MELISSA R. PATRICIAN

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EDUCATION: **Stony Brook University School of Marine and Atmospheric Sciences, Stony Brook, NY**
Ph.D. Student - Marine and Atmospheric Sciences

University of Rhode Island Graduate School of Oceanography, Narragansett, RI
M.S. Biological Oceanography (December 2005)
Thesis: "Investigation of factors underlying the abandonment of the Roseway Basin feeding ground by North Atlantic right whales (*Eubalaena glacialis*): 1993 – 1999."

University of Rhode Island, Kingston, RI
B.S. Marine Biology with Honors (May 2002)

RESEARCH: INTERESTS Large whale foraging ecology; marine mammal habitat assessment; zooplankton ecology; physical and biological mechanisms for copepod advection and aggregation

RESEARCH EXPERIENCE: **Ph.D. Student (August 2010 – present)**
School of Marine and Atmospheric Sciences, Stony Brook University, Stony Brook, NY
Dr. Darcy Lonsdale – zooplankton ecology and physiology (Stony Brook University)
Dr. Cabell Davis – zooplankton ecology (Woods Hole Oceanographic Institution)

- Bioacoustic sampling (ES 60, EK 60, ADCP)
- Zooplankton collection and analysis (ring net, IKMT, DAVPR, VPRII, species identification)
- Training and supervision of undergraduate students in zooplankton enumeration and identification
- Lab management

Research Assistant (March 2006 – present)
Woods Hole Oceanographic Institution, Woods Hole, MA
Dr. Carin Ashjian – zooplankton ecology
Dr. Mark F. Baumgartner – marine mammal ecology
Dr. Cabell Davis – zooplankton ecology
Dr. David Fratantoni – autonomous systems
Lee Freitag – underwater acoustic signal processing
Dr. Glen Gawarkiewicz – front dynamics and coastal oceanography
Dr. Rocky Geyer – estuarine and coastal hydrodynamics and sediment transport
Dr. Albert J. Plueddemann – physical properties of the oceanic surface boundary layer
Dr. Heidi M. Sosik – phytoplankton bio-optics

- Right whale ecology (TDR-tagging, RATS)
- Zooplankton ecology (DAVPR, VPRII, OPC, LOPC, MOCNESS, Bongos, ring net, IKMT, silhouette photography, species enumeration and identification)
- Oceanographic sampling (CTD, ES60, EK60, ADCP, Bathyphotometer)
- Phytoplankton ecology and culturing

- Phytoplankton bio-optical sampling (chlorophyll, CDOM, Ap, As, nutrient, HPLC, SPM, FCM)
- Data manipulation and analysis of various forms of biological and physical oceanographic data including both *in situ* collected data and remote sensing data
- Biological and logistical coordinator for numerous cruises
- Participation in numerous cruises with an average of 90 days a year spent in the field
- Both pre- and post-field instrument conditioning and maintenance
- Training and supervision of students and guests in zooplankton data collection methods (ring nets, bongos, MOCNESS, VPR) and zooplankton sample processing (silhouette photography, enumeration and identification of species)
- Electrical and mechanical engineering
- Lab organization and management
- Webpage design

Marine Mammal Research Assistant (August – September 2005)
New England Aquarium – Right Whale Research, Lubec, ME / Cape Sable Island, NS, CA

- Photo-identification of the North Atlantic right whale
- Analysis and entry of survey data into the North Atlantic right whale catalogue
- Conduct inshore and offshore surveys of marine mammals
- Use of DIGITS (Digital Image Gathering and Information Tracking System) for image processing and Logger software for survey data collection
- Operation and maintenance of R/V Nereid (30'), R/V Galatea (47'), and RHIB

Marine Mammal Observer and Oceanographic Technician (June 2005)
R/V Tioga – WHOI, Woods Hole, MA

- Monitor waters for marine mammals, specifically the North Atlantic right whale
- Count and identify all marine mammals observed
- Photo-identification during TDR-tagging missions
- Oceanographic technician for sampling equipment (CTD, VPR, OPC, ADCP)

Marine Mammal Observer and Oceanographic Technician (April – May 2005)
R/V Albatross IV – NOAA and WHOI, Woods Hole, MA

- Monitor waters for marine mammals
- Count and identify all marine mammals observed
- 24-hour oceanographic sampling (CTD, VPR, OPC, ADPC)
- Zooplankton sampling in areas of feeding whales (MOCNESS)
- Photo-identification of large whale species
- Count and identify *Calanus finmarchicus* CV
- Assist with *C. finmarchicus* diapause and diel vertical migration studies (WHOI)
- Other objectives of cruise:
- TDR-tagging of North Atlantic right whales
- Biopsy sampling of large whale species

Marine Mammal Observer
Sakonnet River Bridge Demolition (February 2007)
Jamestown Bridge Demolition (April – November 2006)
Whale Center of New England – Gloucester, MA (October 2004)
R/V Endeavor – Naval Research Laboratory (May – June 2003)

- Monitor waters for various marine mammal abundance surveys, acoustical experiments and impact mitigation surveys
- Count and identify all marine mammals observed

- Investigating potential habitat use areas for the North Atlantic right whale

Assistant Aquarist- Marine Mammal Husbandry – Cetaceans (2001; 2002)
Volunteer – Marine Mammal Husbandry – Cetaceans (2000 – 2005)
Volunteer – Marine Mammal Husbandry – Pinnipeds (2002 – 2005)
Volunteer – Marine Mammal and Sea Turtle Stranding Program (2000 – 2005)
Mystic Aquarium – Institute for Exploration, Mystic, CT

- Involvement with marine mammal stranding response and rehabilitation programs
- Assist with necropsies of stranded marine mammals/collection of Level A data
- Facilitate medical procedures and restraints
- Assist with diet preparation, exhibit maintenance, animal feedings, enrichment, and training projects with marine mammals, e.g. beluga whales, Atlantic bottlenose dolphins, California sea lions, Atlantic and Pacific harbor seals, Northern fur seals, Stellar sea lions, walruses
- Assist in aquarium research
- Monitor life support systems
- Involvement in both open presentations and one-on-one beluga contact sessions, educating the public on the biology and ecology of the beluga whale

Research Assistant (2002 – 2003)
MERL laboratory (Candace Oviatt) – Graduate School of Oceanography, Narragansett, RI

- Prepare, run and analyze samples associated with water quality analysis of the Massachusetts Bay
- Chlorophyll *a* and Phaeophytin
- Total Suspended Solids
- Dissolved Inorganic Carbon
- Productivity - ^{14}C

Penguin Colony Associate (2002 – 2003)
New England Aquarium, Boston, MA

- Assist with diet preparation, exhibit maintenance, and animal feedings with African, Rockhopper, and Little Blue Penguins
- Record daily food intake of each individual penguins' diet
- Involvement in colony presentations educating public on 3 different species of penguins housed in the exhibit

Animal Caretaker/Ranger (2001)
Billabong Sanctuary, Townsville, QLD, Australia

- Husbandry of specialized Australian native animals such as koalas, wombats, and echidnas as well as a full range of native birds and reptiles
- Performed animal shows and educated the public about the biology and ecology of native Australian animals

Undergraduate Research Program (2001)
James Cook University, Townsville, Australia

- Collect samples and data for various on-going studies conducted in the Great Barrier Reef, Australia
- Scuba-dive daily for data collection on coral reef habitats

Veterinary Technician (2000)
Lansingbury Animal Hospital, Lansingburg, NY
Aquaduct Animal Hospital, Niskayuna, NY

- Performed preparatory surgical procedures and assisted during surgery
- Conducted blood work
- Analyzed laboratory specimens

- Prepared and administered medications

EDUCATION EXPERIENCE:

Private Tutor (2011 – present)
In home one-on-one private tutoring for middle school, high school and college students

- Provides one-on-one tutoring for a variety of middle school, high school and college subjects including basic math, geometry, trigonometry, algebra, pre-calculus, earth science, biology, chemistry, organic chemistry, physics, marine science, oceanography, SAT and ACT prep

Research Assistant (2006 – present)
Woods Hole Oceanographic Institution, Woods Hole, MA

- Outreach education programs for the general public and GK-12 level
- Science fair mentor and judge for both the Falmouth school district and Falmouth Academy
- Developed a curriculum, Whales vs. Humans, for the 6th to 8th grade MA schools which parallels the already-existing Human Body Systems curriculum – *in the process of being published*

Teaching Assistant (2010)
School of Marine and Atmospheric Sciences, Stony Brook University, Stony Brook, NY

- Assisted professor with 300-level undergraduate class
- Responsible for all grading and composing weekly quizzes
- Ran a boat-based laboratory once a week (without professor supervision)
- Responsible for class during professor's absence

Narragansett Bay Classroom – Marine Mammal Scientist (2002 – 2005)
Narragansett Bay Classroom – Underwater Scientist (2004 – 2005)
Graduate School of Oceanography, University of Rhode Island, Narragansett, RI

- Present marine mammal and underwater science programs to classrooms of various ages (K-12)

Teaching Assistant (2004 – 2005)
Graduate School of Oceanography, University of Rhode Island, Narragansett, RI

- Assist professor with instruction of 400-level college oceanography course and a 100-level honors natural science course
- Teach lectures when professor is absent

Marine Educator (2004)
Mystic Aquarium – Institute for Exploration, Mystic, CT

- Developed and instructed a variety of marine science summer camps (ages 5 to 17)
- Handled and cared for education animal collection

NSF Graduate Teaching Fellowship in K-12 Education (2003 – 2004)
Narragansett Pier School (Charlene Paskoski) – 7th grade Life Sciences

- Prepare and teach lessons on marine and environmental science while incorporating inquiry-based methodology into the life sciences curriculum
- Integrate technology into classroom activities

Winter Percussion Director (2007 – 2009)
Falmouth High School, Falmouth, MA

- Directed a novice group of percussionists and colorguard members in preparation for competition in the local indoor winter percussion arena
- Responsible for music selection and the writing of all choreography and drill
- Built a new program from the bottom-up, including fundraising, purchasing of new equipment, etc.

Colorguard Instructor (2002 – 2009)
Woonsocket High School, Woonsocket, RI
Falmouth High School, Falmouth, MA

- Trained and conditioned first-time high school colorguard enthusiasts to expertly perform in a full field season (competitions, football games and parades)
- Choreographed all routines

American Heart Association CPR and First Aid Instructor (1999 – 2009)
University of Rhode Island, Kingston, RI

- Instruct all age groups and professions in CPR and First Aid

Teaching Assistant for BIO 130 and URI 101 (1999 – 2000)
University of Rhode Island, Kingston, RI

- Acted as a mentor for freshman in both marine biology (BIO 130) and other majors (URI 101) as well as facilitated activities to acclimate students to campus life

Instructor - Preschool Recreational and Educational Program (P.R.E.P.) (1999; 2000)
Town of Rotterdam, Schenectady, NY

- Facilitated group activities
- Provided a safe and pleasant environment in which children may learn and play

PUBLICATIONS: **Patrician, M.R.** and R.D. Kenney. 2010. Using the continuous plankton recorder to investigate the absence of North Atlantic right whales (*Eubalaena glacialis*) from the Roseway Basin foraging ground. *Journal of Plankton Research* 32: 1685-1695.

Patrician, M.R., I.S. Biedron, H.C. Esch, F.W. Wenzel, L.A. Cooper, P.K. Hamilton, A.H. Glass, M.F. Baumgartner. 2009. Evidence of a North Atlantic right whale calf (*Eubalaena glacialis*) born in northeastern waters. *Marine Mammal Science* 25(2): 462-477.

POPULAR ARTICLES: **Patrician, M.R.** 2008. The world of plankton. *In*: *Irminger Sea: Where the Arctic meets the Atlantic.* 2 pp. http://www.whoi.edu/page.do?pid=28975

Kenney, R.D. and **M.R. Patrician**. 2004. A visitor from the north:
Harp seal sighted in the Narrow River. *Narrow River Notes 2004 (spring)*: 3-4.

SCIENCE PRESENTATIONS: **North Atlantic Right Whale Consortium Meeting – 2012**
Right whale diving and foraging behavior in the Gulf of Maine
Baumgartner, M., N. Lysiak, F. Wenzel, ***M. Patrician****, S. Mussoline*

EURO-BASIN Training Workshop on Optical Methods in Plankton Taxonomy – 2012
In situ *imaging of mesoplankton using the Video Plankton Recorder*
Patrician, M.R. *& C.S. Davis*

Joint Special Workshop of the Acoustical Society of America and the American Fisheries Society – 2011
Multiple frequency acoustic backscatter discrimination of zooplankton and fish scatterers in Cape Cod Bay in Spring 2010.
Warren, J.D. & ***M.R. Patrician***

North Atlantic Right Whale Consortium Meeting – 2010
Correlation of zooplankton prey abundance and distribution with the behavior of tagged right whales in Cape Cod Bay during Spring 2010.

Warren, J.D., S.E. Parks, ***M.R. Patrician****, A. Bocconcelli, D. Wiley*

North Atlantic Right Whale Consortium Meeting – 2007
*Evidence of a North Atlantic right whale calf (*Eubalaena glacialis*) born in northeastern U.S. waters*
Patrician, M.R.*, I.S. Biedron, H.C. Esch, F.W. Wenzel, L.A. Hall, A.H. Glass, M.F. Baumgartner*

Biennial Conference of the Society for Marine Mammalogy – 2005
An investigation of the factors underlying the abandonment of the Roseway Basin feeding ground by the North Atlantic right whale (Eubalaena glacialis): 1993-1999
Patrician, M.R. *& R.D. Kenney*

North Atlantic Right Whale Consortium Meeting – 2005
An investigation of the factors underlying the abandonment of the Roseway Basin feeding ground by the North Atlantic right whale (Eubalaena glacialis): 1993-1999
Patrician, M.R. *& R. D. Kenney*

OUTREACH PRESENTATIONS:
Sachem Elementary School – 2012
Mount Sinai High School – 2011; 2013
Stony Brook High School – 2011
Stony Brook Middle School – 2011
Locust Valley High School – 2011
Massachusetts Audubon Society – 2008; 2009
Rhode Island Audubon Society – 2008
Woods Hole Science School – 2007; 2008; 2010
Whale and Dolphin Conservation Society / Dolphinfleet workshop for Naturalists – 2007; 2008; 2009

HONORS:
Friends of Chatham Waterways Environmental Studies Scholarship: 2011
Who's Who in America: 2010; 2011; 2012
NSF Graduate Teaching Fellowship in K-12 Education: 2003
Phi Beta Kappa National Honor Society: 2002
University of Rhode Island Centennial Scholarship: 1998-2002
University of Rhode Island Dean's List: 1998-2002
National Dean's List: 2001
FOCA Upper New York State Scholarship: 1999; 2001
FOCA William Fekula Scholarship: 1998; 2000
Robert A. Rainville Team Leadership Award – Emergency Medical Services: 1999
National Society for Collegiate Scholars
Golden Key National Honor Society
Phi Eta Sigma Freshman Honor Society

MEMBERSHIPS:
American Association for the Advancement of Science (AAAS)
Society for Marine Mammalogy
American Cetacean Society
Phi Beta Kappa National Honor Society

SKILLS:

ZOOPLANKTON ECOLOGY:
Zooplankton sample collection (ring net, bongos, IKMT, MOCNESS, DAVPR, VPRII, OPC, LOPC , ES60, EK60, ADCP), sample analysis/species enumeration & identification (biovolume, microscope, silhouette photography)

OCEANOGRAPHIC INSTRUMENTATION:
CTD, OPC, LOPC, DAVPR, VPRII, ES60, EK60, ADCP, Bathyphotometer, RATS, MOCNESS, Bongo Net, Ring Net, IKMT, Transmissometer, Fluorometer, Hydroscat, OBS

MARINE MAMMAL RESEARCH:

Skilled marine mammal observer, Photo-ID, necropsy, biopsy training

OCEAN / BOATING SAFETY:

Small Boat Operator Certificate of Competency, U.S. Power Squadron Boating Safety Course,
Sea Survival and Safety for Oceanographic Scientists, WHOI Small Boat Operator, Forklift Operation

COMPUTER SKILLS:

Matlab, IDL, R, GIS, EndNote, SAS, Ocean Data View, Adobe Creative Suite, Microsoft Office Suite

LANGUAGE SKILLS:

Limited proficiency in Spanish and Italian

MEDICAL SKILLS:

Emergency Medical Services experience, AHA CPR and First Aid instructor

DIVING SKILLS:

PADI Basic and NAUI Advanced Diving certifications

FIELD WORK:

Work at sea on the following cruises involved zooplankton sample collection with traditional sampling methods (*ring nets, bongos, MOCNESS, pumps*), optical sampling methods *(DAVPR,VPRII, OPC, LOPC)* and acoustical sampling methods *(ES60, EK60, ADCP).* I was also involved in marine mammal observations on 15 of these cruises. As the cruise coordinator for 24 cruises, my responsibilities included preparing instruments and equipment for cruises, packing all equipment and supplies, loading and staging the ship, launch, recovery, and operation of oceanographic sampling gear and instrumentation, collection of samples and managing data collection while at sea, analyzing at-sea samples and conducting on-board experiments, post-cruise breakdown of equipment and maintenance of instruments, processing samples post-cruise.

SARS2013_107 – Euro-Basin North Atlantic (2013): R/V G.O.SARS – Woods Hole Oceanographic Institution
FK003 – Trans-North Atlantic (2012): R/V Falkor – Woods Hole Oceanographic Institution
LMG1110 – Southern Ocean (2011): R/V Laurence M. Gould – Stony Brook University
GOMexOil – Gulf of Mexico, LA (2010): NOAA Ship Thomas Jefferson – Woods Hole Oceanographic Institution
RWTag10 – Cape Cod Bay, MA (2010): R/V Stellwagen – Stony Brook University
MudMuri10– Freshwater Bayou, LA (2010): Woods Hole Oceanographic Inst.
Hudson09 – Hudson River, NY (2009): Woods Hole Oceanographic Institution
NF0907 – Stellwagen Bank, MA (2009): R/V Nancy Foster – Woods Hole Oceanographic Institution
Skagit09 – Skagit River, WA (2009): Woods Hole Oceanographic Institution
RWTag09 – Stellwagen Bank, MA (2009): R/V Auk – Stony Brook University
MVCO_ASIT – Martha's Vineyard, MA (2007-09): R/V R&R – Woods Hole Oceanographic Institution
OC449_09 – St. Thomas, U.S.V.I. (2008): R/V Oceanus: Woods Hole Oceanographic Institution
KN194_04 – Irminger Sea, Iceland (2008): R/V Knorr – Woods Hole Oceanographic Institution
MVCO_ASIT – Martha's Vineyard, MA (2007): R/V R&R – Woods Hole Oceanographic Institution
VPRCal – Cape Cod Bay, MA (2007): R/V Oceanus – Woods Hole Oceanographic Institution
Barrow07 – Beaufort Sea, AK (2007): Woods Hole Oceanographic Institution
DE0708 – Gulf of Maine, MA (2007): NOAA Ship Delaware II – Woods Hole Oceanographic Institution
SRBD07 – Portsmouth, RI (2007): University of Rhode Island
Tioga07_RW – Cape Cod Bay, MA (2007): R/V Tioga – Woods Hole Oceanographic Institution
AL0704 – Great South Channel, MA (2007): NOAA Ship Albatross IV – Woods Hole Oceanographic Institution
Tioga06_HW – Stellwagen Bank, MA (2006): R/V Tioga – Woods Hole Oceanographic Institution
Tioga06_RW – Cape Cod Bay, MA (2006): R/V Tioga – Woods Hole Oceanographic Institution
JBD06 – Jamestown, RI (2006): University of Rhode Island
AL0606 – Great South Channel, MA (2006): NOAA Ship Albatross IV – Woods Hole Oceanographic Institution
AL0602 – Gulf of Maine, MA (2006): NOAA Ship Albatross IV – NOAA Northeast Fisheries Science Center
Lubec05 – Bay of Fundy, Canada (2005): R/V Nereid – New England Aquarium
CSI05 – Roseway Basin, Canada (2005): R/V Galatea – New England Aquarium
Tioga05_RW – Cape Cod Bay, MA (2005): R/V Tioga – Woods Hole Oceanographic Institution

AL0505 – Great South Channel, MA (2005): NOAA Ship Albatross IV – Woods Hole Oceanographic Institution
OCG561 – Narragansett Bay, RI (2003): Cap't Bert – University of Rhode Island
TREX Cruise – New Jersey Shelfbreak, NJ (2003): R/V Endeavor – University of Rhode Island
Jiffy Cruise – Narragansett Bay, RI (2002): Cap't Bert – University of Rhode Island