

Michael P. Acquafredda

Rutgers, The State University of New Jersey
Haskin Shellfish Research Laboratory
6959 Miller Ave., Port Norris, NJ 08349
E: Michael.Acquafredda@rutgers.edu
C: (732) 275-2793

EDUCATION

Rutgers, The State University of New Jersey, New Brunswick, NJ 08901

Ph.D. in Ecology and Evolution (Expected May 2020), advisor: Dr. Daphne Munroe
Cumulative GPA: 4.00

Tufts University, Medford, MA 02155

B.S. in Biology (May 2015), advisor: Dr. Kelly Laughlin; mentor: Dr. Jan Pechenik
Cumulative GPA: 3.81, *summa cum laude*

RESEARCH INTERESTS

Sustainable Shellfisheries & Aquaculture

Agro-ecology

Integrated Multi-trophic Aquaculture (IMTA)

Estuarine and Coastal Community Dynamics

Marine Conservation

Climate Change

RESEARCH EXPERIENCE

Graduate research, September 2015-present

Haskin Shellfish Research Laboratory, Rutgers University
September 2015-present

- Examining the interactions between *Crepidula fornicata* and *Crassostrea virginica* in the Delaware Bay
 - Exploring possible niche partitioning with fine-scale algae-depletion experiments and coarse-scale growth studies
- Optimizing surf clam (*Spisula solidissima*) aquaculture
 - Conducting nursery and grow-out phase experiments, which will test the effect of location and gear-type on the growth, condition, and survival of surf clams
 - Conducted nursery phase thermal tolerance experiments

- Assessing the efficacy of a novel filtration system used in an oyster aquaculture nursery raceway
 - Estimating seed oyster biomass, quantifying the abundance, size, and shape of seston using FlowCAM

Proficient in: bivalve husbandry (spawning, larval culture, nursery culture), compound light and dissecting microscopy, FlowCAM®- a dynamic image particle analyzer, YSI probe operation, Sea-Bird/WET Labs instrument operation

Supervised and trained field and lab technicians

Undergraduate research, September 2012 – May 2015

The Marine Invertebrate Lab of Dr. Jan Pechenik, Tufts University
September 2014 – May 2015

- Designed and implemented an independent research project
 - Investigated whether hypoxic conditions during brooding produce latent effects (effects that have their origins in early development, but manifest in juveniles or adults) in a pollution-indicating marine polychaete, *Capitella teleta*
 - Exposed *C. teleta* brood tubes to hypoxic ($1\text{mg O}_2\text{ L}^{-1}$) seawater and measure the following variables: days until hatching, number of larvae per tube, juvenile survival and growth weight
- Wrote final research findings and presented findings to the Tufts Biology Department
- Findings incorporated into a peer-reviewed publication currently *in press*.
See PUBLICATIONS

Duties included: marine polychaete (*C. teleta*) husbandry, dissecting microscopy, Strathkelvin Instruments oxygen meter operation

Supervised and trained an undergraduate student in *C. teleta* husbandry

The Organogenesis & Developmental Biology Lab of Dr. Kelly McLaughlin, Tufts University
September 2012 – August 2014

- Designed and implemented two independent research projects
 - 2a. Developed a damage model for human heart disease using the apoptosis-inducing kinase inhibitor, sorafenib, and *Xenopus laevis* tadpoles
 - 2b. Conducted sorafenib exposure experiments to assess and characterize its cardiotoxic effects on tadpole heart morphology and physiology
 - 1a. Investigated the role of the LIM-homeobox transcription factor, Xislet-1, in amphibian cardiogenesis

- 1b. Overexpressed the cardiac transcription factor, Xislet-1, in 8-celled *Xenopus laevis* embryos via bilateral microinjections of mRNA into the dorsal marginal zone
- Wrote final research findings and presented findings to the Tufts Biology Department

Duties included: Amphibian (*X. laevis*) husbandry, colorimetric and fluorescent immunohistochemistry, *in situ* hybridization, amphibian embryo microinjection, bacterial transformation, *in vitro* transcription and purification of DNA and RNA, gel electrophoresis, compound light and fluorescence microscopy

Supervised and trained undergraduate and graduate students in amphibian husbandry, amphibian embryo microinjection, and immunohistochemistry

PROFESSIONAL EXPERIENCE

Oyster Restoration Program Field and Facility Technician, May 2011 – August 2012
 NY/NJ Baykeeper, Keyport, NJ 07735

- Coordinated a feasibility study for the oyster restoration site at Naval Weapons Station Earle, Leonardo, NJ
 - Managed a three tank commercial-scale aquaculture system and monitored the set of 10,000 oyster larvae onto clam shells
- Surveyed the shoreline and sub-tidal zone of the Raritan Bay from Sandy Hook, NJ to Great Kills, Staten Island, NY
 - Collected water quality measurements, characterized bottom substrate, identified an array of marine organisms, and led volunteer groups

Duties included: bivalve husbandry (oyster hatchery, nursery, and grow-out techniques), YSI probe operation, Mid-Atlantic marine organism identification, leading volunteer group

TEACHING EXPERIENCE

| Course Name | Position | Summary | Semester Year |
|---------------------------------|--------------------|---|--------------------------|
| Biological Research Laboratory* | Teaching Assistant | Lectured, supervised, and advised students on basic laboratory skills, National Sanitation Foundation Water Quality Index analyses, and self-designed capstone projects | Fall 2015 Spring 2016 |

| Course Name | Position | Summary | Semester Year |
|-------------|--------------------|---|---------------|
| Aquaculture | Teaching Assistant | Supervised and advised students on applied projects focused on algal and oyster aquaculture | Spring 2016 |

All teaching was conducted at Rutgers University

*Student evaluations available upon request

PEER-REVIEWED PUBLICATIONS

Acquafredda, MP, Munroe, D, Calvo, LM, DeLuca, M. *Manuscript in preparation*.

Thermal tolerance of juvenile Atlantic surf clams (*Spisula solidissima*): a step towards diversifying the New Jersey aquaculture sector.

Pechenik, JA, Chaparro, O, Pilnick, A, Karp, M, **Acquafredda, MP**, Burns, R. *In press*.

Effects of Embryonic Exposure to Salinity Stress or Hypoxia on Post-metamorphic Growth and Survival of the Polychaete *Capitella teleta*. *Biological Bulletin*.

CONFERENCE POSTERS & PRESENTATIONS

Acquafredda, MP, Munroe, D, Calvo, LM, DeLuca, M. (*upcoming: October 27-28, 2016*).

Thermal tolerance of juvenile Atlantic surf clams (*Spisula solidissima*): a step towards diversifying the New Jersey aquaculture sector. American Fisheries Society: Mid-Atlantic Chapter Conference. Bordentown, NJ. Poster.

Acquafredda, MP, Munroe, D, Calvo, LM, DeLuca, M. (*upcoming: January 11-13, 2017*).

Thermal tolerance of juvenile Atlantic surf clams (*Spisula solidissima*): a step towards diversifying the New Jersey aquaculture sector. Joint Meeting of the Northeast Aquaculture Conference & Exposition and the 37th Milford Aquaculture Seminar. Providence, RI. Oral Presentation.

Acquafredda, MP, Munroe, D, Calvo, LM, DeLuca, M. (*upcoming: January 23-25, 2017*).

Thermal tolerance of juvenile Atlantic surf clams (*Spisula solidissima*): a step towards diversifying the New Jersey aquaculture sector. Partnership for the Delaware Estuary Science & Environmental Summit, Cape May, NJ. Poster.

Acquafredda, MP, Munroe, D, Calvo, LM, DeLuca, M. (*upcoming: March 26-30, 2017*).

Thermal tolerance of juvenile Atlantic surf clams (*Spisula solidissima*): a step towards diversifying the New Jersey aquaculture sector. National Shellfisheries Association 109th Annual Meeting. Knoxville, TN. Poster.

AWARDS

Sea-Bird Scientific Equipment Grant, 2016

Three (3) 37-SM MicroCAT Conductivity-Temperature Recorders, five (5) SBE 56 Temperature Loggers, and two (2) WET Labs ECO/FLNTU devices (one-year loan, equipment value totaled at ≈\$36,000)

Rutgers Ecology & Evolution Department Small Grant, 2016

“Interactions between *Crepidula fornicata* and *Crassostrea virginica* in the Delaware Bay”
\$1000 grant awarded to graduate students

Russell L. Carpenter Summer Internship Research Grant, 2014

“Developing a damage model for human heart disease using the small molecule kinase inhibitor, sorafenib, and *Xenopus laevis* tadpoles”
\$4000 stipend, awarded annually to one Tufts undergraduate

Art Weimer Memorial Award for Achievement in Grassroots Environmentalism, 2010

Awarded annually (NY/NJ Baykeeper)

MEMBER OF LEARNED SOCIETIES

American Fisheries Society (Mid-Atlantic Chapter), student member, 2015-present
National Shellfisheries Association, student member, 2016-present

ADDITIONAL SKILLS

Language: Intermediate Italian speaker

Computer: Microsoft Office, FlowCAM, ImageJ (Fiji), SPOT Imaging, R, OpenBUGS

Fieldwork: SCUBA (Basic open water- PADI certification)