



**Conducting scientific research projects that support sustainable fisheries, aquaculture, and agriculture**

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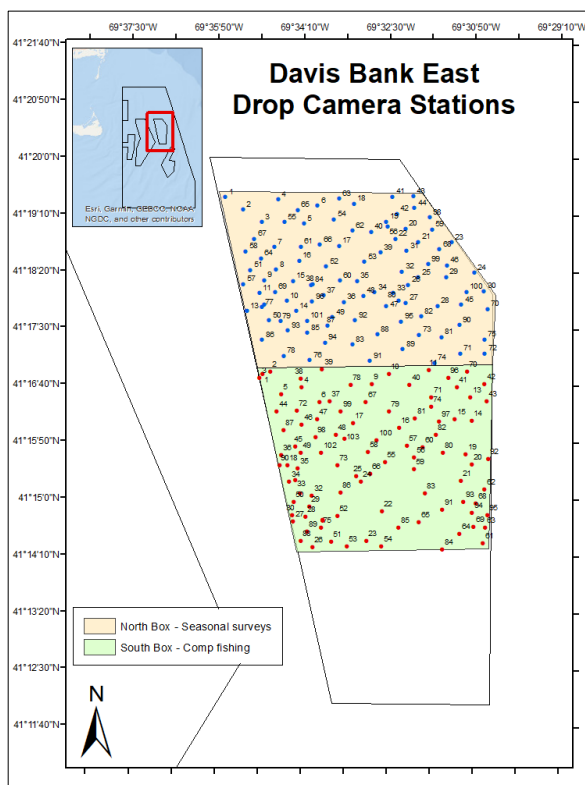
**Research Cruise Summary Report**  
 2024

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|----------------------|--------------------------------|
| Project Name:        | Davis Bank East Benthic Survey |
| Vessel Name:         | F/V Seafox                     |
| Departure Date:      | 9/12/2024                      |
| Land Date:           | 9/13/2024                      |
| Port:                | Hyannis, MA                    |
| Chief Scientist:     | Natalie Jennings               |
| Scientific Crew:     | Luisa Garcia                   |
| Report Completed by: | Natalie Jennings               |

**STUDY AREA**

The Great South Channel Habitat Management Area is a designated area closure to mobile bottom-tending fishing gear. With its inception, the New England Fishery Management Council set aside two areas (called the Rose and Crown, and Davis Bank East) for research to accomplish objectives that include improving the understanding of: living and non-living habitat features, habitat stability, and habitat vulnerability, among other goals. From 2020 to 2022, we documented seafloor characteristics from dredge-mounted camera footage in the Rose and Crown. Analysis demonstrated that the seafloor in that region is patchy with sand and gravel substrates and experiences drastic sediment changes due to the occurrence of seasonal storms and the shallow nature of the shoals.

This research (under EFP# 23073) is occurring in partnership with two fishing vessels in a portion of Davis Bank East to collect imagery of the seafloor; drop-camera still imagery with assistance from the F/V Seafox and multibeam sonar imagery with the F/V Tom Slaughter.



## CRUISE OBJECTIVES

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This was the fourth and final trip accomplishing our pre-fishing survey of the 60km<sup>2</sup> study area in the Davis Bank East research exemption area. Our fishing partners will soon begin compensation fishing trips in the south box.

The survey trip set out to deploy a drop-camera at 100 stations in the 30km<sup>2</sup> north box of the study area. The drop camera array is outfitted with a 5 second time-lapse camera and a temperature-depth logger. The images collected will show the substrate composition of each station and will be annotated to record the percentage cover of sand, pebbles, cobbles, boulders, mussels, shell hash, and other habitat characteristics. We will also note any species presence.

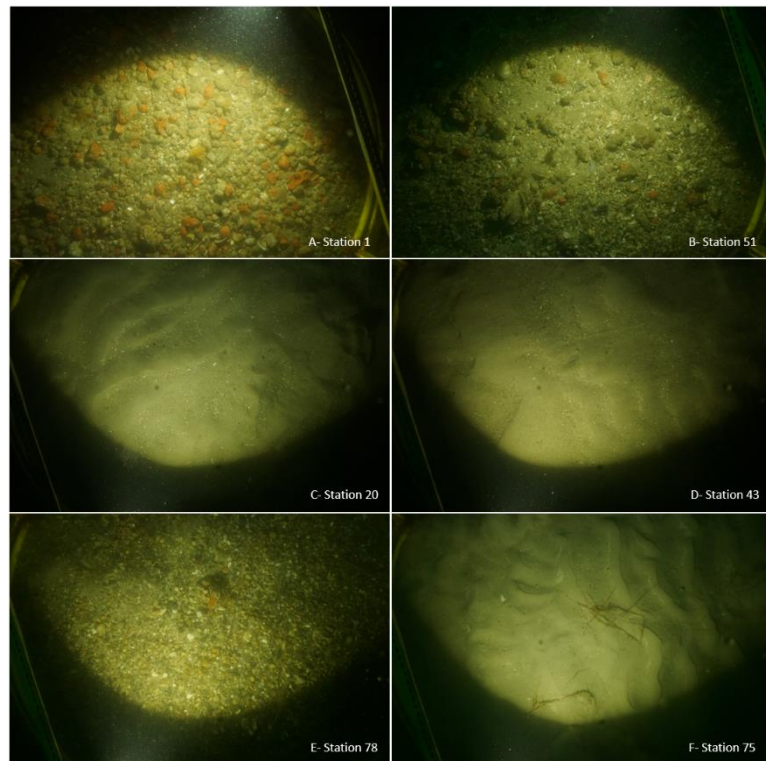
Specific objectives outlined in the EFP include:

1. Map benthic features within the Davis Bank Easy fishery exemption area of the HMA,
2. Assess seasonal benthic trends within the Davis Bank East fishery exemption area using multibeam sonar survey and ground-truthed with drop camera deployments,
3. Survey the benthic community associated with various habitats in the Davis Bank East exemption area using drop camera deployments,
4. Assess if Atlantic cod are present and using the area as the HMA was designed, i.e. spawning and juvenile habitat.

## OBSERVATIONS

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Six examples of still images collected are presented to the right. The images demonstrated a range of substrate particles including sand (C, D, F), granule (E), pebbles (A, B, E), and cobbles (A, B, E). We have noted epifauna including erect hydroid species (F), an encrusting bryozoan (A, B, E), and mussel species (*Mytilus* and *Modiolus*, not shown). Other benthic characteristics we've seen are sand ripples (C, D, F), and shell fragments and hash (A, B, E).



## RESULTS

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- 100 drop camera stations were completed in 10 hours on the F/V Seafox with the assistance of Captains Al and Woody, and deckhands Robbie and Jamie
- A stationary camera stand was deployed for approximately 10 hours to attract finfish species with the goal to observe Atlantic cod using the habitat
  - A pumped eDNA sampler designed by Acbiotics (Falmouth, MA) was attached to the camera stand to test if we can assess which species were in the area during the deployment
- Conclusions will be drawn when the annotations are completed and substrate coverage from each station can be compared between surveys

## ADDITIONAL COMMENTS

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Currently, the Davis Bank East Clam Survey is funded by industry collaboration. A portion of the proceeds from compensation fishing trip surfclam landings are shared with CFF to support the research objectives.