

Scott Isaac Large

CHIEF, ECOSYSTEM DYNAMICS AND ASSESSMENT BRANCH

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Education

2011	Ph.D. Marine Biology	Texas A&M University
2008	M.S. Biology	Texas A&M University – Corpus Christi
2006	B.A. Biology	Hendrix College

Employment history

2018–present	Chief , Ecosystem Dynamics and Assessment Branch – Northeast Fisheries Science Center
2014–2018	Professional Officer , Advice Department – International Council for the Exploration of the Sea (ICES)
2011–2014	Postdoctoral Researcher , Integrated Statistics, Inc & Northeast Fisheries Science Center

OTHER POSITIONS

2023–present	United States Representative , ICES Advisory Committee
2022–present	Adjunct faculty , Massachusetts Maritime Academy
2017–2017	Stock Assessment Consultant , United Nations Food and Agriculture Organization (FAO)

Publications

PHD THESIS

1. Large, S. I. (2011). *Biogeographic patterns, predator identity, and chemical signals influence the occurrence and magnitude of non-lethal predator effects* [PhD thesis]. Texas A&M University; Texas A&M University.

REFEREED RESEARCH PAPERS

1. Ward, E. J., Anderson, S. C., Barnett, L. A., English, P. A., Berger, H. M., Commander, C. J., Essington, T. E., Harvey, C. J., Hunsicker, M. E., Jacox, M. G., et al. (2024). Win, lose, or draw: Evaluating dynamic thermal niches of northeast pacific groundfish. *PLOS Climate*, 3(11), e0000454.
2. Thorson, J. T., Andrews III, A. G., Essington, T. E., & Large, S. I. (2024). Dynamic structural equation models synthesize ecosystem dynamics constrained by ecological mechanisms. *Methods in Ecology and Evolution*, 15(4), 744–755.
3. Haugen, J., Link, J., Cribari, K., Bundy, A., Dickey-Collas, M., Leslie, H., Hall, J., Fulton, E., Levenson, J. J., Parsons, D., et al. (2024). Marine ecosystem-based management: Challenges remain, yet solutions exist, and progress is occurring. *NPJ Ocean Sustainability*, 3(1), 7.
4. Friedland, K. D., Fratantoni, P., Silver, A., Brady, D. C., Gangopadhyay, A., Large, S. I., Morse, R. E., Townsend, D. W., Friedrichs, M. A., & Melrose, D. C. (2024). Changing source waters on the northeast US continental shelf: Variation in nutrient supply and phytoplankton biomass. *Continental Shelf Research*, 281, 105319.
5. Badger, J., Large, S., & Thorson, J. (2023). Spatio-temporal species distribution models reveal dynamic indicators for ecosystem-based fisheries management. *ICES Journal of Marine Science*, 80(7), 1949–1962.
6. Karp, M. A., Link, J. S., Grezlik, M., Cadrin, S., Fay, G., Lynch, P., Townsend, H., Methot, R. D., Adams, G. D., Blackhart, K., Barceló, C., Buchheister, A., Cieri, M., Chagaris, D., Christensen, V., Craig, J. K., Cummings, J., Damiano, M. D., Dickey-Collas, M., ... Voss, R. (2023). Increasing the uptake of multispecies models in fisheries management. *ICES Journal of Marine Science*, 80(2), 243–257. <https://doi.org/10.1093/icesjms/fsad001>
7. Saba, V., Borggaard, D., Caracappa, J. C., Chambers, R. C., Clay, P. M., Colburn, L. L., Deroba, J., DePiper, G., Pontavice, H. du, Fratantoni, P., et al. (2023). NOAA fisheries research geared towards climate-ready living marine resource management in the northeast united states. *PLoS Climate*, 2(12), e0000323.
8. Saba, V., Borggaard, D., Caracappa, J., Clay, P., Colburn, L., Collins, M., Cudney, J., Deroba, J., DePiper, G., Fratantoni, P., et al. (2023). *Northeast regional action plan to implement the NOAA fisheries climate science strategy through 2024*.

9. Caracappa, J. C., Beet, A., Gaichas, S., Gamble, R. J., Hyde, K. J., Large, S. I., Morse, R. E., Stock, C. A., & Saba, V. S. (2022). A northeast united states atlantis marine ecosystem model with ocean reanalysis and ocean color forcing. *Ecological Modelling*, 471, 110038.
10. Friedland, K. D., Langan, J. A., Large, S. I., Selden, R. L., Link, J. S., Watson, R. A., & Collie, J. S. (2020). Changes in higher trophic level productivity, diversity and niche space in a rapidly warming continental shelf ecosystem. *Science of the Total Environment*, 704, 135270.
11. Bastille, K., Hardison, S., deWitt, L., Brown, J., Samhouri, J., Gaichas, S., Lucey, S., Kearney, K., Best, B., Cross, S., et al. (2020). Improving the IEA approach using principles of open data science. *Coastal Management*, 49(1), 72–89.
12. Samhouri, J. F., Andrews, K. S., Fay, G., Harvey, C. J., Hazen, E. L., Hennessey, S. M., Holsman, K., Hunsicker, M. E., Large, S. I., Marshall, K. N., et al. (2017). Defining ecosystem thresholds for human activities and environmental pressures in the california current. *Ecosphere*, 8(6), e01860.
13. Tam, J. C., Link, J. S., Rossberg, A. G., Rogers, S. I., Levin, P. S., Rochet, M.-J., Bundy, A., Belgrano, A., Libralato, S., Tomczak, M., et al. (2017). Towards ecosystem-based management: Identifying operational food-web indicators for marine ecosystems. *ICES Journal of Marine Science*, 74(7), 2040–2052.
14. Tam, J. C., Link, J. S., Large, S. I., Andrews, K., Friedland, K. D., Gove, J., Hazen, E., Holsman, K., Karnauskas, M., Samhouri, J. F., et al. (2017). Comparing apples to oranges: Common trends and thresholds in anthropogenic and environmental pressures across multiple marine ecosystems. *Frontiers in Marine Science*, 4, 282.
15. Coro, G., Large, S., Magliozzi, C., & Pagano, P. (2016). Analysing and forecasting fisheries time series: Purse seine in indian ocean as a case study. *ICES Journal of Marine Science*, 73(10), 2552–2571.
16. Tam, J., Link, J., Large, S., Bogstad, B., Bundy, A., Cook, A., Dingsør, G., Dolgov, A., Howell, D., Kempf, A., et al. (2016). A trans-atlantic examination of haddock melanogrammus aeglefinus food habits. *Journal of Fish Biology*, 88(6), 2203–2218.
17. Friedland, K. D., Record, N. R., Asch, R. G., Kristiansen, T., Saba, V. S., Drinkwater, K. F., Henson, S., Leaf, R. T., Morse, R. E., Johns, D. G., et al. (2016). Seasonal phytoplankton blooms in the north atlantic linked to the overwintering strategies of copepodsSeasonal plankton blooms and zooplankton that diapause. *Elementa: Science of the Anthropocene*, 4.
18. Coll, M., Shannon, L., Kleisner, K. M., Juan-Jordá, M., Bundy, A., Akoglu, A., Banaru, D., Boldt, J. L., Borges, M., Cook, A., et al. (2016). Ecological indicators to capture the effects of fishing on biodiversity and conservation status of marine ecosystems. *Ecological Indicators*, 60, 947–962.
19. Fu, C., Large, S., Knight, B., Richardson, A. J., Bundy, A., Reygondeau, G., Boldt, J., Van Der Meeren, G. I., Torres, M. A., Sobrino, I., et al. (2015). Relationships among fisheries exploitation, environmental conditions, and ecological indicators across a series of marine ecosystems. *Journal of Marine Systems*, 148, 101–111.
20. Fay, G., Link, J. S., Large, S. I., & Gamble, R. J. (2015). Management performance of ecological indicators in the georges bank finfish fishery. *ICES Journal of Marine Science*, 72(5), 1285–1296.
21. Friedland, K. D., Leaf, R. T., Kane, J., Tommasi, D., Asch, R. G., Rebuck, N., Ji, R., Large, S. I., Stock, C., & Saba, V. S. (2015). Spring bloom dynamics and zooplankton biomass response on the US northeast continental shelf. *Continental Shelf Research*, 102, 47–61.
22. Friedland, K. D., Leaf, R. T., Kristiansen, T., & Large, S. I. (2015). Layered effects of parental condition and larval survival on the recruitment of neighboring haddock stocks. *Canadian Journal of Fisheries and Aquatic Sciences*, 72(11), 1672–1681.
23. Kleisner, K. M., Coll, M., Lynam, C. P., Bundy, A., Shannon, L., Shin, Y.-J., Boldt, J. L., Diallo, I., Fox, C., Gasquel, D., et al. (2015). Evaluating changes in marine communities that provide ecosystem services through comparative assessments of community indicators. *Ecosystem Services*, 16, 413–429.
24. Large, S. I., Fay, G., Friedland, K. D., & Link, J. S. (2015). Critical points in ecosystem responses to fishing and environmental pressures. *Marine Ecology Progress Series*, 521, 1–17.
25. Large, S. I., Fay, G., Friedland, K. D., & Link, J. S. (2015). Quantifying patterns of change in marine ecosystem response to multiple pressures. *PLoS One*.
26. Fay, G., Large, S. I., Link, J. S., & Gamble, R. J. (2013). Testing systemic fishing responses with ecosystem indicators. *Ecological Modelling*, 265, 45–55.
27. Large, S. I., & Smee, D. L. (2013). Biogeographic variation in behavioral and morphological responses to predation risk. *Oecologia*, 171(4), 961–969.
28. Large, S. I., Fay, G., Friedland, K. D., & Link, J. S. (2013). Defining trends and thresholds in responses of ecological indicators to fishing and environmental pressures. *ICES Journal of Marine Science*, 70(4), 755–767.

29. Large, S. I., Torres, P., & Smee, D. L. (2012). Behavior and morphology of nucella lapillus influenced by predator type and predator diet. *Aquatic Biology*, 16(2), 189–196.
30. Large, S. I., Smee, D. L., & Trussell, G. C. (2011). Environmental conditions influence the frequency of prey responses to predation risk. *Marine Ecology Progress Series*, 422, 41–49.
31. Large, S. I., & Smee, D. L. (2010). Type and nature of cues used by nucella lapillus to evaluate predation risk. *Journal of Experimental Marine Biology and Ecology*, 396(1), 10–17.

Presentations

INVITED TALKS

- Invited speaker, *Transitioning basic research into applied fisheries science and management*, Dauphin Island Sea Lab, Dauphin Island, November 2022.
- Workshop leader, *Delineating the Issues of Climate Change and Impacts to Marine Ecosystems: Bridging the Gap Between Research, Assessment, Policy and Management*, IMBER–ClimEco4, Shanghai, June 2014.
- Workshop leader, *Introduction to Generalized Additive Modeling*, RARGOM–Community Learning Series, Woods Hole, April 2013
- Invited speaker, *Quantifying trends and thresholds in responses of ecological indicators to the combined effects of fishing and environmental pressures*, Colorado State University, Fort Collins, March 2013
- Invited speaker, *Delineating ecosystem overfishing via analysis of ecosystem indicator inflection points*, 2nd ICES/PICES conference for early career scientists. Mallorca, April 2012

Awards

2007–2010	Addison E. Verril Award for Marine Biology	\$13,600
2009–2009	TAMU-CC Parents Council Travel Grant	\$1,000
2011–2011	TAMU-CC ELITE Travel Grant	\$2,000
2012–2012	ICES/PICES Early Career Scientist Travel Award	\$500
2020–2020	NEFSC Deputy’s Award	—

Grants

2020–2023	SI Large. “A framework for incorporating ecosystem and socioeconomic information into the fish advice process”. <i>Funding from Magnuson-Stevens Act Implementation Funds</i>	\$420,000
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