

Julia E.F. Stepanuk

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Stony Brook University Department of Ecology and Evolution

Education

Stony Brook University	PhD Candidate – Ecology and Evolution Advisor: Dr. Lesley Thorne Focus: Balaenopterid predator-prey dynamics in the Northeastern United States	2017 - current
	Graduate Certificate - STRIDE (Science Training & Research to Inform Decisions)	2018 – 2020
	M.S. Marine Science Advisor: Dr. Lesley Thorne Focus: Spatiotemporal methods to reduce bycatch of short-finned pilot whales	2015 - 2017
University of Maine at Machias	GIS Certificate	2015
McGill University	B.Sc.(Agricultural and Environmental Science) Honours Environment - Concentration in Biological Water Environments and Ecosystems	2009 - 2013

Awards

2019 - Robert R. Sokal Award for Research in Statistical Ecology. Stony Brook University.
2018-19 - [STRIDE](#) NSF Research Trainee Fellowship. Stony Brook University.
2019-19 - Graduate Student Organization Professional Development Fund. Stony Brook University.
2017 - School of Marine and Atmospheric Science Travel Award. Stony Brook University.
2015 - Dean's Scholarship. Stony Brook University.
2015 - Maine GIS User Group Poster Competition. First Prize.
2012 - Murray and Eleanor McEwen Clean Water Scholarship. McGill University.
2011 - Merit Scholarship. Sea Education Association.

Publications

Lomac-MacNair, K., Pedro de Andrade, J., Esteves, E., Wisdom, S., Aerts, L.A., **Stepanuk, J.E.F.** 2021. Polar bear distribution and behavior response from vessel surveys in Northeast Chukchi Sea Summer and Fall 2008-2014. *Ursus*. [\[link\]](#)

Stepanuk, J.E.F., Heywood, E.I., Lopez, J., DiGiovanni, R.A., Thorne, L.H. 2021. Understanding the impacts of age-specific behavior on vulnerability to vessel strike in large whales. *Marine Ecology Progress Series*. [\[link\]](#)

Thorne, L.H., Baird, R.W., Webster, D.L., **Stepanuk, J.E.F.**, Read, A.J. 2019. Dynamic management of fisheries bycatch: A predictive model and field test of interactions between pilot whales and pelagic longlines. *Diversity and Distributions*. [\[link\]](#)

Stepanuk, J.E.F., Read, A.J., Baird, R.W., Webster, D.L., Thorne, L.H. 2018. Spatiotemporal patterns of overlap between short-finned pilot whales and the pelagic longline fishery in the Mid-Atlantic Bight: An assessment to inform the management of fisheries bycatch. *Fisheries Research*. [\[link\]](#)

Research Experience

Balaenopterid/Prey Modeling and Forecasting (2017 – present: Stony Brook University) – Quantitative analyst. PIs: Dr. Lesley Thorne, Dr. Janet Nye, Dr. Hyemi Kim. Geospatial modeling of balaenopterid abundance, prey, and applications using climatological forecast products for marine mammal management.

New York Offshore Monitoring Program (2017 – present: Stony Brook University) – Chief scientist and assistant scientist, drone pilot. PIs: Dr. Lesley Thorne, Dr. Joseph Warren, Dr. Janet Nye. Offshore surveys conducted 4x/year in the New York Bight. Data collection includes daytime marine mammal and seabird line transect sampling, CTD casts, zooplankton sampling, phytoplankton processing, fish trawls, and active fisheries acoustics. As able, behavioral and morphometric data are collected on marine mammals via drone. Members of the science party participate in all data collection.

Antarctic and Southern Ocean Coalition (2017: Washington, DC) – STRIDE Intern. Synthesis of open-source Antarctic Peninsula data and development of spatial maps and products for use by a non-profit Antarctic Organization as a decision support tool.

Pilot Whale Bycatch Mitigation (2015-2017: Stony Brook University) – Quantitative analyst. PIs: Dr. Lesley Thorne, Dr. Andrew Read. Geospatial dynamic modeling & analyses of short-finned pilot whales and pelagic longline fishing effort to address pilot whale bycatch reduction. Fieldwork: marine mammal satellite and DTAG tracking.

University of Maine at Machias GIS Capstone (2014-15: Machias, ME) – Client: Dr. Sean Todd. Creation of data model for 24 years of humpback whale sightings. Analyses include relating sea surface temperature frontal shifts to humpback whale foraging behaviors in the Gulf of Maine.

Galbraith Lab (2012-13: McGill University) – Advisor: Dr. Eric Galbraith. Honours Thesis: All of the fish in the sea: a global size-based biomass survey of marine ecosystem models.

McGill School of Environment Capstone (Fall 2012: McGill University) – Advisor: Dr. Frederic Fabry. Client: Dr. Charles Francis, Environment Canada. Creation of automated algorithm to isolate bird echoes from weather Doppler radar in Sainte Anne de Bellevue, QC.

Sea Education Association: Oceans and Climate Program (Fall 2011: Woods Hole, MA / Honolulu, HI to Tahiti, French Polynesia. S-238). Project: Size composition of salps in the Equatorial Pacific Ocean as a function of phytoplankton abundance.

Bennett Lab (2011-12: McGill University). Advisors: Dr. Elena Bennett / Dr. Matthew Mitchell. Research Asst: Sample processing for project on forest fragmentation and provision of ecosystem resources.

Field Experience

Lynch Lab & Oceanites (2019-present: Stony Brook University) – Field assistant. PI: Dr. Heather Lynch. Collection of penguin census data and gentoo penguin blood samples in the Falkland Islands, South Georgia, and the Antarctic Peninsula.

Atlantic Marine Conservation Society (2018-present: Long Island, NY) – Volunteer. Marine mammal necropsy (*E. glacialis* x2, *G. macrorhynchus* x2).

New York Urban Gull Project (2016 – present; Stony Brook University) – Field assistant. PI: Dr. Lesley Thorne. Capture-recapture study of herring gull and great black back gull foraging dynamics in the New York region using satellite tags and biological sampling.

Allied Whale Research Organization (Summers 2005-2015: Bar Harbor, ME) – Volunteer. Cetacean photo-identification, marine mammal / seabird transects, strandings response, necropsies (*D. delphis*, *G. griseus*, *P. macrocephalus*, *M. novaeangliae*, *B. acutorostrata*). Remote field experience at The Mount Desert Rock Marine Research Station.

Bar Harbor Whale Watch Company (2014-15: Bar Harbor, ME) – Guide/naturalist. Guide for whale watch and nature cruise trips. Disseminated natural history, geology, marine biology, and other oceanographic information to passengers in the Gulf of Maine.

Bar Harbor Whale Watch Company (Summer 2008, '11, '13, '14, '15: Bar Harbor, ME) – Deckhand/Senior Deckhand. Crew on 3 catamarans (capacity 140-440 passengers), maintenance, drills. Duties include overseeing operations of ship's crew, liaison between crew and captains.

Sea Education Association (Jan 2014: Woods Hole, MA) – 3rd Assistant Scientist

Duties: standing watch/maintaining the wet and dry labs, preventative maintenance, science education and communication.

Sea Education Association (Jul 2013- Feb 2014: Woods Hole, MA) – Deckhand/Asst. Engineer. SSV. *Robert C. Seamans*. Performed daily sailing and maintenance responsibilities, including student education. 1-month assistant engineer position in shipyard.

STV Unicorn (Summer 2012: Northeast U.S.) – Crew and educator aboard 1947 tops'l schooner, the only all-female crewed traditionally-rigged vessel in the American Sail Training Association fleet. Safety Officer. Shipyard maintenance included.

University of Maine (Summer 2010: Bar Harbor, ME) – Advisor: Dr. Kaitlyn Allen

Research/Field Assistant: Acoustic study of humpback whales documenting surface behaviors and underwater vocalizations in the Gulf of Maine. Field Work: Acoustics

The Dolphin Institute (2X 2-week internship, 2007-'08: Maui, HI) – PI: Dr. Adam Pack

Volunteer: Photo-identification of *Megaptera novaeangliae*, assisted with in-water research, field data collection.

Teaching Experience

Guest Lecturer –

MAR 395: Field Techniques in Marine Mammal Science. Stony Brook University. 2020.

MAR 370/550: Marine Mammals. Stony Brook University. 2 lectures. 2020.

Teaching Assistant –

BIO 351: Ecology. Tutored, graded assignments and projects, and led an outdoor lab for 120 undergraduate students. Proctored and graded midterm and final exams. Stony Brook University. 2017.

BIO 205: Fundamentals of Scientific Inquiry in the Biological Sciences IIA. Led weekly introductory biology lab for 24 undergraduate students. Graded written reports and papers. Proctored lab practical and final exams. Stony Brook University. 2016.

MAR 370/550: Marine Mammals. Graded projects, midterm and final exams for 70 undergraduate students. Proctored midterms and final exams. Assisted with marine mammal necropsy demonstration. Stony Brook University. 2015.

Posters & Presentations

Stepanuk, J., Nye, J., Kim, H., Roberts, J., Halpin, P., Palka, D., Pabst, A., McLellan, W., Barco, S., Thorne, L. 2020. Assessing the utility of subseasonal forecasts as a management tool for predicting cetacean distributions in the Northeast United States. *Ecological Society of America Annual Meeting*. Salt Lake City, Utah. USA. Remote attendance. *Invited Presentation*.

Stepanuk, J., Nye, J., Kim, H., Thorne, L. 2020. Applications of subseasonal surface temperature forecasts to marine mammal management. *NOAA Marine Prediction Task Force Monthly Meeting*. Remote. *Presentation*.

Stepanuk, J., Thorne, L. 2020. Does the foraging behavior and habitat use of juvenile humpback whales increase their risk of vessel strike? *Stony Brook University Department of Ecology and Evolution Annual Retreat*. Stony Brook, NY. *Presentation*.

Stepanuk, J., Nye, J., Kim, H., Roberts, J., Halpin, P., Palka, D., Pabst, A., McLellan, W., Barco, S., Thorne, L. 2019. Using prey availability and environmental covariates to forecast humpback and fin whale distributions in the Northeast United States. *2nd World Marine Mammal Conference*. Barcelona, Spain. *Presentation*.

Stepanuk, J., Chong-Montenegro, C., Nye, J., Kim, H., Roberts, J., Halpin, P., Palka, D., Pabst, A., McLellan, W., Barco, S., Thorne, L. 2019. Developing short-term forecasts of marine mammal

distributions in the Northeast United States. *Ecological Forecasting Initiative Conference*. Washington, D.C. USA. *Poster*.

Nye, J., Chong-Montenegro, C., Thorne, L., **Stepanuk, J.** 2019. Targeting bycatch: Predicting fish species overlap in the Northwest Atlantic Ocean. *American Fisheries Society Southern New England Chapter Winter Science Meeting*. Storrs, CT. USA. *Poster*.

Stepanuk, J., Read, A., Baird, R., Webster, D., Thorne, L. 2017. Spatial overlap of short-finned pilot whales and pelagic longlines in the Mid-Atlantic Bight of the United States: Towards a spatiotemporal approach to reducing bycatch. *22nd Biennial Conference on Marine Mammals*. Halifax, NS. Canada. *Poster*.

Thorne, L., Baird, R., Webster, D., **Stepanuk, J.**, Read, A. 2017. A predictive model and field test of interactions between short-finned pilot whales and a pelagic longline fishery. *22nd Biennial Conference on Marine Mammals*. Halifax, NS. Canada. *Presentation*.

Stepanuk, J., Read, A., Baird, R., Webster, D., Thorne, L. 2017. Spatial Overlap and Predictive Modeling of Pilot Whale-Longline Interactions in the Mid-Atlantic Bight: Towards a Spatiotemporal Approach to Reducing Bycatch. *American Fisheries Society Annual Meeting*. Tampa, FL. USA. *Presentation*.

Stepanuk, J., Johnson, T., Todd, SK., Klyver, Z. 2014. Clustering of cetaceans in the central Gulf of Maine: A factor of temperature and thermal fronts? *Maine GIS User Group Conference*. Portland, ME. USA. *Poster*.

Stepanuk, J. 2013. All of the fish in the sea: A global size-based biomass survey of marine ecosystem models. *McGill School of Environment Honours Symposium*. Montreal, QC. Canada. *Presentation*.

Cabana-Wong, A., Bhatia, D., Gibb, N., Neal, B., **Stepanuk, J.** 2012. Automating bird detection using Canadian Weather Radar. *McGill School of Environment Capstone Symposium*. Montreal, QC. Canada. *Presentation*.

Allen, JK., Wright, D., Sharrard, GV., **Stepanuk, J.**, Walk, DG., Todd, SK., Peterson, ML. 2011. Acoustic barriers to shipstrike avoidance: Comparing mysticete acoustic activity in the northeast Gulf of Maine with in-situ recordings of oncoming vessels. *19th Biennial Conference on Marine Mammals*. Tampa, FL. USA. *Presentation*.

Science Communication

[Alan Alda Center for Communicating Science](#) (2016-2020) – Graduate training courses taken in science communication training, online and media, communicating science to decision makers, decision support training, and tools for dissemination to the public.

[Oceanites](#) (2020) – Educator and scientist on board international tourism vessels, conduct science communication and education for public, collect data for Antarctic Site Inventory.

Public talks: MV Fram (2020), Montauk Lighthouse historical association (2021)

Service

Society for Marine Mammalogy Northeast United States Student Chapter (2018-present) – Co-founding member. Organization of events and dissemination of information about the Society for Marine Mammalogy. Hosting of events for undergraduate and high school age students to increase awareness of marine science.

Department of Ecology and Evolution Diversity, Equity, Inclusivity and Anti-racism (DEIA) committee (2020-present) – Graduate student member. Organization and implementation of initiatives within the department to increase inclusivity and to foster a hospitable environment for members from diverse backgrounds.

Department of Ecology and Evolution DEIA Activism and Education sub-committee (2020-present) – Graduate student member. Organization of initiatives to increase education and awareness within the department of campus or community initiatives. Role: Organize and maintain database of DEIA resources, disseminate information via email or journal club as needed.

WINGS – Women IN GeoSciences (2016-2019) – Volunteer and participant. This Presidential Mini-Grant focused on exploring barriers and developing mentoring strategies to promote retention and advancement of women in STEM careers. Volunteer for organization and execution of workshops, speaker series, and breakout sessions. Participant in all activities hosted by WINGS.

Media

TBR News Media (2021) – in print and [online](#).

Newsday (2020) – in print and [online](#).

Stony Brook University Press (2020) – [online](#).

Blogs – GEMM lab [blog](#) (Dr. Leigh Torres; 2018), Thorne Lab [blog](#) (Dr. Lesley Thorne; ongoing), McGill School of Environment [Newsletter](#) (2012)

Certifications/Other

• FAA Part 107 Unmanned Aerial Vehicle License (Commercial drone license; 2018-2022) • Science translation and communication: verbal and written • Shipboard marine mammal survey leader • Photo-Identification (DSLR) • Small boat handling • Sea time (>720 days) • Computer skills: ESRI programs, R, Adobe Photoshop, Python, beginner MATLAB, beginner ENVI • Deployment of Oceanographic Equipment: Rosette, CTD, phytoplankton tows, neuston tows, 1m and 2m diameter tows, shipek grab • Marine Basic Safety Training (2014) • First Aid /CPR/AED/Oxygen (2014) • PADI Open Water SCUBA (2011) •