Erika Heine Raymond

Ocean Research & Conservation Association
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EDUCATION

In progress Ph.D., Oceanography, Johns Hopkins University, Baltimore, MD.
M.S., Biology, With Distinction, California Polytechnic State University, San Luis Obispo, CA.
B.S., Biology, California Polytechnic State University, San Luis Obispo, CA.

QUALIFICATIONS

- Cruise experience includes 26 research cruise efforts [9 as Chief Scientist], to 6 locations: Monterey Bay, Gulf of Maine, Gulf of Mexico, Gulf Stream, New Jersey Shelf and Florida Current
- Involvement in collaborative projects with Monterey Bay Aquarium and Research Institute, Harbor Branch Oceanographic Institution, Rutgers University, and Woods Hole Oceanographic Institution

AWARDS AND DISTINCTIONS

2005 Outstanding Student Poster Award, ASLO Summer Meeting, Santiago de Compostela, Spain.
2005 Field Research Grant, Johns Hopkins University, MD ($1,030)
2004 Field Research Grant, Johns Hopkins University, MD ($2,000)
2003 Field Research Grant, Johns Hopkins University, MD ($840)
2002 Field Research Grant, Johns Hopkins University, MD ($825)

EMPLOYMENT

2005 – Present **Research Assistant**, Ocean Research & Conservation Assoc., Ft. Pierce, FL.
2003 – Present **Laboratory Manager**, Dr. Edith Widder's laboratory, Harbor Branch Oceanographic Institution and Ocean Research & Conservation Assoc., Ft. Pierce, FL.
2003 – 2005 **Research Assistant**, Harbor Branch Oceanographic Institution, Ft. Pierce, FL.
1999 – 2001 **Research Assistant**, California Polytechnic State University, San Luis Obispo, CA.
1998 – 2000 **Laboratory Manager**, Seawater Lab, Diablo Canyon Nuclear Power Plant, San Luis Obispo County, CA.
1997 – 1998 **Research Technician**, Hopkins Marine Station, Pacific Grove, CA.

RESEARCH CRUISE EXPERIENCE

Sept. 2006	R/V *Pt. Lobos*- Monterey Bay, CA. Hydrophone experiments with Eye-in-the-Sea (EITS) autonomous deep-sea observatory. (3 days)
June 2006	R/V *Seward Johnson*-Miami Terrace, FL. EITS deployments to study the diel behavior of fishes on the Miami Terrace. PI for EITS experiments (10 days)
May 2006	R/V *Pt. Lobos*- Monterey Bay, CA. Hydrophone experiments with EITS. (4 days)
Fall 2005 – 2006	M/V *Thunderforce*- Ft. Pierce, FL. High Intake Defined Excitation BathyPhotometer (HIDEX-BP) experiments and plankton collection in the Florida Current. Chief Scientist (3 nights/ month)
Sept. 2005	R/V *Pt. Lobos*- Monterey Bay, CA. Red-light experiments with EITS. (4 days)
August 2005	R/V *Seaward Johnson*- NOAA OE, DeepScope II, Gulf of Mexico. EITS deployments at unique oases in the Gulf of Mexico to seek out new species and document species diversity. (2 weeks)
April 2005	R/V *Pt. Lobos*- Monterey Bay, CA. Red-light and novel bait experiments with EITS. (4 days)
Sept. 2004	R/V *Seward Johnson II*- Gulf of Maine. Deployment and testing of new HIDEX-BP. (1 week)
August 2004	R/V *Seward Johnson II*- NOAA OE, DeepScope, Gulf of Mexico. EITS deployments at unique oases in the Gulf of Mexico to seek out new species and document species diversity. (2 weeks)
July 2004	Puerto Mosquito, Vieques, Puerto Rico- Deployment of small bathyphotometer in bay for diel measurements of bioluminescence and temperature, and collection of phytoplankton samples for isolation and culturing. (12 days)
June 2004	R/V *Pt. Lobos*- Monterey Bay, CA. Deployment and testing of EITS ver. 2.0. (4 days)
August 2002	R/V *Seaward Johnson*- NOAA Ocean Exploration “Islands in the Stream”, Gulf Stream and Florida Current. Collected bioluminescent dinoflagellates for kinetic analysis and assisted with EITS deployments. (2 weeks)
July 2001	R/V *Endeavor* – Rutgers Tuckerton Field Station (LEO-15), Office of Naval Research Hyperspectral Coupled Ocean Dynamics Experiment (HyCODE). Deployment of HIDEX and CTD rosette for CTD/Bathyphotometer profiles. (2 weeks)
June 2001	R/V *Seward Johnson*- Gulf of Maine. Collection of animals with a midwater trawl net for vertical migration studies. (2 weeks)
Winter 2000	R/V *Point Sur* – Monterey Bay, CA. Assisted in operation of Bathyphotometer and Schindler trap profiles. (2 days)
Sept. 2000	R/V *Seward Johnson II*- Gulf of Maine. Collection of animals with a midwater trawl net for vertical migration studies. (2 weeks)
August 2000	R/V *Point Sur*, R/V *Shana Rae* and R/V *Pt. Lobos*. Monterey Bay Aquarium and Research Institute MOOS Upper- Water-Column Science Experiment (MUSE), Monterey Bay, CA. Operated bathyphotometer on ROV *Ventana* for horizontal transects. (1 night) Launch and recovery of Schindler trap, Niskin Bottle and profiling bathyphotometer, and identification, enumeration and HPLC pigment analysis of phytoplankton samples. (2 weeks)

Summer 2000	R/V *Walford* – Coastal predictive skill experiments focused on coastal upwelling and vertical structure of bioluminescence at Rutgers Tuckerton Field Station (LEO-15), NJ. Launch and recovery of optical package, Niskin Bottle and profiling bathyphotometer and identification, enumeration and HPLC pigment analysis of phytoplankton samples. (1 month)

LABORATORY EXPERIENCE

2003 – present	Calibration of optical equipment, maintenance of phytoplankton cultures, and development and maintenance of autonomous deep-sea observatory.
Summer 2000	Rutgers Tuckerton Field Station (LEO-15), NJ. Operated moored optical profiler and conducted HPLC and fluorometric measurements on filter samples.
1999 – 2001	Cal Poly, SLO, CA. Maintained phytoplankton cultures, performed HPLC and fluorometric measurements on filter samples, analyzed data using Excel and MATLAB, and identified phytoplankton species from local waters.
1997 – 1998	Hopkins Marine Station, Pacific Grove, CA. Genetic diversity studies in trout and salmon species. Performed DNA extractions and amplification, manual radioactive sequencing of mitochondrial DNA, Genescan analysis and statistical analysis of microsatellite data and operated an ABI automatic sequence.
1997	Cal Poly, Environmental Biotechnology Institute (EBI), SLO, CA. Unocal Avila Beach Bioremediation Project. Cultured bacterial communities from local soils, isolated colonies for FAME analysis and DNA sequencing, performed DNA extraction and PCR and DAPI staining of bacteria

TEACHING EXPERIENCE

2000	**Teaching Assistant**, Undergraduate Phycology, Spring, Cal Poly, SLO. Assisted in classroom and laboratory lectures, developed multiple laboratory units on the genetic sequencing of local algal species and organized class field trips.
2000	**Teaching Assistant**, Undergraduate Invertebrate Zoology, Winter, Cal Poly, SLO. Assisted in laboratory lectures.
1999	**Teaching Assistant**, Undergraduate Marine Biology, Fall, Cal Poly, SLO. Assisted in classroom and laboratory lectures and organized class field trips.
1999	**Laboratory Instructor**, Undergraduate General Biology Lab, Spring, Cal Poly, SLO. Lectured on general biology topics.
1999	**Laboratory Instructor**, Undergraduate General Biology Lab, Winter, Cal Poly, SLO. Lectured on general biology topics.
1998	**Laboratory Instructor**, Undergraduate General Biology Lab, Fall, Cal Poly, SLO. Lectured on general biology topics.
1997	**Teaching Assistant**, Undergraduate Cellular Biology, Spring, Cal Poly, SLO. Organized and presented weekly review sessions on lectured units.

PUBLICATIONS

Raymond, E.H. and E. A. Widder. Different behavioral responses of two deep-sea fishes to red, far-red and white light. (in press MEPS).

Raymond, E.H., T. Sutton and E. A. Widder. Diel behavior of fishes near the Miami Terrace, Florida. (in prep.)

Raymond, E.H., E. A. Widder and B.H. Robison. The sound and the flurry: acoustic signatures of underwater vehicles and associated animal behaviors around an unobtrusive baited camera. (in prep.)

Raymond, E. H., E. A. Widder, C. L., Frey, C. T. Cimaglia and M. Hoover. Assessment of bioluminescent sources and potential in a tidal inlet. (in prep.)

Moline M. A., M. J. Oliver, C. D. Mobley, L. Sundman, T. Bergmann, W. P. Bissett, J. Case, E. H. Raymond and O. M. E. Schofield. Bioluminescence in a complex coastal environment: Part I: Temporal dynamics of night-time water-leaving radiance. (submitted)

Widder E. A., E. H. Raymond, C.L. Frey and D.C. Smith. Eye-in-the-sea: A deep-sea observatory for unobtrusive exploration. (in prep.)

Moline, M. A., E. Heine, J. Case, C. Herren and O. Schofield. 2001. Spatial and temporal variability of bioluminescence potential in coastal regions. In: J. F. Case, P. J. Herring, S. H. D . Haddock, L. J. Kricka and P. E. Stanley, Eds., Bioluminescence and Chemiluminescence 2000. World Scientific Publishing Company, Singapore, p123-126.

Nielsen, J. L., E. L. Heine, C. A. Gan, and M. C. Fountain. 2000. Molecular analysis of population genetic structure and recolonization of Rainbow Trout following the Cantara spill. California Fish and Game 86(1):21-40.

Non-Refereed Abstracts and Presentations

Raymond, E. H., and E. A. Widder. Unobtrusive observations of deep-sea megafauna in the Gulf of Mexico. ASLO/AGU Ocean Sciences Meeting, Honolulu, HI. Feb. 2006.

Raymond, E. H. Unobtrusive observations in the deep sea. Florida Oceanographic Society, Stewart, FL. March 2006.

Raymond, E. H. Spying on the deep sea: A new look at life in the dark depths. Smithsonian Marine Station, Ft. Pierce, FL. Feb. 2006.

Raymond, E. H. Eye-in-the-Sea: An unobtrusive platform for deep-sea observations. Florida State University, Tallahassee, FL. Nov. 2005.

Raymond, E. H., and E. A. Widder. Stealth matters: Opening an unobtrusive window in to the deep sea. ASLO Summer Meeting, Santiago de Compostela, Spain. June 2005.

Raymond, E. H. and E. A. Widder. Eye-in-the-Sea: A platform for unobtrusive *in-situ* observations of deep-sea nekton. ASLO Aquatic Sciences Meeting, Salt Lake City, UT. Feb. 2005.

Heine, E. L., C. M. Herren, E. A. Widder and M. A. Moline. Distribution of Bioluminescence across an Optical Front at LEO-15. ASLO/AGU Ocean Sciences Meeting, Honolulu, HI. Feb. 2002.

Haddock, S H ; Moline, M A ; Herren, C M ; Heine, E L ; Bellingham, J G ; Case, J F AUV-measured distribution of bioluminescence in a coastal environment. ASLO Aquatic Sciences Meeting, Albuquerque, NM. Feb. 2001.

Moline, M. A., J. Case, E. Heine, C. Herren and O Schofield. Spatial and temporal variability of bioluminescence potential in coastal regions. 11th International

Symposium on Bioluminescence and Chemiluminescence. Asilomar, CA. Sept. 2000.

EDUCATIONAL OUTREACH/ SERVICE

July 2006	Lecturer, EARTH Workshop, Tuckerton, NJ. http://www.mbari.org/earth/2006/DayTwo/EARTH_2006_EITS_web.pdf
Jan. 2006	Volunteer, Herron Island CoralWatch Workshop.
Nov. 2005	Judge, K-6 Science fair, Vero Beach, FL.
August 2005	NOAA's Ocean Explorer Explorations web page contribution. www.oceanexplorer.noaa.gov/explorations/05deepscope/logs/sep2/sep2.html
August 2004	NOAA's Ocean Explorer Explorations web page contribution. http://oceanexplorer.noaa.gov/explorations/04deepscope/logs/aug8/aug8.html
August 2003	Host, Evolving Communications Extreme Science Series, Dinoflagellate Bioluminescence Episode.
April 2001	Volunteer, Marine Science Promotional Video, Open House, Cal Poly, SLO.
Sept. 2000	Volunteer, 11th International Symposium on Bioluminescence and Chemiluminescence, Asilomar, CA.
April 2000	Touch Tank Volunteer, Open House, Cal Poly, SLO.
August 1999	Volunteer, Lizard Island Marine Station, Great Barrier Reef, Australia.

SOCIETY MEMBERSHIPS

Student member: American Society for Limnology and Oceanography (ASLO)

CERTIFICATIONS

SCUBA open water certification
First Aid & CPR
DAN oxygen administration