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Research Cruise Summary Report
2025

Project Name:	*Seasonal Survey of Scallop Fishery on the Eastern Part of Georges Bank*
Vessel Name:	Vanquish
Departure Date:	6/16/2025
Land Date:	6/21/2025
Port:	New Bedford, MA
Chief Scientist:	Luisa Garcia
Scientific Crew:	Natalie Jennings, Farrell Davis, Ryan Munnelly
Report Completed by:	Luisa Garcia

BACKGROUND

The Seasonal Survey Project has been conducted since 2012, with its geographic focus adjusted over time to address evolving management needs. For the past nine years, surveys have targeted the eastern portion of Georges Bank (GB, **Figure 1**); and for the past six years, each trip has utilized both a covered and an uncovered 15-foot (4.57 m) CFF Turtle Deflector Dredges. The covered dredge features a 45-mm mesh net over the topside, retaining organisms that escape through the dredge during towing at commercially representative speeds. It was deployed selectively to avoid areas with dense sand dollar beds or rocky substrates, while the uncovered dredge was towed at every station. When both were deployed, they were towed simultaneously at a target speed of 4.8 knots for 15 minutes. Vessel position, speed, and heading were recorded every 15 seconds via a GPS-enabled rugged tablet, and a Lotek logger on the uncovered dredge recorded temperature and depth every 30 seconds.

Catch was processed by gear type: uncovered dredge, covered dredge, and cover net. For each, catch was sorted by species and weighed using a Marel 1100-series motion-compensated scale. Selected bycatch species were measured to the nearest centimeter, while all fish were counted. Up to ten windowpane (*Scophthalmus aquosus*), winter (*Pseudopleuronectes americanus*), or yellowtail (*Limanda ferruginea*) flounders from the uncovered dredge were randomly selected for gonadosomatic index analysis, with whole-body and gonad weights recorded.

Scallop (*Placopecten magellanicus*) catch per tow was measured in bushels. A one-bushel subsample from each gear type was used to measure shell height in 5-mm increments. All scallops in the selected basket from the uncovered dredge were shucked and weighed. At each station, up to 30 scallops from this basket were randomly sampled for biological data including shell height (to the nearest mm), meat and gonad weight, sex, reproductive stage, and meat quality. Meat condition was qualitatively scored, and the presence of nematodes, orange

pustules, and internal shell blisters was recorded. This report summarizes findings from the sixth and last research trip of the 2024 RSA Seasonal Survey. During this cruise, all 49 stations were sampled.

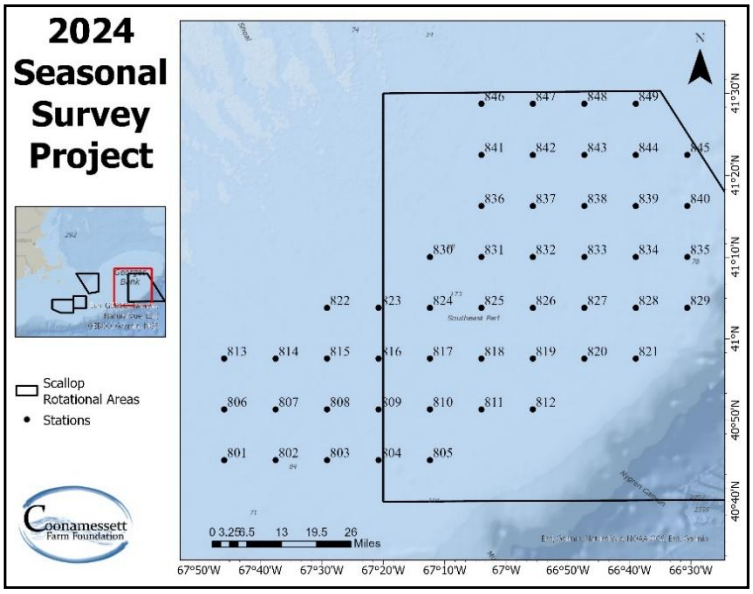

Figure 1. Location of the survey stations for the 2024 seasonal survey on the eastern portion of GB, with stations spaced ~7 nm apart.

CRUISE OBJECTIVES

The primary objective of each field trip in this study is to gather comprehensive biological and ecological data at all designated stations within the eastern GB study area (**Figure 1**). These data include species identification and enumeration, individual measurements (shell height or length), total weights, scallop meat weights, scallop and flatfish gonad weights, sex determination, and reproductive condition assessments. This comprehensive sampling approach supports the broader goals of the project, which are:

1. **Quantify seasonal biomass fluctuations** of pre-recruit, recruit, and adult Atlantic sea scallops using catch data from a standard dredge equipped with a 40-mm mesh cover net.
2. **Collect gonadal tissue samples** from scallops to examine seasonal and spatial trends in reproductive activity and spawning dynamics across eastern GB.
3. **Assess seasonal variation in scallop health indicators** through macroscopic evaluation of meat color, presence of nematodes, orange pustules, and shell blisters.
4. **Analyze predator–prey interactions** by evaluating the spatial distribution and relative abundance of key predators and their relationship to scallop and clapper distributions.
5. **Monitor seasonal shifts in the abundance of bycatch species**, particularly in relation to scallop aggregation patterns.

6. **Determine spawning periods of yellowtail flounder (*Limanda ferruginea*) and windowpane flounder (*Scophthalmus aquosus*)** in eastern GB through gonadal examinations.

7. **Conduct biological assessments of American lobster (*Homarus americanus*)** incidentally caught in dredges, recording metrics such as size, sex, shell hardness, egg presence, shell disease symptoms, and signs of mechanical damage.

OBSERVATIONS & KEY TAKE AWAYS

During this trip, several variations from the typical species composition observed in this survey were noted. A rare observation was a torpedo ray, a species seldom seen in our sampling efforts. Gray sole (*Glyptocephalus cynoglossus*), which is typically encountered in very low numbers (often a single individual per trip) was recorded in higher abundance, with 15 individuals collected. Spiny dogfish (*Squalus acanthias*), a species routinely observed in small numbers, was also more abundant than usual, with 29 individuals captured (**Figure 2**). In contrast, northern searobin (*Prionotus carolimus*), commonly caught during past trips, were notably absent from this trip.

Additionally, we recorded juvenile yellowtail flounder and juvenile haddock (*Melanogrammus aeglefinus*) (**Figure 3**), marking the first appearance of these age classes in this survey in several years for this survey area.

Regarding scallop observations, meat quality was excellent, with no evidence of brown or gray discoloration (**Figure 4**). Only one individual exhibited shell blisters, representing an improvement from previous trips. A notable biological observation included the identification of a hermaphroditic scallop, also shown in **Figure 4**.

Figure 2. Basket of spiny dogfish. All individuals in this photo were caught in a single tow during our recent survey. This highlights a notably high abundance in the area during this sampling event.

Figure 3. Juvenile yellowtail flounder (left) and haddock (*Melanogrammus aeglefinus*, right), both specimens measured during the June seasonal survey using standardized measuring boards.

Figure 4. Picture of a scallop exhibiting a healthy adductor muscle and a partially spent hermaphrodite gonad.

RESULTS

A total of 49 stations were surveyed during this trip, resulting in the capture of 27 distinct species (**Table 1**). Overall scallop catch was higher than the previous trips, although still remains low relative to prior years' surveys. In contrast to the previous trip, this survey observed a greater number of individuals retained by the uncovered dredge compared to both the covered dredge and the cover net. The length frequency distributions of scallops collected during the June 2024 seasonal survey trip showed different patterns among the three gear types. The uncovered dredge caught a broad range of scallop sizes, with a peak in frequency around 110 mm, indicating a strong selectivity toward larger individuals (**Figure 5**). In contrast, the covered dredge displayed a narrower and slightly left-shifted distribution, peaking near 105 mm, suggesting moderate gear

retention of intermediate-sized scallops (**Figure 5**). The cover net showed a markedly different pattern, with a pronounced peak around 95 mm, and a higher frequency of smaller scallops compared to the dredges (**Figure 5**). This suggests the cover net effectively retains smaller individuals that escape from the dredge, highlighting gear selectivity differences and potential escape rates among scallop size classes.

During the survey, a total of 16 yellowtail flounder were collected, with total lengths ranging from 12 to 44 cm. In contrast, only 23 windowpane flounder were captured, ranging from 10 to 30 cm in length. The low abundance of windowpane flounder observed in this survey represents a notable deviation from previous trips, during which this species typically constituted the most frequently encountered flatfish.

Table 1. Weights (lbs) of species captured during the June survey trip on the eastern GB.

Species caught	Uncovered dredge	Covered dredge	Cover net
Spiny Dogfish	0.53	5.37	52.58
Unclassified Skates	2531	920.7	129.84
Torpedo Ray	18	0	0
Barndoor Skate	324	104.26	0.79
Silver Hake	1.98	4.884	51.88
Haddock	0	0	6.09
White Hake	0	0	2.05
Red Hake	5.76	6.95	217.5
American Plaice	0	1.41	0
Fourspot Flounder	5.83	5.85	54.76
Yellowtail Flounder	12.61	2.66	2.18
Winter Flounder	5.3	0	0
Grey Sole	12.58	2.22	2.73
Windowpane Flounder	6.16	10.23	2.11
Gulfstream Flounder	0	0.18	12.14
Longhorn Sculpin	2.38	0	26.18
Sea Raven	5.46	0	0
Ocean Pout	1.67	0.31	57.49
Monkfish	469.48	189.02	1.83
American Lobster	62.33	262.55	0
Jonah Crab	65.67	16.39	12.83
Rock Crab	6.56	0.59	5.68
Lady Crab	0	0	0.24
Sea Scallop	2819.12	824.63	629.99
Squid	0	0	0.044
Northern Moon Snail	2.02	1.87	88.4
Waved Whelk	1.43	0	5.83

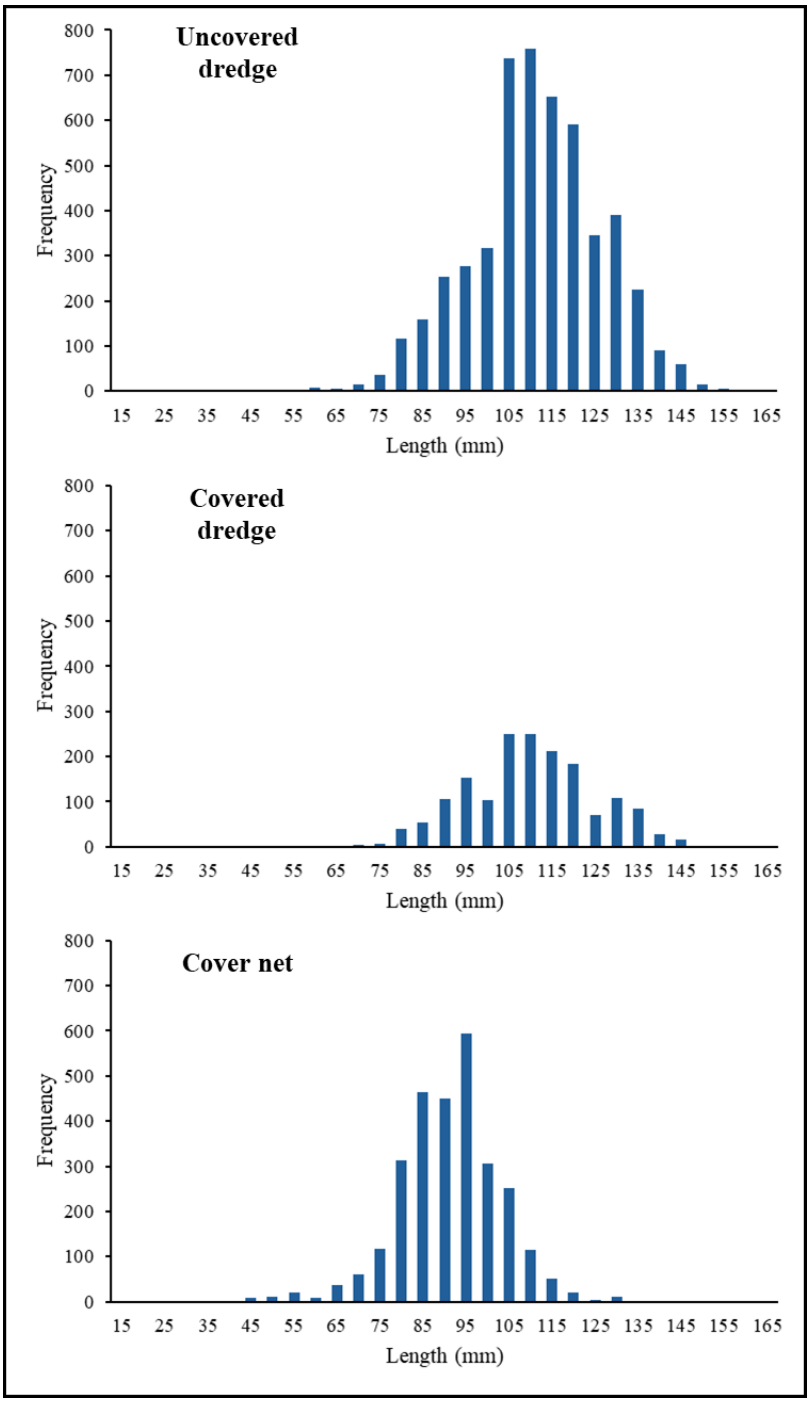

Figure 5. Length frequency distribution of scallops for: **a)** uncovered dredge, **b)** covered dredge, and **c)** cover net, collected during the June trip of the 2024 seasonal survey.

ADDITIONAL COMMENTS

Here are a few photos taken during the trip:

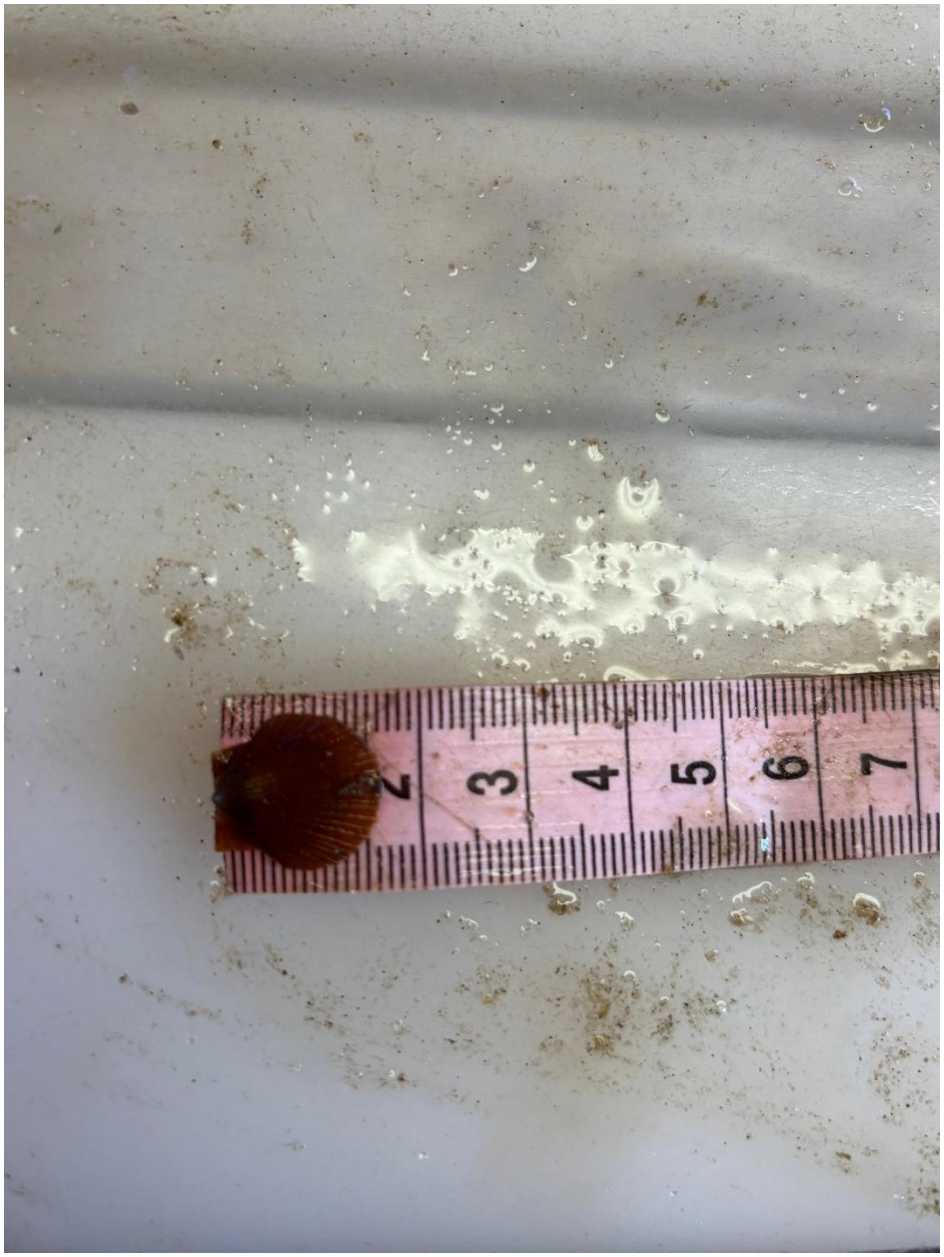

Figure 6. Recruit scallop caught during the June 2024 seasonal survey. The individual was approximately 16 mm in shell height.

Figure 7. Representative images from Station 842, illustrating the consistent presence of mussels (*Mytilus* spp.) observed since 2020. Although mussel abundance at this station varies interannually, they have been recorded in every survey conducted at this location. Their persistent occurrence suggests a stable benthic habitat favorable to mussel colonization and may indicate long-term environmental conditions that support their recruitment and survival.