

# Alicia Susan Miller

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National Marine Fisheries Service  
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## Education

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### University of Massachusetts Dartmouth

North Dartmouth, MA

- M.S. Marine Science and Technology – awarded 2010  
- Thesis title: Effects of Lobster Shell Disease on Egg Quality in Buzzards Bay.

### The George Washington University

Washington, DC

- B.S. Biology – awarded 2003

## Work Experience

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### NOAA Fisheries

#### Protected Species Branch

Woods Hole, MA

*Quantitative Modeler*

2020-Present

- Lead developer for North Atlantic right whale risk reduction Decision Support Tool.
- Work with scientists and managers within NOAA and academia to develop an understanding of fishing gear and model the risks to large whale species.
- Develop a Shiny app for the Decision Support Tool to allow industry and the public to run risk scenarios of fishing gear and whale habitat models.

### NOAA Fisheries

#### Population Dynamics Branch

Woods Hole, MA

*Fisheries Biologist*

2012-Present

- Lead analyst for Northern shrimp and Atlantic hagfish.
- Handle data retrievals/manipulation GIS related requests, conduct statistical analyses, prepare data visualizations, and assist with stock assessments.
- Develop new methods for data visualization (e.g. interactive figures, gifs, maps, web integration) and streamlining code for efficient reporting.
- Participate in research in support of fisheries stock assessments such as biological interactions, spatial and temporal trends, and effects of environmental variables.

### NOAA Fisheries

#### Atlantic Salmon Research and Conservation Task

Woods Hole, MA

*Fisheries Biologist*

2010-2012

- Develop and lead Atlantic salmon ecosystem-based surveys.
- Analysis of historic high seas Atlantic salmon tag-recapture data.
- Provide analytical support for projects on dam impacts on population dynamics of Atlantic salmon.
- Age and growth research on historic scales and assessment of aging methodology.

### NOAA Fisheries

#### Ecosystem Surveys Branch

Woods Hole, MA

*Fisheries Biologist*

2009-2010

*Biological Science Technician*

2005-2009

- Serve as supervisory scientist on various commercial fishing vessels and NOAA/NMFS research survey cruises sampling fishes and invertebrates of the NW Atlantic for age, maturation, genetic studies, and predator/prey interactions.
- Conduct at sea oceanographic sampling including zooplankton tows, CTD deployments, and water sampling techniques for ecosystem monitoring.

- Prepare and maintain oceanographic equipment, standardized fishing gear, sensor equipment, and data collection hardware used shipboard for survey cruises.
- Process and audit data collected at sea and provide reports for distribution, oversee GIS mapping projects, prepare charts, station location maps, and maintain GIS files and documentation.
- Manipulate data for various research projects and perform analysis including a vessel calibration study.

**Sea Education Association**  
*Assistant Scientist/Educator*

**Woods Hole, MA**  
*2005*

- Assisted chief scientist with oceanographic research while acting as an educator and mentor to college students aboard tall ships *Robert C. Seamans* and *Corwith Cramer*.
- Serve as watch chief among the science crew, operating various oceanographic equipment for the collection of physical, chemical, and biological data by deploying CTDs, rosette water casts, surface and midwater plankton tows, and sediment samplers.
- Performed various day-to-day crew duties, shipboard lab experiments, chemical titrations, and phytoplankton and zooplankton identification.

**NOAA Fisheries**

**Smithsonian Institution - National Systematics Laboratory**  
*Museum Technician*

**Washington, DC**  
*2003-2005*

- Dissect, measure, and assist with identification and curation of museum specimens of marine fishes and invertebrates.
- Catalog and preserve museum specimens and manage incoming and outgoing samples.
- Search and organize literature published on the research topics.
- Catalog journals for the cephalopod library. Prepare figures and plates for publication and presentation at professional meetings.
- Serve as scientist on various NOAA/NMFS survey cruises aboard the NOAA ship *Albatross IV*.

Related Experience and Activities

**Organizer – Falmouth Public Schools Outreach Event**

*June 2019*

- Designed, organized, and led an event for 90 kindergarten students to tour NEFSC facilities and undertake an interactive learning experience.

**Scientist – Juvenile Pacific Salmon Sampling Program**

*May 2011*

- Assisted in data collection and sampling of Pacific salmon, oceanographic data, and marine mammal and seabird observations off the coast of Oregon and Washington.

**Technician – Atlantic Sea Scallop Research Set Aside (RSA)**

*Aug. 2006*

- Assisted in data collection and scallop sampling for the on-going project: Increasing the Economic Return from the US Atlantic Sea Scallop Fishery and Preliminary Investigation of Marine Biotoxins in the US Atlantic Sea Scallop.

**Volunteer – Research on biodiversity of Tobago**

*June 2004*

- Participated as a scuba diver in research being conducted by members of the Smithsonian Institution and other universities on taxonomy, distribution, and ecology of sponge dwelling zooanthids and fishes of Tobago.

**Volunteer – Annual NOAA Fort McHenry Restoration Day**

*April 2004*

- Worked with members of the Baltimore Aquarium and the NOAA Restoration Center in the cleanup and replanting of a damaged wetland in Baltimore, MD.

**Student at Sea Education Association**

*Oct. 2002 – Jan. 2003*

- Spent six weeks at the Woods Hole campus followed by six weeks aboard tall ship *Robert C. Seamans* studying nautical sciences, navigation techniques, and oceanography. Carried out independent research on the study of the horizontal distribution of spiny lobster and eel larvae in the Eastern Pacific Ocean.

## Student in 'Tropical Marine Biology' Course

June 2002

- Course in San Salvador, Bahamas at the Gerace Research Center attending lectures, developing and carrying out experiments, and conducting field surveys on the ecology of coral reefs, intertidal zones, estuaries, salt lakes, blue holes, and tidal caves.

## Publications

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### Peer-Reviewed

**Miller, A.S.**, Shepherd, G.R., and Fratantoni, P.S. 2016. Offshore habitat preference of overwintering juvenile and adult black sea bass, *Centropristis striata*, and the relationship to year-class success. PLOS ONE 11(1): e0147627.

**Miller, A.S.**, Miller, T.J., Mills, K.E., and Sheehan, T.F. 2014. Retrospective analysis of Atlantic salmon (*Salmo salar*) marine growth and condition in the northwest Atlantic based on tag-recovery data. Fisheries Oceanography 23(2): 103-115.

**Miller, A.S.**, Cadrin, S.X., and Stevens, B.G. 2013. Effects of epizootic shell disease on egg quality of the American lobster. Journal of Crustacean Biology 33(4): 461-469.

**Miller, A.S.**, Sheehan, T.F., Renkawitz, M.D., Meister, A.L., and Miller, T.J. 2012. Revisiting the marine migration of US Atlantic salmon with historic Carlin tag data. ICES Journal of Marine Science 69(9): 1609-1615.

### Technical Reports

**Atlantic States Marine Fisheries Commission.** 2019. Data update for Gulf of Maine northern shrimp. 36 p.

**Atlantic States Marine Fisheries Commission.** 2018. Assessment report for Gulf of Maine northern shrimp. 82 p.

**Atlantic States Marine Fisheries Commission.** 2018. Northern shrimp benchmark stock assessment and peer review report. 356 p.

Sosebee, K., **Miller, A.**, O'Brien, L., McElroy, D., and Sherman, S. 2016. Update of thorny skate commercial and survey data. Northeast Fish. Sci. Cent. Ref. Doc. 16-08, 145 p.

**Miller, A.S.** and Terceiro, M. 2013. MS TOR 2: Spatial distribution of summer flounder and NEFSC trawl survey strata sets. 2013 SARC 57 Southern Demersal Working Group, Working Paper A8, 74 p.

**Miller, A.S.**, Sheehan, T.F., Spencer, R.C., Renkawitz, M.D., Friedland, K.D., and Meister, A.L. 2012. Description of the historic US Atlantic salmon (*Salmo salar* L.) tagging programs and subsequent databases. Northeast Fish. Sci. Cent. Ref. Doc. 12-13, 48 p.

Miller, T.J., Das, C., Politis, P.J., **Miller, A.S.**, Lucey, S.M., Legault, C.M., Brown, R.W., and Rago, P.J. 2010. Estimation of Albatross IV to Henry B. Bigelow calibration factors. Northeast Fish. Sci. Cent. Ref. Doc. 10-05, 233 p.

Brown, R.W., Lucey, S.M., and **Long, A.S.** 2009. Design and field data collection to compare the relative catchabilities of multispecies bottom trawl surveys conducted on the NOAA Ship *Albatross IV* and the FSV *Henry Bigelow*. NEFSC Bottom Trawl Survey

Calibration Peer Review. Working Paper. National Marine Fisheries Service, Northeast Fisheries Science Center, Woods Hole, MA. 11-13 August, 16 p.

### **Contributed Conference Papers**

**Miller, A.S.**, Shepherd, G., and Fratantoni, P.S. 2015. Offshore habitat preference of migrating juvenile and adult black sea bass, *Centropristis striata*, and the relationship to year-class strength. American Fisheries Society Annual Meeting, Portland, OR, 16-20 August.

**Miller, A.S.**, Sheehan, T.F., Renkawitz, M.D., Meister, A.L., and Miller, T.J. 2012. Revisiting the marine migration of US Atlantic salmon with historic Carlin tag data. 2012 Forum – Atlantic Salmon and their Ecosystems, Bangor, ME, 10-11 January.

**Miller, A.S.**, Sheehan, T.F., Renkawitz, M.D., Spencer, R.C., Meister, A.L., and Miller, T.J. 2012. Retrospective analysis of Atlantic salmon marine growth parameters in the northwest Atlantic based on tag-recovery data. 2012 Forum – Atlantic Salmon and their Ecosystems, Bangor, ME, 10-11 January.

**Miller, A.S.**, Sheehan, T.F., Renkawitz, M.D., Meister, A.L., and Miller, T.J. 2011. Revisiting the marine migration of US Atlantic salmon with historic Carlin tag data. NASCO/ICES Symposium, Salmon at Sea: Scientific advances and their implications for management, La Rochelle, France, 11-13 October.

**Miller, A.S.**, Sheehan, T.F., Renkawitz, M.D., Spencer, R.C., Meister, A.L., and Miller, T.J. 2011. Retrospective analysis of Atlantic salmon marine growth parameters in the northwest Atlantic based on tag-recovery data. American Fisheries Society Annual Meeting, Seattle, WA, 4-8 September.

**Long, A.S.**, Cadrin, S.X., Stevens, B.G. 2009. Potential effects of lobster shell disease on egg quality in Buzzards Bay: a biomass and biochemical approach. Ninth Northeast Fisheries Science Center Science Symposium, Newport, RI, 21-23 January.

**Long, A.S.** 2004. Observations on the systematics of *Etropus crossotus* Jordan & Gilbert 1882. Ninth Flatfish Biology Conference, Westbrook, CT, 1-2 December.

### **Other**

**Long, A.S.** 2008. American Ephemeris and Nautical Almanac. *In: Research and Discovery: Landmarks and Pioneers in American Science. Edited by R. Lawson. M.E. Sharpe, New York, 412-413.*

**Long, A.S.** 2008. Henry Bigelow. *In: Research and Discovery: Landmarks and Pioneers in American Science. Edited by R. Lawson. M.E. Sharpe, New York, 197-198.*

**Long, A.S.** 2008. National Oceanic and Atmospheric Administration. *In: Research and Discovery: Landmarks and Pioneers in American Science. Edited by R. Lawson. M.E. Sharpe, New York, 450-452.*

**Long, A.S.** 2008. Robert Peary. *In: Research and Discovery: Landmarks and Pioneers in American Science. Edited by R. Lawson. M.E. Sharpe, New York, 113-114.*

**Long, A.S.** 2008. U.S. Coast and Geodetic Survey. *In: Research and Discovery: Landmarks and Pioneers in American Science. Edited by R. Lawson. M.E. Sharpe, New York, 424-425.*

### Journal Peer-reviewer

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Aquaculture Environment Interactions  
Canadian Journal of Fisheries and Aquatic Sciences  
CCAMLR Science, Commission for the Conservation of Antarctic Marine Living Resources  
ICES Journal of Marine Science  
Marine and Coastal Fisheries  
North American Journal of Fisheries Management  
PLOS ONE  
River Research and Applications  
Transactions of the American Fisheries Society

### Grant Proposal-reviewer

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Saltonstall-Kennedy Grant Program, NOAA National Marine Fisheries Service  
Graduate Women in Science National Fellowship Program

### Skills

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- Field and task leader/instructor for students and colleagues of at-sea research and field sampling.
- Can handle basic laboratory research duties including chemical preparation, data recording, and the use of various land-based and vessel laboratory equipment;
- Proficient in at-sea research techniques including CTDs, hydrocasts, shipeck sediment sampling, surface and underwater plankton net tows, and sorting and sampling marine species from various net tows and dredges. (433 working sea days aboard research vessels from 11/2002 – present);
- PADI-certified Advanced Open Water Diver;
- Basic computer literacy and experience with the following software applications: Microsoft Office, Adobe Acrobat & Photoshop, EMu and Horizon (museum library and specimen cataloging software), Oracle SQL Developer, R, RStudio, AD Model Builder, Template Model Builder, Shiny, Leaflet, AutoCAD, LaTeX, ArcGIS, NOAA's SCS and FSCS data collection programs, and NOAA Fisheries Toolbox.

### Relevant Courses

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Animal Behavior	Genetics
Biological Oceanography*	History of Biology
Biology I & II	Invertebrate Zoology
Biostatistics	Marine Invertebrate Fisheries*
Biometry*	Marine Resource Economics and Policy*
Calculus	Nautical Science
Cell Biology	Oceanography I & II
Chemistry I & II	Organic Chemistry I & II
Developmental Biology	Physics I & II
Ecosystem Based Fisheries Management*	Physical Oceanography*
Fisheries Stock Assessment*	Stock Identification Methods*
Forensic Science	Tropical Marine Biology
General Ecology	Wetlands Ecology*

\*graduate courses