SAMUEL STETSON URMY

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Education

2012 – : PhD, Marine and Atmospheric Sciences, Stony Brook University, Stony Brook, NY
Advisor: Dr. Joseph D. Warren

2009 – 2012: MS, Aquatic and Fishery Sciences, University of Washington, Seattle, WA
Temporal variability and bio-physical coupling in the pelagic fauna of Monterey Bay.
Advisor: Dr. John K. Horne

2004 – 2008: BS, Earth Systems, Oceans Track, Stanford University, Stanford, CA
Advisor: Dr. Fiorenza Micheli

2000 – 2004: Brookline High School, Brookline, MA

Publications

Parker-Stetter, S.L., **S.S. Urmy**, J.K. Horne, L. Eisner, E. Farley. *Factors affecting summer distributions of Bering Sea forage fish species: assessing competing hypotheses.* In review, Deep Sea Research II.

Urmy, S.S. , C.E. Williamson, T.H. Leach, S.G. Schladow, E.P. Overholt, J.D. Warren (2016). *Wildfire smoke changes the vertical distribution of zooplankton in an oligotrophic lake by reducing ultraviolet radiation*. Geophysical Research Letters 43, doi:10.1002/2016GL068533.

Urmy, S.S. and J.K. Horne (2016). *Multi-scale responses of micronekton to environmental variability in Monterey Bay, California*. Deep Sea Research I 113, 22-32.

Williamson, C.E., E.P. Overholt, J.A. Brentrup, R.M. Pilla, T.H. Leach, S.G. Schladow, J.D. Warren, **S.S. Urmy**, S. Sadro, S. Chandra, P.J. Neale (2016). *Sentinel responses to droughts, wildfires, and floods: effects of UV radiation on lakes and their ecosystem services*. Frontiers in Ecology and the Environment 14 (2), 102-109.

Parker-Stetter, S.L., J.K. Horne, **S.S. Urmy**, R.A. Heintz, L.B. Eisner, E.V. Farley (2015). *Vertical distribution of age-0 pollock during late summer: biophysical coupling or ontogenic shift?* Marine and Coastal Fisheries 7 (1) 349-369.

Urmy, S.S., J.K. Horne, D.H. Barbee (2012). *Measuring the vertical distributional variability of pelagic fauna in Monterey Bay*. ICES Journal of Marine Science 69 (2), 184-196.

Horne, J.K., **S.S. Urmy**, D.H. Barbee (2010). *Using sonar to describe temporal patterns of oceanic organisms from the MARS Observatory.* IEEE Oceans2010.

Presentations (* indicates speaker)

Urmy, S.S.* *Marine and atmospheric foraging ecology: Seabirds and fish on radar and sonar*. Stony Brook University School of Marine and Atmospheric Sciences Recruitment Symposium, March 2016.

Urmy, S.S.* *Animal movement in the field of desire: Theory and measurements for population-level movement models.* Workshop on movement ecology, Smithsonian Conservation Biology Institute, Front Royal, Virginia, September 2014.

Urmy, S.S.* and J.D. Warren. *Indirect calibration of backscatter measurements from acoustic Doppler current profilers, with application to Antarctic krill biomass estimation.* ICES Working Group on Fisheries Acoustics Science and Technology, New Bedford, MA, May 2014.

Urmy, S.S.* and J.D. Warren. *Model-based and in-situ observations of high-frequency (10s-100s kHz) acoustic scattering from multiple targets*. Acoustical Society of America, Providence, RI, May 2014.

Urmy, S.S.* *Deterministic behavior in a stochastic environment can yield animal trajectories with Lévy flight properties.* Stony Brook University School of Marine and Atmospheric Sciences Graduate Student Symposium, January 2012.

Parker-Stetter, S.L.,* J.K. Horne, E. Farley, **S.S. Urmy**, L. Eisner. *Evolving perceptions of forage fish distributions in the SE Bering Sea*. Alaska Marine Science Symposium, Anchorage, AK, January 2012.

Urmy, S.S.,* J.K. Horne, and D.H. Barbee. *Metrics to characterize vertical distributions of aquatic animals in large acoustic datasets*. Acoustical Society of America, Workshop on Acoustic Challenges in Aquatic Ecosystem Assessment, Seattle, WA, May 2011.

Barbee, D.H.,* J.K. Horne, **S.S. Urmy**, and R.B. Kreisberg. *Interfacing a scientific echosounder with a cabled ocean observatory*. Acoustical Society of America, Seattle, WA, May 2011.

Urmy, S.S.,* J.K. Horne, and D.H. Barbee. *Pelagic bio-physical coupling in Monterey Bay*. ICES Working Group on Fisheries Acoustics Science and Technology, Reykjavik, Iceland, May 2011.

Urmy, S.S.,* J.K. Horne, and D.H. Barbee. *Temporal variability in the vertical distribution of pelagic animals in Monterey Bay*. School of Aquatic and Fishery Sciences Graduate Student Symposium, Seattle, WA, November 2010.

Horne, J.K., **S.S. Urmy**,* and D.H. Barbee. *Using sonar to describe temporal patterns of oceanic organisms from the MARS Observatory*, IEEE Oceans 2010, Seattle, WA, September 2010.

Urmy, S.S.,* J.K. Horne, and D.H. Barbee. *Temporally-indexed patterns of pelagic fauna in Monterey Bay*. ICES Working Group on Fisheries Acoustics Science and Technology, San Diego, CA, April 2010.

Urmy, S.S.* *Monterey Bay midwater ecology: Long-term observations of the mesopelagic from the DEIMOS sonar observatory*. School of Aquatic and Fishery Sciences Graduate Student Symposium, Seattle, WA, November 2009.

Posters

Urmy, S.S., J.K. Horne, D.H. Barbee, and R.B. Kreisberg. *A year in the life of Monterey Bay*. School of Aquatic and Fishery Sciences Graduate Student Symposium, Seattle, WA, November 2010.

Urmy, S.S., J. McNally, J. Bartz, and R. Dubar. *The role of intra-island temperature variability at Palmyra Atoll in mass coral bleaching events.* American Geophysical Union Fall Meeting, San Francisco, CA, December 2008.

Teaching

Lectures on statistics and epidemiology. Two guest lectures for undergraduate class, "World Health and Disease," Dowling College, Fall 2015.

Lecture on spatial dependence, variograms, and kriging. Guest lecture for graduate class, "Modern Methods of Data Analysis in Marine and Atmospheric Sciences." Stony Brook University, Spring 2015.

Field trip and computer lab on internal waves, for undergraduate Physical Oceanography class. Planned and supervised field trip on R/V *Paumanok* to collect hydrographic data in Long Island Sound. Wrote and graded lab assignment based on analysis of this data. Stony Brook University, November 2014.

Lecture on dimensional analysis. Substitute lecture for undergraduate Physical Oceanography class. Stony Brook University, Fall 2013.

Teaching Assistant, undergraduate Physical Oceanography. Grading, office hours, supervised laboratory and field trips on university research vessel. Stony Brook University, Fall 2012.

Lecture on Good Coding Style and Practice. University of Washington graduate student R seminar, May 2011.

Lecture on Time Series Analysis. University of Washington graduate student R seminar, April 2011.

At-Sea Experience

Midwater Ecology Expedition, Monterey Bay, CA, August 2010
One week midwater ecology and respirometry cruise aboard Monterey Bay Aquarium Research Institute ship R/V Western Flyer. Diagnostic troubleshooting of ship's scientific echosounder. Chief Scientist: Bruce Robison, <robr@mbari.org>

Gulf of the Farallones/Cordell Bank National Marine Sanctuary Survey, April 2008
At-sea technician for Point Reyes Bird Observatory. Nine days aboard NOAA Ship McArthur II, mapping distribution of euphausiids with acoustics and Tucker trawls. Co-Chief Scientist: Jaime Jahnke, <jjahncke@prbo.org>

Sea Education Association Cruise S-211, Honolulu to Line Islands, May-June 2007
Research project relating coral health to water circulation at Chistmas Island and Palmyra Atoll, using temperature loggers and visual surveys. Sail- handling, steering, basic navigation, and deployment of oceanographic instruments. Co-Chief Scientist: Rob Dunbar, <dunbar@stanford.edu >

Other Research Experience

Radar Ornithology on Great Gull Island, NY, May-August 2014
Designed and executed summer-long program of visual and radar observations of common tern foraging behavior. Also designed hydroacoustic surveys for forage fish. Ad-hoc radar engineering, avoidance of bird attacks.

Response of Lakes to the Rim Wildfire, Tuolomne Co., CA, Sept. 2013-October 2014

Acoustic and net sampling of zooplankton from Zodiac in alpine lakes in the wildfire burn zone, near and inside Yosemite National Park. Field Leader: Brant Allen, <bcallen@ucdavis.edu>

Observations of Zooplankton Vertical Migration, Pocono Mts., PA, May 2013
Acoustic and net sampling of zooplankton in small lakes. Co-PI: Joe Warren, <joe.warren@stonybrook.edu>

Research Assistant/Analyst, University of Washington, September 2011- June 2012
Statistical modeling of juvenile pollock and forage fish distributions with respect to oceanography in the Eastern Bering Sea, as part of the North Pacific Research Board's Bering Sea Integrated Ecological Research Program. Supervisor: Sandra Parker-Stetter, <slps@u.washington.edu>

Hydroacoustic Data Processing, Stanford University, December 2007- June 2008
Undergraduate research assistantship in Kevin Arrigo's Ocean Biogeochemistry Lab, Department of Geophysics. Organization and quality control of 5 years of northern California krill surveys using Echoview. Supervisor: Ben Saenz, <blsaenz@stanford.edu>

Intern, Penobscot East Resource Center, Stonington, ME, July-September 2007
Researched history of commercial groundfishing in Maine. Compilation of National Marine Fisheries Service landings data, interviews of fishermen, and literature review. Preparation of written report. Supervisor: Aaron Dority, <aaron@penobscoteast.org>

Volunteer Field Work

Effects of Geoduck Aquaculture, South Puget Sound, WA, 2010-2011
Helped measure ecological impact of geoduck farming on benthic infauna and nearshore fish communities with core samples and beach seines. Kate McPeek, <katemcpeek@gmail.com>

Acoustic and seabird surveys, San Juan Islands, WA, August 2011
Aided labmate in 4-frequency acoustic survey of Cattle Pass in San Juan Is. from 13-foot Boston Whaler. Researcher: Emily Runnells, <esr4@u.washington.edu>

NOPP Tidal Energy Site Survey, Puget Sound, WA, June 2011
One day aboard R/V Centennial, acoustic/trawl survey of proposed tidal turbine site at Admiralty Inlet in Puget Sound. PI: John Horne, <jhorne@u.washington.edu>

Public Outreach

Quoted in *The Innermost Orbit*, by Carmen Winant. Article on Rossby waves in urban surf-culture magazine *WAX*, Issue 2, Fall 2012.

Oceanographer's Choice. General-interest blog on ocean science and research, maintained since May 2009. Three posts selected as "Editor's Choices" by Seed Media Group's ResearchBlogging.org. http://www.oceanographerschoice.com/

Seeing ecosystems: pattern, chaos, and scale. November 2010. General-audience talk at Salon Fremont, Seattle, WA (http://www.kaschaandjohn.com/salon/).

Open-Source Software

StateSpace.jl: Julia package for state-space modeling (i.e. Kalman, extended Kalman, and particle filters) for time series and dynamic systems.

https://github.com/ElOceanografo/StateSpace.jl

SDWBA.jl: Julia package implementing the stochastic distorted-wave Born approximation for sound scattering from fluid-like zooplankton, such as copepods and krill. Used to estimate target strengths for use in biomass estimation.

https://github.com/ElOceanografo/SDWBA.jl

Echometrics: Python package implementing a set of metrics to concisely describe the vertical distribution of acoustic backscatter in the water column.
https://github.com/ElOceanografo/EchoMetrics

PyCWT: Python module for continuous wavelet and cross-wavelet transforms, with significance testing. https://github.com/ElOceanografo/PyCWT

Awards and Honors

Stony Brook University SoMAS J.R. Schubel Graduate Fellowship 2016 ($3,000)

SBU Marine and Atmospheric Sciences Travel Award 2016 ($300)

American Museum of Natural History Frank M. Chapman Memorial Grant 2015 ($1,200)

American Museum of Natural History Frank M. Chapman Memorial Grant 2014 ($2,000)

Stony Brook University Graduate Council Fellowship ($50,000)

UW Fisheries Interdisciplinary Network of Students Travel Award ($150)

UW Graduate School Fund for Excellence and Innovation Travel Award ($1,000)

UW Graduate and Professional Student Senate Travel Award ($525)

UW Aquatic & Fisheries Sciences Victor and Tamara Loosanof Endowed Fellowship ($11,704)

UW Aquatic & Fisheries Sciences Claire L. and Evelyn S. Egtvedt Fellowship ($4,293)

UW Aquatic & Fisheries Sciences H. Mason Keeler Endowment for Excellence ($6,652)

Stanford School of Earth Sciences Dean's Award for Outstanding Academic Achievement

Professional Groups and Societies

Acoustical Society of America

American Fisheries Society

Association for the Sciences of Limnology and Oceanography

American Ornithologist's Union

ICES Working Group on Fisheries Acoustics Science and Technology

Skills

Computing: Linux, Macintosh, Windows

Programming: Python, R, and Julia, some Fortran, Matlab, and Java

Statistics: Classical statistics, regression, spatio-temporal statistics, Bayesian analysis

Myriax Echoview Fisheries Acoustics Software
PADI Open-Water Diver certification
Small-craft seamanship, piloting and navigation

Birth and Citizenship
January 3, 1986, Boston, MA, USA
Languages: English, conversational French

Other Work Experience
Line Cook, Vutera New York, NY, 2009
Line Cook, Little Giant New York, NY, 2008
Technical Intern, Opera House Arts Stonington, ME, 2003 and 2007
Line Cook/Caterer, Cachagua Store/A Moveable Feast Carmel Valley, CA, 2006-2007
Camp counselor, Camp Timanous Raymond, ME, 2001-2006.