(Bea) Lynn Combs-Hintze, M.Sc.

I'm an oceanographer and ecologist who uses acoustic seafloor mapping technology — multibeam bathymetry, water column and backscatter – to understand habitats we can't otherwise see or measure often enough. My growing abilities in hydrography are backed by strong GIS and data analysis skills built across various research projects, and plenty of time on the water doing vessel-based fieldwork.

I'm also a writer and educator at heart — I am happiest finding a shared story and common ground, as well as distilling dense, technical ideas or scientific concepts for whoever's in the room, whether that's a review panel or a classroom. And I never stopped thinking like an artist: mapmaking, visual storytelling, and design are as much a part of how I work as the sonar is.

EDUCATION

Doctor of Philosophy, Oceanography, Hydrography (*in progress* expected May 2027)
University of South Florida, College of Marine Science, St. Petersburg, FL
Dissertation: Linking Acoustic Mapping to Ecological Function in Tampa Bay Seagrass Meadows
Master of Science, Marine Resource Assessment (2018)
University of South Florida, College of Marine Science, St. Petersburg, FL
Bachelor of Science, Biology, minors in Studio Art and Environmental Science (2012)
University of Mary Washington, Fredericksburg, VA

PROFESSIONAL APPOINTMENTS

- **Research Assistant** Center for Ocean Mapping and Innovative Technology (COMIT) 2021–2025
    - Developed autonomous surface vehicle (ASV) and multibeam echosounder (MBES) acoustic classification protocols for shallow-water seagrass habitat mapping in Tampa Bay
    - Prototype MBES surveys at Lassing Park using Kongsberg EM2040P 400 kHz system; production of first paired acoustic-video ground-truth dataset for seagrass classification at centimeter-scale resolution
    - Development of machine learning classifiers (Random Forest) for benthic percent cover, canopy height, and species composition from backscatter and water column data
    - Cross-disciplinary coordination with engineers, ecologists, geologists, and agency partners for Fall 2023 and Summer 2024 Tampa Bay habitat mapping fieldwork
- **Research Assistant, Fisheries and Ecosystem Ecology Lab** USF CMS 2019–2021
    - Developed generalized additive models for seagrass habitat affinity; ecosystem modeling; manatee and sea turtle life history integration
- **Contractor** USGS Coastal Marine Science Center, St. Petersburg, FL 2017–2018
    - Bayesian network analysis of coastal geomorphological change; Kalman filter translation (MATLAB to Python)
- **Biological Scientist** Florida Fish and Wildlife Research Institute (FWRI), Marine Mammal and Turtle Research 2012–2016
    - QA/QC of manatee and sea turtle research data; GIS habitat mapping and distribution analysis; led development of sea turtle research database and front-end application (OASIS)

PUBLICATIONS

- *Unpublished white paper in progress*, Combs-Hintze, B. L., et al. Acoustic validation of multibeam sonar and ASV TREVOR for seagrass mapping at centimeter-scale resolution, University of South Florida.
- Combs-Hintze, B., Hostetler, J. A., Calleson, C. S., Bassett, B. L., Ainsworth, C. H., & Martin, J. (2025). Using community-reported data to understand how boat speed affects marine wildlife: An example with the Florida manatee. Ecological Solutions and Evidence, 6, e70058. https://doi.org/10.1002/2688-8319.70058
- Perryman, H., Scott, R.L., Combs-Hintze, B.L., Repeta, H.C., Masi, M., Kaplan, I., and Ainsworth, C.H. (2023). An Atlantis Ecosystem Model for the Gulf of Mexico with Updates to 2023. *NOAA Technical Memorandum NMFS-SEFSC* (under review).
- Combs, B.L. (2018). Quantifying the Probability of Lethal Injury to Florida Manatees Given Characteristics of Collision Events. USF Master's Thesis. *Graduate Theses and Dissertations*. https://scholarcommons.usf.edu/etd/7488.

INVITED TALKS

2025 | "Seeing Structure in the Shallows – Bridging the Resolution Gap with Sonar, Video, and Community-Scale Habitat Mapping" – GeoHab International Conference, *Virtual*, Key West, Florida, US

2024 | "Measuring Seagrass Dynamics with Multibeam Sonar" — GeoHab International Conference, Arendal, Norway

2023 | "Ecological Modeling of Seagrass Habitats in Tampa Bay" — GeoHab International Conference, La Réunion, France

2022 | "Updating Bathymetry Improves Ecological Models of Seagrass" — NOAA-USF COMIT Annual Meeting

2021 | "Improving Representation of Seagrass Meadows in Ecological Models" — NOAA-USF COMIT Annual Meeting

2021 | "Assessing Changes in Seagrass Meadow Ecosystems Under HAB Scenarios" — USF CMS Graduate Student Symposium

2014 | "An Online Sea Turtle Research and Monitoring Information System (OASIS)" — International Sea Turtle Symposium, New Orleans

FIELD AND VESSEL EXPERIENCE

- **NOAA R.V. Nancy Foster:** Multibeam acoustic and backscatter surveys, Blake Plateau/Atlantis Ocean | 2023, 2026
- **USF R.V. Weatherbird / R.V. Hogarth:** Multibeam, video-trawl, CTD, and plankton-trawl operations, Gulf of Mexico | 2019, 2025, 2026
- **Tampa Bay:** Small-craft and ATV multibeam bathymetry testing | 2021
- Extensive small-vessel and offshore experience in Florida, the Caribbean, and Pacific Ocean.

TECHNICAL EXPERIENCE

- **Hydrography:** Working knowledge of multibeam bathymetry, acoustic backscatter, hydrographic surveying, data QA/QC; Kongsberg 2040P; QPS Qimera/Qinsy; CARIS HIPS & SIPS; Kongsberg SIS; Fledermaus
- **GIS & Spatial Analysis:** Advanced proficiency in ArcGIS and QGIS; spatial analysis, cartography, and geospatial data management

- **Programming & Data Analysis:** Working proficiency in Python and R; MATLAB, JAGS, WinBUGS, C/C++, GitHub, statistical and Bayesian analysis

RECOGNITION

NOAA National Sea Grant College Program Award | 2014
Hydrographic Society of America Conference Scholarship | 2024
GEOHAB Ron McDowell Student Support Award | 2023
USF Young Fellowship Program Fund — $13,000 (2022); $16,000 (2024)