

REBECCA GOLDMAN MARTONE

INSTITUTE FOR RESOURCES, ENVIRONMENT, AND SUSTAINABILITY ▪ UNIVERSITY OF BRITISH COLUMBIA ▪
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EDUCATION

Ph.D. Ecology and Evolution, Department of Biology, Stanford University, Stanford, CA. (2009),
Advisor: Dr. Fiorenza Micheli.

Dissertation: Geographic variation in species demography and community structure in temperate rocky reefs: implications for fisheries management

M.E.M., Coastal Environmental Management and Environmental Toxicology, Nicholas School of the Environment, Duke University, Durham, NC. (2000) Advisors: Dr. Larry Crowder, Dr. Dan Rittschof.
Thesis: The effects of alterations in coastal ecosystems on incidence of disease in Atlantic menhaden (*Brevoortia tyrannus* L.).

B.A., Departmental Honors, Environmental Sciences, Northwestern University, Evanston, IL. (1997)
Honors Thesis: Oil or Soil? A review of how oil and gas exploration and development contribute to salt marsh subsidence along the coast of Louisiana.

RESEARCH INTERESTS

- Interdisciplinary approaches for management of coupled social-ecological systems
- Cumulative effects of multiple human activities on natural communities
- Links between biodiversity and ecosystem services
- Biogeographic patterns of marine populations and communities, with specific interests in drivers of heterogeneity in demography and species interactions

FELLOWSHIPS AND AWARDS

- **Grover Hermann Fellowship in Marine Studies**, Stanford University (2006)
- **Eugene & Aileen Haderlie Memorial Award**, Stanford University (2006)
- **Otter Bay student award**, for subtidal research (2006)
- **Miller Scholar**, Stanford University (2005)
- **IGERT Fellowship for graduate studies**, University of California at Davis (2003) (declined)
- **Doris Duke Conservation Fellowship**, Duke University (1998)

GRANTS

- Packard Foundation, “Multi-species small-scale fisheries certification: extending certification principles beyond single species”, with Dr. Fiorenza Micheli and Dr. Salvador Lluch (2009) (\$119,200)
- Packard Foundation, “Cross-System Linkages and Ecosystem Services on the British Columbia Coast”, with Dr. Kai Chan (2009) (\$100,000)
- Sigma Xi Grant in Aid of Research (2008) (\$960)
- Dr. Earl H. Myers and Ethel M. Myers oceanographic and Marine Biology Trust, (2007) (\$1500)
- Stanford University VPUE faculty grant to support undergraduate research, with Dr. Fiorenza Micheli (2006) (\$3,260)

RESEARCH AND PROFESSIONAL EXPERIENCE

Postdoctoral Research Associate, with Dr. Kai Chan, University of British Columbia, 2009-Present:

- Modeling and mapping the effects of multiple human impacts on coastal ecosystem services;
- Assessing the potential changes in ecosystem structure, ecosystem-service production and the economic and cultural values of humans under trophic cascades along the west coast of Vancouver Island

Science Coordinator for Pacific North Coast Integrated Management Area (PNCIMA), Ecosystem Management Branch, Department of Fisheries and Oceans, Canada Dec 2011-June 2012

- Developing the ecosystem risk assessment framework for assessing risk to valued ecological and socio-economic/cultural components in PNCIMA
- Communicating outcomes from ecosystem-based risk approach to stakeholders
- Coordinating with MPA network planning science and policy team

Postdoctoral Research Associate, with Dr. Fiorenza Micheli, Stanford University, 2009-2010:

- Developing guidelines for multi-species fisheries certification and indicators for evaluating the ecosystem impacts of multiple fisheries occurring in the same ecosystem.

Dissertation Research, with Dr. Fiorenza Micheli, Stanford University, 2003-2009:

- Explored the spatial and temporal variation in demographic rates of *Megastraea undosa*, addressing the correlates of variability in biomass, growth and reproduction using mark-recapture techniques, isotopes, and field observations.
- Examined the contribution of biophysical and socioeconomic drivers to variable performance in cooperative fishing communities using subtidal surveys, analysis of food web and community structure, and sociological surveys.

Graduate Research Assistant, with Dr. Fiorenza Micheli, Stanford University, 2003-2009:

- Investigated interactions between human and natural disturbances in intertidal communities using biodiversity surveys and trampling experiments.
- Evaluated abalone population persistence and recovery and possible mechanisms for reduced recovery including habitat limitation, food limitation, disease, Allee effects and mortality.

Research and Monitoring Coordinator, Elkhorn Slough National Estuarine Research Reserve, Watsonville, CA, 2002-2003:

- Used experimental manipulations of nutrients, trampling, and hydrological modifications to examine synergistic effects of multiple human disturbances in salt marsh ecotone.
- Designed, coordinated, and implemented long-term biological and physical monitoring programs.
- Trained and supervised volunteers and student interns.

Recycling Associate, San Francisco Department of the Environment, San Francisco, CA 2001-2002:

- Coordinated, monitored, and improved waste prevention/recycling programs.
- Managed grants and contracts, solicited, evaluated and drafted agreements for grant program.
- Presented information to the public, prepared articles and press releases.
- Researched and assisted with policy initiatives.

Graduate Research Assistant, Duke University Marine Lab, Beaufort, NC, 1998-2001:

- Assisted in large-scale ecological study of effects of hypoxia on fish abundance, habitat use, and disease in the Neuse River estuary.
- Participated in project linking pelagic prey distributions to oceanographic features in spatial models to determine habitat used by species potentially impacted by pelagic longline fisheries.

Doris Duke Conservation Fellow, *National Marine Fisheries Service, Beaufort, NC 1999-2000:*

- Analyzed fish and marine mammal tissues for trace metals and mercury to examine pelagic food-web dynamics.
- Assisted in mark-recapture and radio telemetry of bottlenose dolphin and loggerhead sea turtles.

Research Assistant, *USGS Biological Resources Division, Las Vegas, NV 1998*

- Relocated and monitored threatened desert tortoises using radio telemetry. Assessed reproductive viability and quantified food and habitat availability.

TEACHING EXPERIENCE

Student mentor, Institute for Environment, University of British Columbia, (Fall 2009-Present)
Mentoring 4 undergraduate students doing honors theses in Environmental Sciences program and 2 PhD students working on cumulative impacts of human activities on ecosystem services

Guest Lecturer: Vancouver Island University (Winter 2012)

Lectured on “Coupled social-ecological systems under trophic cascades: Kelp, sea otters, and coastal communities” for undergraduate course in human dimensions of natural resource management.

Guest Lecturer, Environmental Studies, St. John Fisher College, Rochester, NY (Spring 2010)

Lectured on interdisciplinary approaches to marine ecosystem-based management and sustainable fisheries for undergraduate non-majors

Guest Lecturer, Applied Ecology and Conservation, Simon Fraser University (Winter 2009, 2010)

Lectured on interdisciplinary approaches to conservation biology for graduate students in resource and environmental management.

Guest Lecturer, California Coastal Law, Science, and Policy, Stanford University (Winter 2007)

Lectured on estuarine ecology, conservation biology and multivariate statistics for interdisciplinary course focused on marine science, law, and policy of the California coast for advanced undergraduate and graduate students in biology, engineering, and law.

Guest Lecturer, Marine Ecology of the Pacific, Duke University (Fall 2007)

Lectured on estuarine ecology and conservation biology for interdisciplinary course focused on marine science and policy of the California coast for advanced undergraduate and graduate students in environmental sciences.

Student mentor, Hopkins Marine Station, Stanford University, (Winter-Summer 2007)

Mentored undergraduate students doing honors theses on reproductive ecology of *Megastraea undosa* and indicators of disturbance in rocky intertidal communities.

Co-Designer and co-instructor, California Coastal Law, Science, and Policy, Stanford University

(Spring-Fall 2005) Co-designed and co-taught a 9-week interdisciplinary course focused on marine science, law, and policy of the California coast for advanced undergraduate and graduate students in biology, engineering, and law.

Teaching Assistant, Marine Ecology, Hopkins Marine Station, Stanford University (Winter 2005)

Lectured on estuarine ecology, invasive species, and multivariate statistics. Led labs and conservation debates.

Teaching Assistant, Invertebrate Zoology, Hopkins Marine Station, Stanford University (Winter 2004)
Assisted in labs and lectures and led an independent study session with undergraduate students

Guest Lab Instructor, Marine Ecology, Hopkins Marine Station, Stanford University (Winter 2004)
Developed and led a lab on estuarine ecology.

Teaching Assistant: Ecology, Evolution, and Plant Biology, Stanford University (Spring 2004)
Led independent teaching sections, developed course materials and exams

PUBLICATIONS

Peer-Reviewed

- Martone, R.G.**, and F. Micheli. 2012. Geographic variation in demography of a temperate reef snail: the importance of multiple life history traits. *Marine Ecology Progress Series* 457: 85-99.
- Sisk, T.D., G.G. Singh, J. Tam, K.M.A. Chan, S.Klain, M. Mach, and **R. Martone**. 2011. Barriers and Incentives to Engagement in Public Policy and Science-based Advocacy. *Bulletin of the Ecological Society of America* 92:276–280.
- Teck, S.J., C.E. Shearer, B.S. Halpern, R. Cooke, C. Ebert, C.V. Kappel, **R.G. Martone**, F. Micheli, K.A. Selkoe. 2010. Using expert judgment to assess the vulnerability of marine ecosystems in the California Current. *Ecological Applications* 20(5):1402-1416
- Halpern, B.S., C.V. Kappel, K.A. Selkoe, F. Micheli, C.M. Ebert, C. Kontgis, C.M. Crain, **R.G. Martone**, C. Shearer, S.J. Teck. 2009. Mapping cumulative human impacts to California Current marine ecosystems. *Conservation Letters* 2(3): 138-148.
- Kappel, C.V. B.S. Halpern, **R.G. Martone**, F. Micheli, and K.A. Selkoe. 2009. In the Zone Comprehensive Ocean Protection. *Issues in Science and Technology*, Spring 2009.
- Martone, R.G.**, and K. Wasson. 2008. Impacts and interactions of multiple human disturbances in a California salt marsh. *Oecologia* 158(1): 151-163.
- Micheli, F., A.O. Shelton, S.M. Bushinksy, A.L. Chiu, A.J. Haupt, K.W. Heiman, C.V. Kappel, M.C. Lynch, **R.G. Martone**, J. Watanabe. 2008. Persistence and recovery of depleted marine invertebrates in marine reserves of central California. *Biological Conservation* 141:1078-1090.
- Kappel, C. and **R.G. Martone**. 2006. "Ecosystem-based management." *Encyclopedia of Earth*. Eds. J Emmett Duffy. (Washington, D.C.: Environmental Information Coalition, National Council for Science and the Environment). [Published October 04, 2006].
<http://www.eoearth.org/article/Ecosystem-based_management>

Manuscripts Submitted or in Preparation.

- Micheli, F., K. W. Heiman, C. V. Kappel, **R. G. Martone**, J. Martin, S.A. Sethi, G. C. Osio, S. Frascchetti, and A.O. Shelton. Combined impacts of natural and human disturbances on rocky shore communities. In review *Marine Ecology Progress Series*.
- Martone, R.G.**, F. Micheli, L. Gonzalez, S. Guzman del Proo, A.J. Haupt, and E. Serviere. Regional and local-scale spatial variation in kelp forest communities along central Baja California. In review *Marine Ecology Progress Series*
- Micheli, F., G. De Leo, G.G. Shester, R.G. Martone, S. Lluch-Cota, C. Butner, L.B. Crowder, R. Fujita S. Gelcich, M. Jain, S.E. Lester, B. McCay, R. Pelc, and A. Sáenz-Arroyo. Raising the bar: expanding incentives for improving seafood harvesting and production practices and outcomes. In review *Frontiers in Ecology and the Environment*
- Micheli, F., C. Butner, G. DeLeo, **R.G. Martone**, and G. Shester. A risk based framework for assessing the cumulative impact of multiple fisheries. Submitted to *Fish and Fisheries*

- Singh, G. G., R. W. Markel, **R. G. Martone**, A. K. Salomon, C. D. G. Harley and K. M. A. Chan. Sea otters homogenize mussel-beds and reduce habitat provisioning in a rocky intertidal ecosystem. Submitted to *PLoS ONE*.
- Martone, R.G.**, F. Micheli, and A. Bodini. Assessing interactions between fisheries to support ecosystem-based management in a data-poor context. In prep for *Fish and Fisheries*
- Markel, R.W., **R.G. Martone**, and S.J. Dick. Assessing the influence of a reintroduced keystone predator on ecosystem resilience. In prep for *Ecology*
- Martone, R.G.** and R.W. Markel. A comprehensive comparison of food webs with and without sea otters: where's the biomass? In prep for *Ecology*
- Martone, R.G.**, T.A. Coyle, J.C. Nelson, K.W. Demes, and R.W. Markel. Indirect effects of sea otters on rocky reef benthic biodiversity. In prep for *Marine Ecology Progress Series*.
- Singh, G. G., R. W. Markel, **R. G. Martone**, A. K. Salomon, C. D. G. Harley and K. M. A. Chan. The importance of kelp-derived carbon to mussel growth varies regionally and seasonally. In prep for *Marine Ecology Progress Series*.
- R.G. Martone**, Thompson, A., C. Solomon, and K.M.A. Chan. Ecosystem services of the British Columbia coast: modeling the impacts of agriculture on the provision of shellfish. In prep for *Ocean and Coastal Management*
- Micheli, F., C. Costello, L. Gonzalez, S. Guzman del Próo, A.J Haupt, S. Lluich, **R.G Martone**, B. McCay, M. Ramade, G. Saad, E. Serviere, G. Shester, W. Weisman, and J. Wilson. Complex drivers of fisheries performance: environmental, social and economic feedbacks. In prep for *Fish and Fisheries*

Technical Reports

- O, M., **R.G. Martone**, L. Hannah, L. Greig, J. Boutillier, and S. Patton. 2012. *A Risk-based Framework for Ecosystem-based Oceans Management*. DFO CSAP Working paper p. 46.
- Chan, K.M.A., E. Anderson, N. Sihota B.C. Chamberlain, C. Evans, G. Oberg, **R.G. Martone**, et al. 2010. An Ecosystem Services Approach to Sustainability at UBC. 17pp.
- Micheli, F.M., K.W. Heiman, C.V. Kappel, M.C. Lynch, J. Martin, and **R.G. Martone**. 2006. Ecological impacts of human visitation of rocky shores. In *Ecosystem Observations – an annual publication of the Monterey Bay National Marine Sanctuary*. (Invited article)
- Goldman, R.** 2001. Solving Problems of Oil Pollution in a Salt Marsh. *North Carolina Estuarine Research Reserve Technical Paper Series*, #3 <http://www.ncnerr.org/ccs/publications/index.html>

WORKING GROUPS/WORKSHOPS

- Structuring Ecosystem-Based Knowledge using Pathways of Effects** A workshop to improve EBM practice, research, and communication. PacMARA, University of British Columbia, Vancouver, BC, Nov 16 2012: co-organizer and moderator.
- Assessing Ecosystem Condition Using Expert Judgment**, National Center for Ecological Analysis and Synthesis (NCEAS) and MPA Monitoring Enterprise, Santa Barbara, CA, Sept-Dec 2012: participant.
- Structural Equation Modeling Workshop**, Biodiversity Research Centre, University of British Columbia, Vancouver, BC, 02 April-06 April 2012: organizer and participant.
- Marine Ecosystem Based Management Implementation Working Group**, PacMARA, Institute for Ocean Sciences, Sidney, BC, 09 May-10 May 2011: invited panelist and participant.
- Nearshore Habitat Working Group**, PacMARA, Institute for Ocean Sciences, Sidney, BC, 17 Nov 2010: invited panelist and participant.

A synthetic approach to the science of ecosystem-based management of coastal marine ecosystems,
National Center for Ecological Analysis and Synthesis (NCEAS), Santa Barbara, CA, Oct 2005-
Jul 2007: co-organizer and participant

Ranking and mapping the impact of human threats to California Current marine ecosystems,
NCEAS, Santa Barbara, CA, Jan 2007-April 2008: participant

Interdisciplinary colloquium on the state of ocean research, Student Collaborations for Ocean
Research and Education (SCORE), Woods Institute for the Environment, Stanford University,
CA, Nov 2005: co-organizer and participant

PRESENTATIONS (*invited)

American Fisheries Society, Annual Meeting

*Micheli, F., L. Gonzalez, S. Guzmán del Próo, A. Haupt, **R.G. Martone**, E. Serviere, G. Shester. 2007.
*Spatial variation in biological productivity and connectivity: implications for scales of
management*

American Fisheries Society, Mexican Chapter Biennial Meeting

Martone, R.G., Micheli, F.M., Roark, B., and Dunbar, R. 2007. *Variabilidad en el crecimiento de
caracol panocha, Megastrea undosa, utilizando los isótopos estables del oxígeno*

Bay Area Conservation Biology Symposium

Martone, R.G. et al. 2006. *Persistence of depleted marine invertebrates in marine reserves of central
California*

Barkley Sound Knowledge Symposium

Martone, R.G. and R.W. Markel. 2010. *Effects of sea otter predation on subtidal rocky reef food web
structure and productivity*

Singh, G.G., Markel, R.W., and **R.G. Martone**. 2010. *Impacts of sea otter foraging on intertidal
communities: implications of sea otter re-establishment in Barkley Sound.*

CalCofi Annual Conference

*Micheli, F.M., C.V. Kappel, **R.G. Martone**, and A. Rosenberg. 2007. *Marine ecosystem-
based management: theory and practice*

Ecological Society of America Annual Conference

Martone, R.G., R.W. Markel, and S.J. Dick. 2011. *Assessing the influence of a reintroduced keystone
predator on ecosystem resilience: do the indirect effects of sea otters moderate fishing impacts?*

*Salomon, A.K., **R.G. Martone**, L. Lee, R.W. Markel, and J.B. Shurin. 2011. *Trophic cascades on
temperate reefs: Managing for the resilience and adaptive capacity of coastal communities.*

Martone, R.G., F. Micheli, and A.J. Haupt. 2007. *Spatial scales of variability in temperate reef
assemblages.*

International Congress for Conservation Biology

Singh, G.G., R.W. Markel, **R.G. Martone**, C.D.G. Harley, and K.M.A. Chan. 2010. *Coastal Ecosystem
Services Amongst Trophic Cascades.* July 3-7 2010, Edmonton, Alberta, Canada.

International Temperate Reef Symposium

Martone, R.G., et al. 2009. *Spatial patterns in subtidal community structure: Regional vs. local-scale
variation*

International Marine Conservation Congress

Chan, K.M.A., **R.G. Martone**, R.W. Markel, E. Gregr, and S. Klain. 2009. *Coastal ecosystem services amongst trophic cascades*

Martone, R.G., K.M.A. Chan, B. Stelzer, R.W. Markel, C. Mak, J. Levine, J. Tam, T. Satterfield, R. Naidoo. 2011. *Characterizing the interaction between humans and ecosystems: identifying values associated with changes in coastal ecosystem services*

Martone, R.G. and R.W. Markel. 2011. *Assessing the influence of a reintroduced keystone predator on ecosystem resilience: do the indirect effects of sea otters moderate fishing impacts?*

Chan, K.M.A., M.J. Espinosa-Romero, **R.G. Martone** and R.W. Markel. 2011. *Toward improved application of research for ecosystem-based management: the B.C. Coastal Ecosystem Services Project.*

University of Alaska, Fairbanks, Invited Scholar Seminar Series, SELMR program

***Martone, R.G.** 2012. *Improving fisheries performance: the importance of an interdisciplinary approach*

University of Alaska, Juneau Invited Scholar Seminar Series, MESAS program

* **Martone, R.G.** 2012. *Sea otters, kelp forests, and coastal communities: characterizing coupled social-ecological systems for ecosystem-based management*

University of British Columbia Ecology and Evolutionary Biology Seminar Series

***Martone, R.G.** 2009. *Rights-based fisheries in Baja California: A management success story?*

University of British Columbia Institute for Resources, Environment and Sustainability Seminar Series

***Martone, R.G.** 2012 *Coupled social-ecological systems research for ecosystem-based management in coastal marine ecosystems*

University of British Columbia Fisheries Centre Seminar Series

***Martone, R.G.**, Kai M.A. Chan and R.W. Markel. 2009. *Sea otters, kelp forests, and coastal communities: Disentangling values and ecosystem interactions*

University of Victoria

*Chan, K.M.A., R.W. Markel, **R.G. Martone**, E. Gregr, J. Clasen, B. Ramshaw, G. Singh, and M. Espinosa. 2011. *Sea otters, kelp forests, and coastal communities: an ecosystem services research program*

University of Western Washington

*Chan, K.M.A., R.W. Markel, **R.G. Martone**, E. Gregr, J. Clasen, B. Ramshaw, G. Singh, and M. Espinosa. 2011. *Sea otters, kelp forests, and coastal communities: an ecosystem services research program*

Western Society of Naturalists

Coyle, T.A., **Martone, R.G.**, J.C. Nelson, K.W. Demes, and R.W. Markel. 2012. *Indirect effects of sea otters on benthic biodiversity*

Martone, R.G., and R.W. Markel. 2011 *Where is the biomass? Variation in subtidal rocky reef community structure associated with the loss of sea otters as top predators.*

Singh, G.G., R.W. Markel, **R.G. Martone**, C.D.G. Harley, and K.M.A. Chan. 2010. *Mussel bed structure and community change along an otter gradient.*

Martone, R.G. et al. 2009. *Spatiotemporal variation in growth of *Megastrea undosa*: context-dependent effects of temperature*

Martone, R.G. et al. 2008. *Spatial patterns in subtidal community structure: Regional vs. local-scale variation*

Martone, R.G., and F. Micheli. 2007. *Geographic variation in life history strategy of *Megastraea undosa*: to grow or reproduce?*

Martone, R.G., and K. Wasson. 2004. *Trampling and hydrological manipulations facilitate invasion of upland weeds into a California salt marsh.*

Western Washington University Biological Sciences Seminar Series

*Chan, K.M.A., E. Gregr, **R.G. Martone**, R.W. Markel, J. Clasen, B. Ramshaw, G.G. Singh, M.J. Espinosa-Romero. 2011. *Sea Otters, Kelp Forests and Coastal Communities: An Ecosystem Services Research Program*

PROFESSIONAL MEMBERSHIPS

American Fisheries Society (2006-present)

Ecological Society of America (2004-present)

Sigma Xi, Associate Member (2006-present)

Society for Conservation Biology (2005-present)

Western Society of Naturalists (2003-present)

PROFESSIONAL SERVICE

Reviewer, (2009-present)

Conservation Letters, Ecology and Society, Global Change Biology, Ecological Economics, Science of the Total Environment, Botanica Marina

Student representative, Education and Pedagogy Committee (2006-2008)

Woods Institute for the Environment Stanford University. Advised on academic and extracurricular programs for graduate and undergraduate education.

Representative, Student Committee of Western Society of Naturalists (2004-2007)

Organized and managed student workshops, symposium, and auction for student travel.

Co-founder and leader, Students for Collaboration in Ocean Research and Education (SCORE) (2005-2008). Stanford University. Created forum to bring together researchers from diverse disciplines to share ideas about marine research, education and outreach. Developed sustainable seafood campaign with Stanford Dining.

Student representative, Woods Institute for the Environment Marine Committee (2005)

Advised on academic and extracurricular programs for graduate students.

Treasurer, Hopkins Marine Station Graduate Research Organization (2004-2008).

Managed funding and activities for graduate student organization.

ESNERR Representative, Research Activity Panel, Monterey Bay National Marine Sanctuary (2002)

Advised on scientific research and monitoring in the Sanctuary.

RELATED EXPERIENCE

Spanish, proficiency in speaking, reading, and writing
PADI/AAUS/CAUS Scientific Research diver
Small-boat handling (PCOC/SVOP certified)