

BRENDAN SHEA

brendan@brendandshea.com | Blacksburg, VA

EDUCATION

Virginia Tech, Blacksburg, VA

August 2020 – Present

PhD Candidate, Fisheries and Wildlife Sciences

GPA: 3.95

Interfaces of Global Change Fellow, Global Change Center

Advisor: Dr. Francesco Ferretti

Northeastern University, Boston, MA

September 2017 – December 2018

Master of Science, Marine Biology – Northeastern Three Seas Program

GPA: 3.93

Thesis Advisor: Dr. Austin Gallagher, Beneath the Waves

- Thesis: *Swimming scared: Exposure to white sharks affects the behavior of mobile fish species along a dynamic coastal landscape.*

Colorado College, Colorado Springs, CO

September 2007 – May 2011

Bachelor of Arts, Environmental Science

GPA: 3.15

- Thesis: *Influence of temperature on radial growth of *Picea engelmannii* at tree line*

PROFESSIONAL EXPERIENCE

Graduate Assistant

August 2020 – Present

Ferretti Lab, Department of Fish and Wildlife Conservation, Virginia Tech, Blacksburg, VA

Marine Protected Areas (MPAs)

- Led research project synthesizing RFMO reports and vessel tracking data to estimate shark catch and mortality in shark sanctuaries (published in *Science Advances*).
- Investigating home range and space use in large marine predators to better inform location and size of future MPAs.

Mediterranean White Sharks

- Collaborated with multi-national team from several institutions to plan and execute three multi-week research expeditions in the Sicilian Channel.
- Led deep sea and mid-water pelagic baited remote underwater video and fishing operations; worked with researchers from other institutions to develop tagging protocols.
- Deployed first satellite tag on juvenile mako shark in the region.
- Evaluating potential nursery areas using disparate data streams and habitat models.

Freshwater Pond Management

- Managing all aspects of an ongoing pond management program integrated into undergraduate curriculum, including leading catch-and-release sampling events.

Research Manager / Research Associate

June 2018 – Present

Beneath the Waves, Cape Cod, MA

- Joined organization as intern to complete thesis research for MSc; full-time employee during 2019 field season (Research Manager); Research Associate since 2020.
- Significant research experience in the Caribbean (>10 expeditions, including serving as science lead for 15 days on a 137-foot vessel) and New England (led >60 days of research in the region).
- Led all field activities for four graduate students' thesis research during 2019 research season.

Project Engineer / Environmental Health & Safety Specialist

January 2012 – August 2017

The Vertex Companies, Inc., Weymouth, MA

PEER-REVIEWED PUBLICATIONS

- 19) VanCompernelle M, Morris J, ...**Shea BD**, ...and Sequeira AMM. "Vulnerability of marine megafauna to global at-sea anthropogenic threats." In Press. *Accepted at Conservation Biology*
- 18) **Shea BD**, Chapple TK, ...and Ferretti, F. "First satellite track of a juvenile shortfin mako shark (*Isurus oxyrinchus*) in the Mediterranean Sea." 2024. *Frontiers in Marine Science*, 11: 1423507
- 17) Ferretti F, **Shea BD**, ... and Chapple TK. "On the tracks of White Sharks in the Mediterranean Sea." 2024. *Frontiers in Marine Science*, 11: 1425511
- 16) Braun CD, Della Penna A, ...**Shea BD**, ...and Thorrold SR. "Linking vertical movements of large pelagic predators with distribution patterns of biomass in the open ocean." 2023. *Proceedings of the National Academy of Sciences*, 120(47): e2306357120
- 15) **Shea BD**, Gallagher AJ, Bomgardner LK, and Ferretti F. "Quantifying longline bycatch mortality for pelagic sharks in western Pacific shark sanctuaries." 2023. *Science Advances*, 9(33): eadg3527
- 14) Shipley ON, Matich P, ...**Shea BD**, ...and Gallagher, AJ. Energetic connectivity of diverse elasmobranch populations—implications for ecological resilience. 2023. *Proceedings of the Royal Society B*, 290(1996): 20230262
- 13) Jenrette JF, Jenrette JL, ...**Shea BD**, ...and Ferretti F. "Detecting Mediterranean white sharks with environmental DNA." 2023. In *Frontiers in Ocean Observing: Emerging Technologies for Understanding and Managing a Changing Ocean*, Oceanography 36 (Supplement 1)
- 12) Halpern BS, Boettiger C, ...**Shea BD**, ...and Youngflesh C. "Priorities for synthesis in ecology and environmental science." 2023. *Ecosphere*, 14(1), p.e4342
- 11) Gallagher AJ, Brownscombe J, ...**Shea BD**, ...and Duarte C. 2022. "Tiger sharks guide the characterization of the world's largest seagrass ecosystem" *Nature Communications*, 13(1):1-10
- 10) Harding L, Gallagher AJ, ...**Shea BD**, ...and Payne N. 2022. "Capture heats up sharks." *Conservation Physiology*, 10(1):coac065
- 9) Andrzejczek SA, Lucas T, ...**Shea BD**, ...and Curnick D. 2022. "Diving into the vertical dimension of elasmobranch movement ecology." *Science Advances*, 8(33): eabo1754
- 8) Jorgensen SJ, Micheli F, White TD, ...**Shea BD**, ...and Ferretti F. 2022. "Emergent research and priorities for elasmobranch conservation." *Endangered Species Research*, 47: 171-203
- 7) **Shea BD**, Coulter SK, ...and Gallagher AJ. 2022. "Recreational fishing fight times are not correlated with physiological status of blue sharks (*Prionace glauca*) in the Northwestern Atlantic." *Fisheries Research*, 248: 106220
- 6) Bates AE, Primack RB, ...**Shea BD**, ...and Duarte CM. 2021. "Global COVID-19 lockdown highlights humans as both threats and custodians of the environment." *Biological Conservation*, 263: 09175
- 5) Gallagher AJ, Alsudairy NA, **Shea BD**, Payne NL, and Duarte CM. 2021. "First application of 360-degree camera technology to marine predator bio-logging." *Frontiers in Marine Science*, 8: 707376
- 4) **Shea BD** and Gallagher AJ. 2021. "Humpback Whale Instigates Object Play with a Lion's Mane Jellyfish." *Oceans*, 2: 386-392
- 3) Gallagher AJ, Shipley ON, ...**Shea BD**, ... and Duarte, CM. 2021. "Spatial connectivity and drivers of large shark habitat use within a large marine protected area in the Caribbean." *Frontiers in Marine Science*, 7: 608848
- 2) **Shea BD**, Benson CW, ...and Gallagher AJ. 2020. "Effects of exposure to large sharks on the abundance and behavior of mobile prey fishes along a temperate coastal gradient." *PLoS ONE*, 15(3): e0230308
- 1) Benson CW, **Shea BD**, ...Gallagher AJ. 2019. "Physiological consequences of varying white shark exposure on Striped Bass (*Morone Saxatilis*)." *Canadian Journal of Zoology*, 97(12):1195-202

PRESENTATIONS

Shea BD, Gallagher AJ, Bomgardner LK, and Ferretti F. “Using Big Data to test the effects of spatial protections in remote island shark sanctuaries” *Sharks International*, October 10, 2022.

Shea BD, Gallagher AJ, Bomgardner LK, and Ferretti, F. “Using Big Data to test the effects of spatial protections in remote island shark sanctuaries” *Ocean Sciences Meeting*, March 2, 2022.

Shea BD and Gallagher AJ “Acoustic telemetry reveals deep-water habitat use of large sharks in The Bahamas.” *Ocean Tracking Network Symposium*, November 16, 2021.

Shea BD, Harding L, Kattan S, Shipley ON, Hammerschlag N, Payne NL, and Gallagher AJ “Deep Water Habitat Use of Tiger Sharks in the Bahamas.” *Bahamas Natural History Conference*, August 19, 2020.

Shea BD. “Swimming scared: Exposure to white sharks affects the behavior of mobile fish species along a dynamic coastal landscape.” Thesis defense presented to the Northeastern University Marine Science Center in partial fulfillment of the requirements of the degree of Master of Science, December 7, 2018.

FUNDRAISING/GRANTS/AWARDS

- Dwight Chamberlain Graduate Wildlife Fellowship, Department of Fish and Wildlife Conservation, College of Natural Resources and Environment, Virginia Tech – 2023-2024
- Robert D. Ross Graduate Scholarship, American Fisheries Society, Virginia Chapter – 2021-2022
- Burd Sheldon McGinnes Fellowship, Department of Fish and Wildlife Conservation, College of Natural Resources and Environment, Virginia Tech – 2021-2022

SERVICE

Professional memberships

- American Fisheries Society, Student Chapter at Virginia Tech
- The Oceanography Society

Peer review for following journals:

- Frontiers in Marine Science (one manuscript in 2023)
 - Currently serving as Topic Editor for the Research Topic “New Observations on the Behavior, Ecology, and Biology of Sharks and Rays”
- Conservation Biology (one manuscript in 2023)
- Endangered Species Research (one manuscript in 2022, two in 2021, two in 2020)
- Journal of Fish Biology (one manuscript in 2022)
- Deep-Sea Research Part II (one manuscript in 2022)
- Northeastern Naturalist (one manuscript in 2021)

Student leadership

- Interfaces of Global Change (IGC) Interdisciplinary Graduate Education Program
 - IGC Curriculum Committee Student Representative, 2023-2024
- Fish & Wildlife Graduate Student Association at Virginia Tech
 - Senator to Virginia Tech Graduate and Professional Student Senate, 2022-2023
 - Member of the Graduate Student Budget Board
 - Webmaster, 2021-2022
- American Fisheries Society Student Chapter at Virginia Tech
 - Treasurer, 2022-2023

TEACHING EXPERIENCE

Graduate Teaching Assistant

Department of Fish and Wildlife, Virginia Tech, Blacksburg, VA

Mammalogy

Fisheries Management

Fish Ecology

Fall 2020

Spring 2021/2023/2024

Spring 2023

OUTREACH / MEDIA

- Multiple first authored publications featured online by Forbes (March 2022, December 2024)
- Safety diver / shark handler, Discovery show “Dr. Pimple Popper Pops Shark Week” (July 2021)
- Guest writer, Discovery.com, “[Deep-Sea Divers: Tiger Sharks of the Bahamas](#)” (August 2020)
- “Sharks Rule!”, children’s program for Mansfield Public Library, Mansfield, MA (August 2020).
- Featured expert on Answered by Vox, available on Quibi (August 10, 2020)
- “Risk Effects of Large Sharks”, webinar presented via Beneath the Waves’ “Shark Talks” on Facebook Live during the COVID-19 pandemic (April 10, 2020).
- Led Camp Thayer’s “Shark Camp” for two weeks in Summer 2019.

WORKSHOPS

- National Center for Ecological Analysis and Synthesis, “Future of Synthesis in Ecology and Environmental Science” virtual workshop, February 2021
- Bahamas National History Conference, Panelist for “Into the Deep” Session, Summer 2020

RELEVANT SKILLS

- **FIELD:** PADI certified Open Water Diver; significant research diving experience (>200 dives); served as safety diver during television production; significant experience with all aspects of fishing for, restraining and tagging large sharks (>200 sharks, >10 species), including acoustic transmitters (internal and external), satellite tags (finmount and tethered), animal-borne cameras, multi-sensor bio-logging, mark-recapture tagging, and biological sample collection (blood, muscle, tissue) and analysis (including in-field analysis for blood glucose, lactate, and pH); benthic, mid-water and deep-sea (acoustic release) BRUV design, deployment, and retrieval; acoustic telemetry array installation and maintenance; eDNA sample collection and filtering; sediment coring for organic carbon and historical ecology analyses.
- **COMPUTER/QUANTITATIVE:** Significant programming experience in R statistical software, including frequentist and Bayesian approaches, notably: GLM/GLMM, GAM/GAMM, GLS, SLR/MLR, state-space modeling, fisheries stock assessment models, spatial analysis, environmental synthesis/big data approaches, machine learning, network analysis, PERMANOVA and non-multidimensional scaling; moderate experience in PostgreSQL, Google BigQuery, ArcGIS/QGIS, Python. Proficient in Microsoft Office Suite, significant experience with BRUV annotation and analysis.
- **LABORATORY:** Dissolved ion and gas chromatography; fish dissections; titrations; incubations; eDNA filtration, PCR and Western Blot; separation of blood plasma and cells.
- **EXPEDITIONS:** Experience both leading and participating in dedicated research expeditions to the Bahamas (>10 trips); Turks and Caicos (one trip); and the Sicilian Channel (three trips).
- **LANGUAGE:** English (native); Spanish (advanced; significant experience using professionally).

CERTIFICATIONS

- PADI-certified Open Water Diver
- Wildlife First Aid/CPR/AED Certified