V. Vickers, Deploy moorings and tripods off Palos Verdes, CA. Information gathered by an array of moorings was designed to provide both a basic description of the circulation patterns in the region and an understanding of important physical processes, especially those processes that control the resuspension and transport of sediment and associated pollutants.
<http://walrus.wr.usgs.gov/pv/pvcurrents.html>
- 1991 R/V Argo Maine, Massachusetts Bay circulation study.
- 1991 R/V Wecoma, recover surface marker buoys and 3 current moorings on CA Continental Shelf in Sediment TRansport Events on Shelves and Slopes (STRESS) experiment to study resuspension/transport of fine-grained sediments in winter storms at sites C2, C3, and C4.,
- 1991 R/V Oceanus, recover moorings in Massachusetts Bay, MA (two cruises).
- 1990-1996 USCG White Heath, USCG Marcus Hanna and F/V Christopher Andrew, tri-annual cruises to replace moorings and tripods in Massachusetts Bay supporting the Massachusetts long term monitoring project <http://pubs.usgs.gov/ds/74/index.html>
- 1990-1992 R/V Tommy Munro, R/V Verril, deploy and turn around moorings, tripods and piling mounts at five sites over a two year study to study sub-tidal circulation patterns and tidal current shear in the shallow, highly stratified Mobile Bay, Alabama.
- 1990 R/V Wecoma, Deploy surface marker buoys and 3 current moorings on CA Continental Shelf in Sediment TRansport Events on Shelves and Slopes (STRESS) experiment to study resuspension/transport of fine-grained sediments in winter storms at sites C2, C3, and C4., two cruises
- 1990 R/V Endeavor, deploy and recover ocean bottom seismometers off the Chesapeake Bay, VA.
- 1990 R/V Oceanus Recover two subsurface moorings from Deep Water Dump Site DWDS 106, southern flank of Georges Bank. Collect and process sediment samples for studies of benthic infauna, microbiology, heavy metal and organic geochemistry. Overall objective of the sampling is to extend our study (initial survey on Atlantis cruise 122) of the sea floor to determine where particles from sewage sludge are being deposited as a result of discharge in the dump site (2250-2750 m water depth).
- 1990 USNS De Steiguer, deploy a mooring off the Farallon Islands, CA, The information gathered by the moored array and by allied programs in the study was designed to provide both a basic description

of the current field and an understanding of the underlying physical processes in the region. It was necessary to gather this knowledge so that models could be developed that would allow the Environmental Protection Agency (EPA) to choose appropriate sites for the deposition of materials dredged from San Francisco Bay. The observed currents will also be used with simple advection/dispersion models to allow the EPA to predict the ultimate fate of materials deposited at those sites.

1990 R/V Asterias, test ocean bottom seismometers.

1989 R/V Oeanus - thesis research and assisting members of WHOI's AOP&E in testing the Flying Fish fast profiler

1989 R/V Onrust - study in Long Island Sound, NY.

1987-1990 teach instrumentation class to U. Of New Hampshire Students aboard the R/V Jere Chase

1985 Work for six months as engine cadet aboard the Military Sealift Command tanker M/V Sealift Atlantic

1983 Work for six months as engine cadet aboard the container ships U.S. Lines SS American Altair and the American Export Lines SS Export Freedom.