

DISENTANGLING RECRUITMENT AND GROWTH DYNAMICS OF THE ATLANTIC SEA SCALLOP, *PLACOPECTEN MAGELLANICUS*

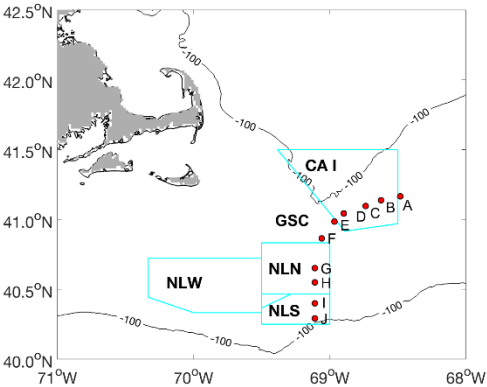
SUMMARY

The Woods Hole Oceanographic Institution, in collaboration with Cape Cod Commercial Fishermen’s Alliance and Cape Cod Limited Access General Category (LAGC) scallop fishermen, are utilizing FY24 and FY25 research set aside (RSA) quota to contribute to the body of knowledge needed to improve sea scallop stock assessment for the Georges Bank Stock Area and ensure sustainable management of this fishery in the face of changing oceanographic conditions.

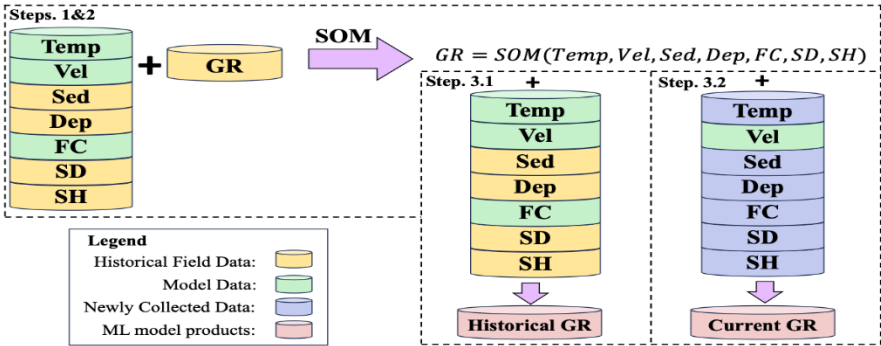
Our research will illuminate factors driving scallop recruitment and growth:
Obj. 1: How do environmental and biotic factors control scallop recruitment?
Obj. 2: What factors are most influential in scallop growth on temporal and spatial scales?

Fishermen are bringing WHOI researchers to conduct field research at ten stations, spanning Nantucket Lightship through the Great South Channel and Access Area I to collect scallop seed, plankton/larvae, benthic water and sediment samples, and benthic images.

We will characterize multiple environmental and biological parameters to explain patterns in scallop recruitment and growth. With a Machine Learning model, we will relate each parameter to scallop recruitment and growth over spatial and temporal scales. In addition, this project empowered LAGC fishermen to participate in the scientific process and continued to build trust between the LAGC fishing industry and the NEFSC.



The project results will help inform fisheries closures and transplantation of juvenile scallops. The Machine Learning model will provide a framework for predicting dynamics of scallop populations under climate change.



Work flow for observed and modeled data in the ML model. Historical field and model data (yellow and green) is used in SOM steps 1-2. Data used to simulate historical and current scallop growth rates (pink) is used in SOM steps 3.1 and 3.2. SOM steps in Fig.

PROJECT TEAM

Woods Hole Oceanographic Institution

Dr. Kirstin Meyer- Kaiser
Dr. Rubao Ji

Louisiana State University

Zhengchen Zang

Cape Cod Commercial Fishermen’s Alliance

Melissa Sanderson

Five Limited Access General Category Scallop Vessels (Research Platforms)

Kahuna, Kristen S., Stella Jane, Three Graces, Western Edge

Nine Limited Access General Category Scallop Vessels (Compensation Fishing Only)

Donna Marie, Glutton, Grand Slam, Helltown, Midnight Our, Miss Emma, Outlaw, Rose Bing, Tradition

SCHEDULE (revised for planned extension due to late LOAs that delayed field work)

- April - July 2024: Recruit LAGC participants and secure LOAs
- July – October 2024: Summer and Fall Sampling Pilots
- June - October 2025: Sample all 10 stations, once in summer, once in fall
- November 2025 – May 2026: Preliminary analyses and initial modelling work
- June – October 2026: Sample all 10 stations, once in summer, once in fall
- August 2026 – January 2027: Final analyses and refine models with predictive capabilities
- February – March 2027: Reporting and sharing results

This project is supported by a 2024 NOAA Scallop Research Set Aside Award, Grant# NA24NMF454G0012