



# **2023 Spring Scallop Survey Report**

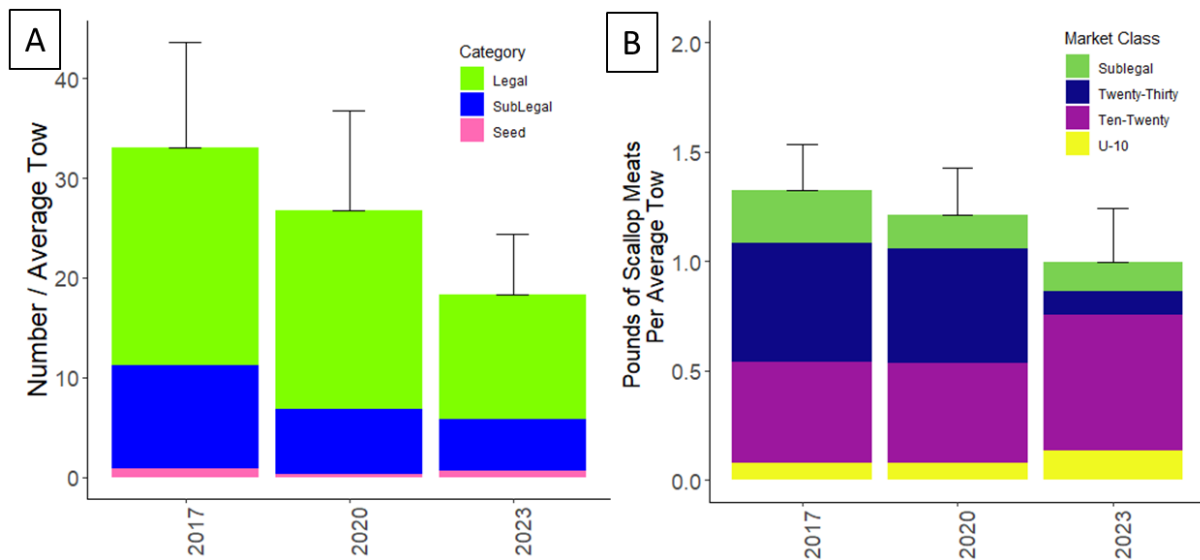
## **Maine Department of Marine Resources**



**Updated 11/2/23**

### 2023 Survey Summary

The annual spring scallop survey sampled 237 stations in scallop zone 2, rotation A between April 20th and May 9th, 2023, aboard the F/V Miss Sarah. The primary goal of these surveys is to characterize the scallop populations prior to the fishing season to inform management of the fishery. The spring survey caught a total of 4,796 scallops, approximately 30% fewer than during the 2020 survey (229 stations) prior to the previous opening of this rotation (Fig. 1A). However, in general the scallops caught in 2023 were larger with increased meat yield resulting in a decrease of only 17% in the pounds of scallop meats caught for an average tow compared to the 2020 survey (Fig. 1B). During this survey 950 scallops were measured, marked with tags, and released around Jericho Bay. When the shells of these tagged scallops are returned, we will be able to improve our understanding of the growth of scallops along the Maine coast.



**Figure 1.** The height of each bar in the left figure represents the average number of scallops caught for all tows of the past three surveys in rotation A, the color represents the size class of the shell, where pink are scallops <2.5 inches, blue are scallops between 2.5 and 4 inches and green are scallops >4 inches. The height of each bar in the right figure is the average pounds of scallop meat caught each tow for the past three surveys in rotation A, the color represents the proportion of each market class.

### Survey design and methods

The department is continuing to improve the survey design to better represent the scallop abundance, while ensuring that the survey results are comparable between years. Prior to the spring survey, the list of available survey stations (last modified in 2019) was updated using locations from landings reports. Half of the previously existing stations had no record of survey catch or landings and were removed, 1,109 new possible stations were added, resulting in 1,909 available stations to select from in rotation A. From this list of possible stations, 239 stations were randomly selected for the 2023 survey.

Between April 20th and May 9th, 2023, the stations were sampled with a standardized 7 foot survey drag, rigged with 2 inch rings and a 5 inch twine top towed at 3.5 knots. This survey dredge and our tow specifications are designed to catch representative samples of the entire size range of scallops older than 2 years, not to maximize the catch of harvestable scallops. At each station, the drag is towed for a target time of 2.5 minutes covering approximately 300m (0.16 nautical miles).



The total volume and composition of the catch are recorded, then the scallops are counted and measured. For each rotational area, a representative sample of the scallops is selected for meat quality measurements during which the scallops are visually screened for specific diseases (Fig 2). The data in this report are standardized for an average survey tow. Commercial densities of scallops are generally considered to be above 0.1 scallops/m<sup>2</sup> equivalent to 63 scallops/standard tow. One pound per standard tow is equivalent to 0.7 g/ m<sup>2</sup>. For more information on the sampling details contact the DMR scallop program.



**Figure 2:** Meat quality categories used for analysis (Left) and an example of a scallop collected from outside of Maine with evidence of a bacterial infection (right).

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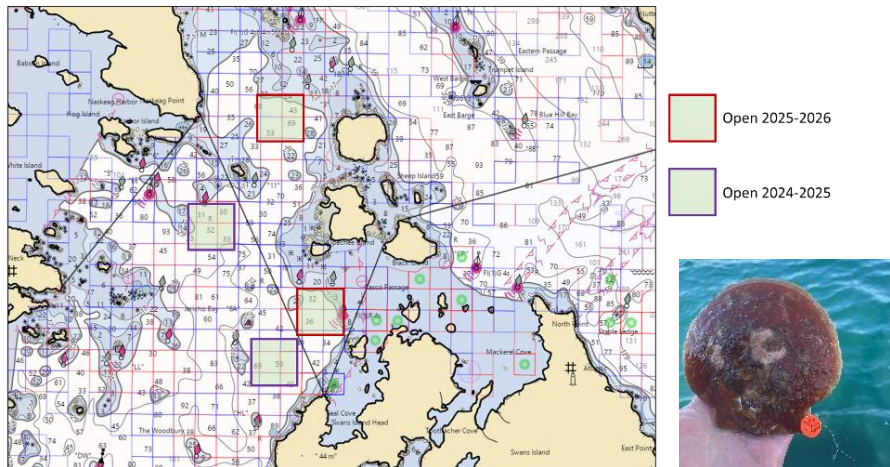
## Tagging Project:

During this survey we completed an additional component to tag and release scallops around Swans Island to collect updated information on their growth. While



general information about scallop growth is well understood, we have limited growth information for this area of the coast, and it is known that scallops have different growth patterns across Maine particularly within specific bays. We are hopeful that this tagging study will provide reliable growth estimates for scallops in this area.

During the survey 950 scallops were measured and tagged with an orange plastic marker containing the scallop identification number and a reporting phone number. These scallops were released at 4 locations around Jericho Bay (Fig. 3).



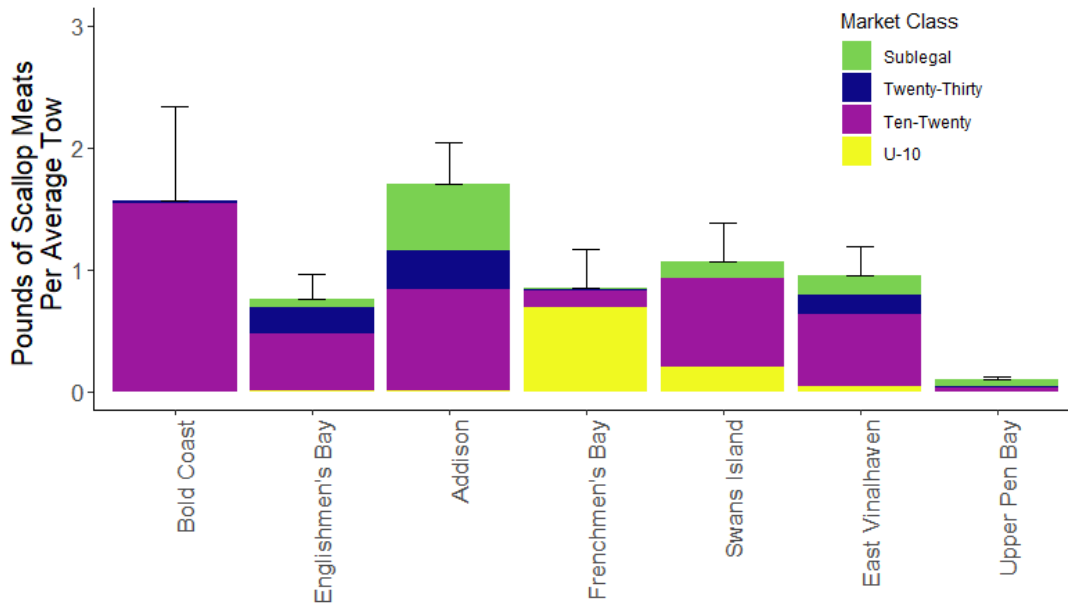
**Figure 3.** Release locations of tagged scallops (Green Boxes) in Jericho Bay for the 2023 growth study and an example of a tagged scallop.

If a tagged scallop is found, the important pieces of information to collect are the capture location (latitude & longitude) and the date, then shuck the scallop saving both shells and the tag. Please call the number on the tag or speak to a DMR scallop scientist to coordinate returning the shell, capture information, and tag to the DMR. Anyone returning a tagged scallop with complete information will get a free hat and be eligible for a \$100 raffle at the end of the 25-26 scallop season. This information will help us understand the growth in this area and provide evidence for potential movement of the scallops.

# Maine Spring Scallop Survey Report 2023

## General Survey Results

The spring survey caught a total of 4,796 scallops, approximately 30% fewer than the previous survey in this rotation in 2020. No identifiable diseases were noted in any scallops. Out of the 898 scallops observed for meat quality analysis, nine (1%) were identified as fair quality, two (0.2%) were poor quality and the remaining 887 scallops were good quality. The majority of fair or poor-quality scallops were observed west of MDI. The meat quality and yield measurements for scallops in each rotational area provides an indication of the productivity for each survey area. Although fewer scallops were caught in most of the rotational areas this season, the scallops caught had higher yield than the previous rotation. The Bold Coast appeared to have the highest yield/average each tow. Addison was the second highest area for catch/tow, although this is a small area and had a very high abundance of seed scallops. The average catch in total pounds was relatively similar in the other areas, besides in upper Penobscot Bay where very few scallops were present (Fig 4).



**Figure 4.** The height of each bar in the left figure represents the average pounds of scallop meat caught each tow for area in rotation A, the color represents the proportion of each market class.

## Maine Spring Scallop Survey Report 2023

The top 10 bycatch species caught by volume are recorded in table 1 for the 2023 survey. Blue mussels were the most common bycatch species caught by volume, where most of the mussel catch occurred in the Addison and Swans Island areas. The majority of sand dollar catch was in the Swan's Island area. The tunicates (sea squirts) were mostly caught in the Casco Passage or Northern Isle au Haut Bay. There was one tow in the Fox Island Throughfare in an area of historical scallop grounds which was loaded to the sweep with tunicates with no scallops observed. The remainder of the bycatch species were common throughout the survey area.

**Table 1.** Total estimated volume in bushels of the top 10 species caught during the spring 2023 survey.

Species	Total Bu caught
Sea Scallop	100
Blue Mussel	18
Sand Dollar	17
Tunicates	13
Horse Mussel	10
Sea Sponges	7
Sea Cucumbers	6
Rock Crabs	6
Jonah Crabs	5
Sea Stars	4

# Maine Spring Scallop Survey Report 2023

## Appendix I: Area specific results

For each rotational area in zone 2 scheduled to be open to scallop dragging in the 2023-24 season the following figures have been prepared.

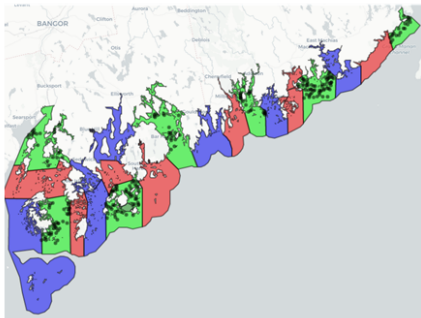
**Top left:** a map of the tow locations, the areas in green were sampled during this survey.

**Top right:** the average catch (bootstrapped 1000x) in pounds of scallop meats for a standard survey tow in this area for each year surveyed. The height of the bar is the total pounds caught and the color represents the market category, the small lines show the calculated potential error.

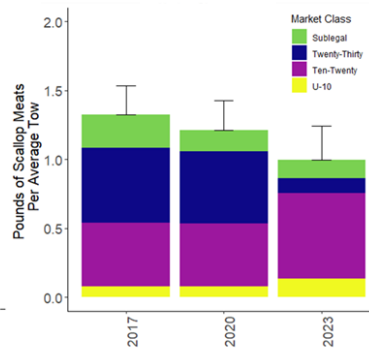
**Bottom left:** Average number of the live scallops and clappers (dead scallops with the hinge still intact) at each size bin/tow for each area. Size in inches is the bottom axis and the height of each line average number of scallops in each size bin/tow, the black line is the legal size.

**Bottom right:** Landings data from the past two open seasons of this area where the height of the bar is the reported pounds landed for each season in that area, the black line is the total effort calculated by the total days fished for all the boats fishing in that area for the season, the number on the top of the bars show the maximum number of boats reporting in each area for a given week.

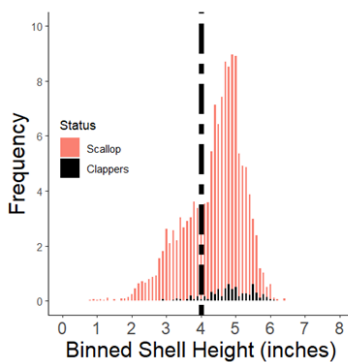
Map of tow locations



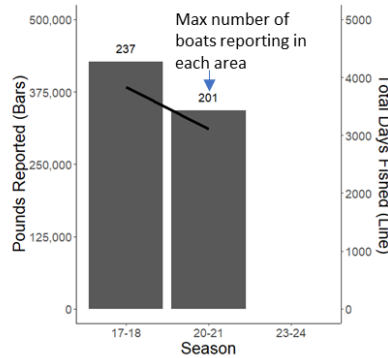
Average scallop catch lbs of meat/tow



Size of Scallops & Clappers

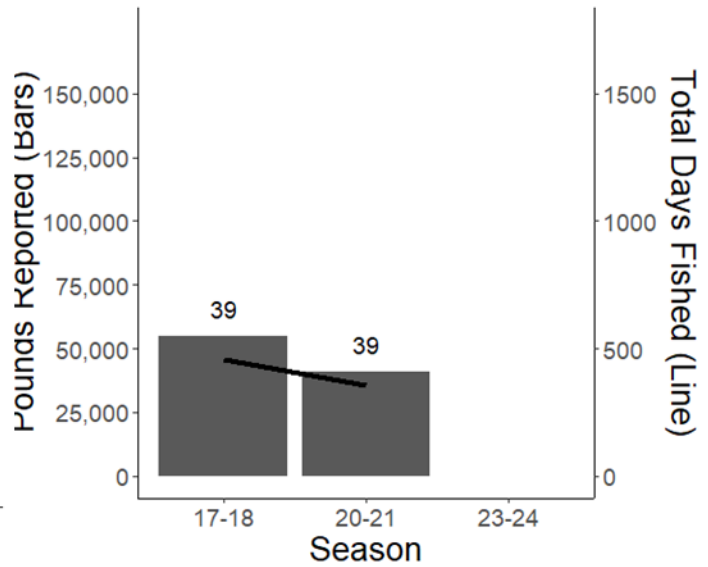
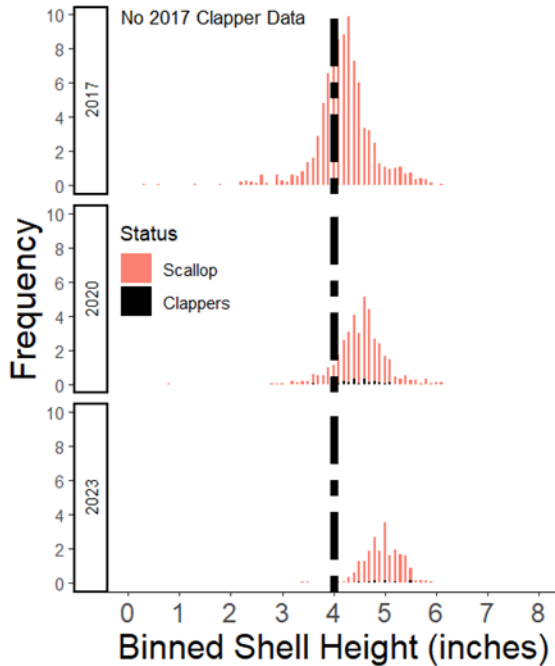
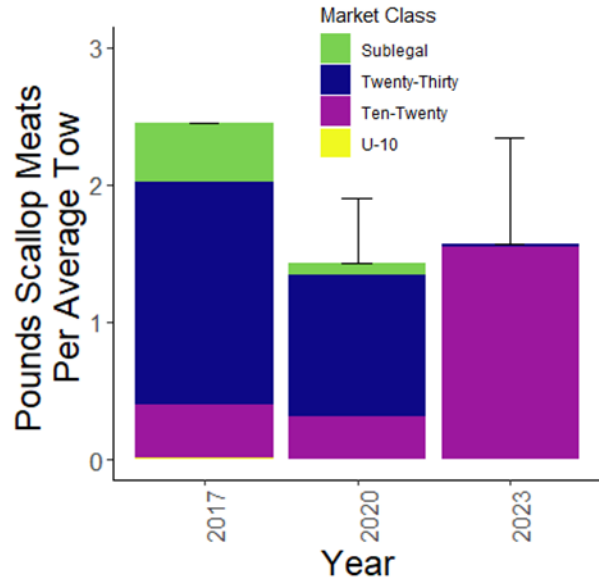
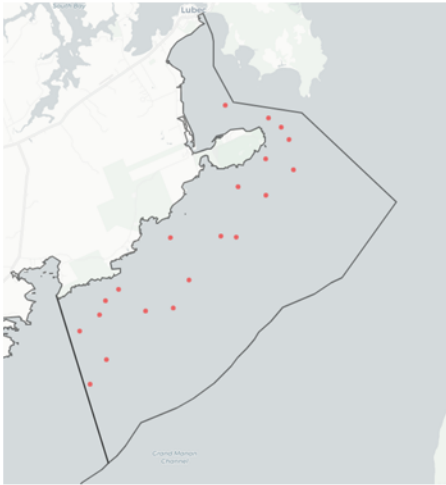


Landings information for the past two openings



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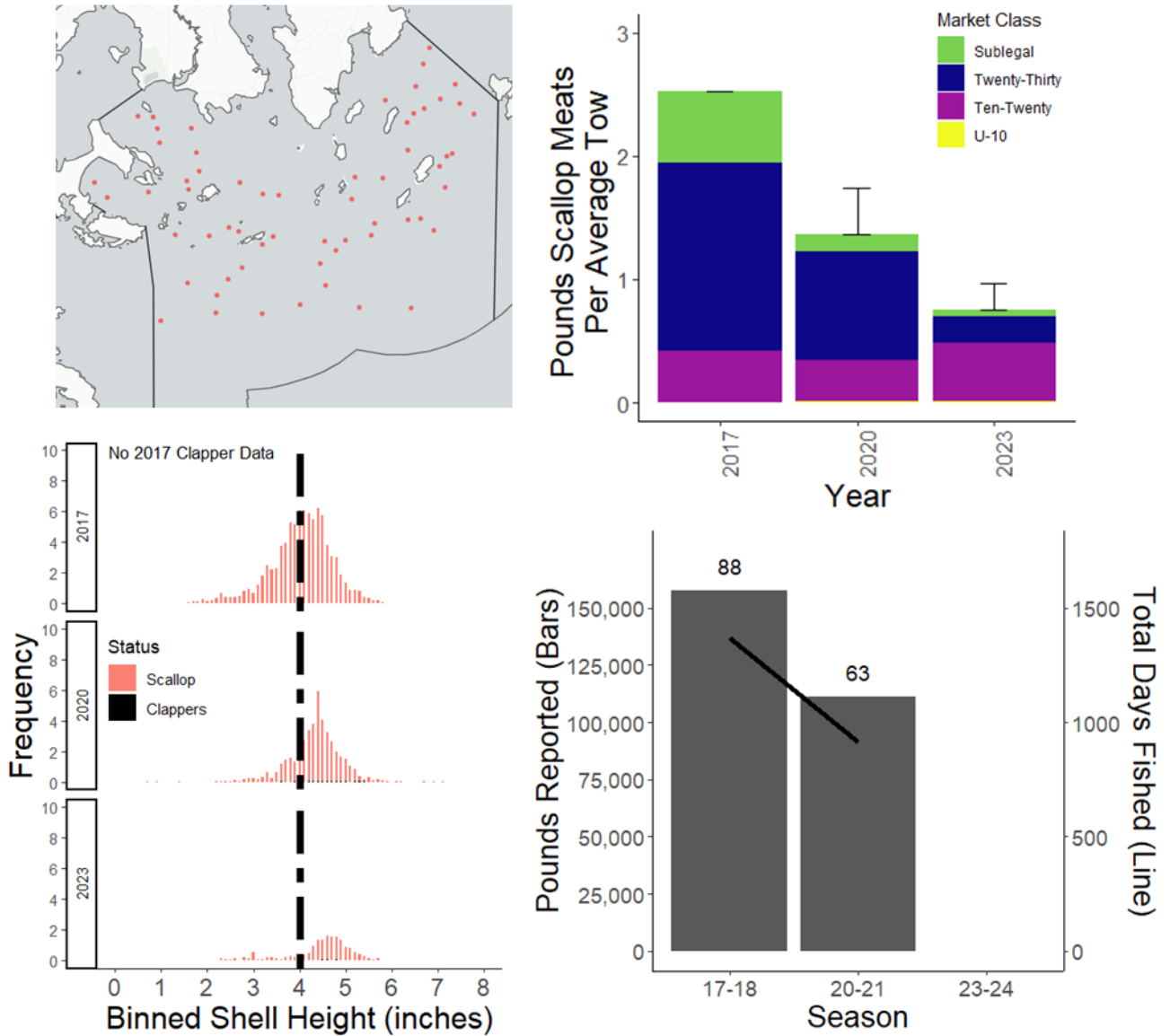
## Bold Coast



In the Bold Coast area, the survey caught scallops at a majority of the stations, most of these scallops were larger than five inches. There were fewer scallops caught than 2020, however the scallops were all larger with higher yield than the previous rotation. The landings plot at the bottom right shows the pounds reported (solid bars) going down with the effort (line) for the last rotation even though there was no difference in the maximum number of vessels fishing the area. Besides rocks and old scallop shell, most stations observed little other catch besides scallops.

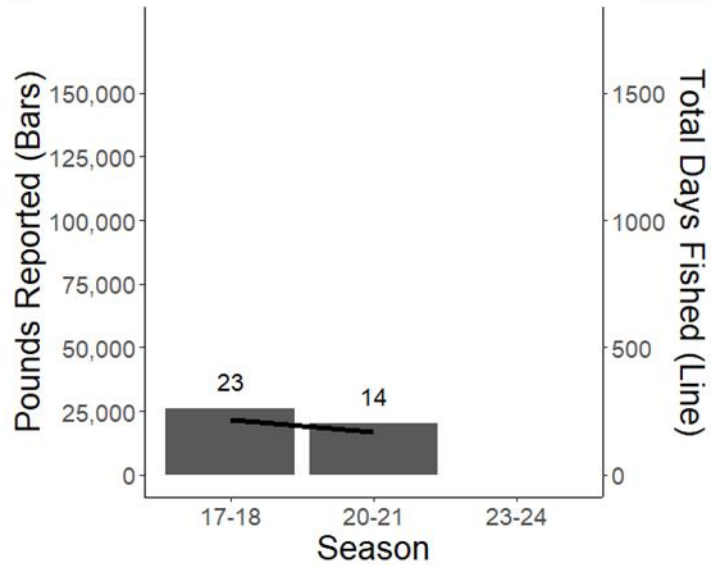
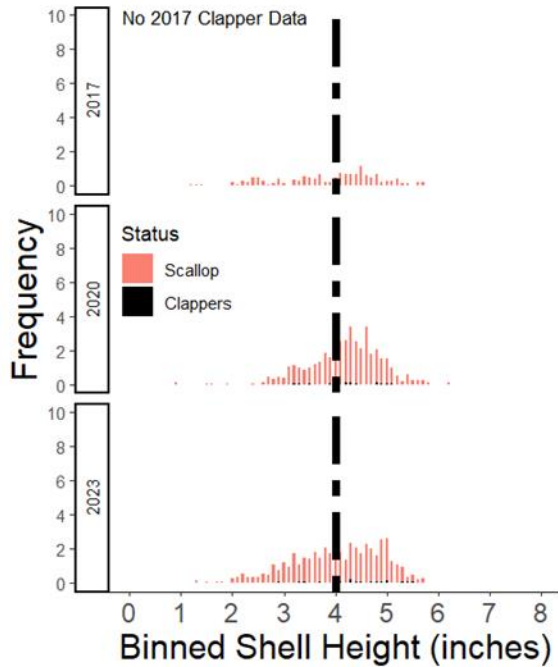
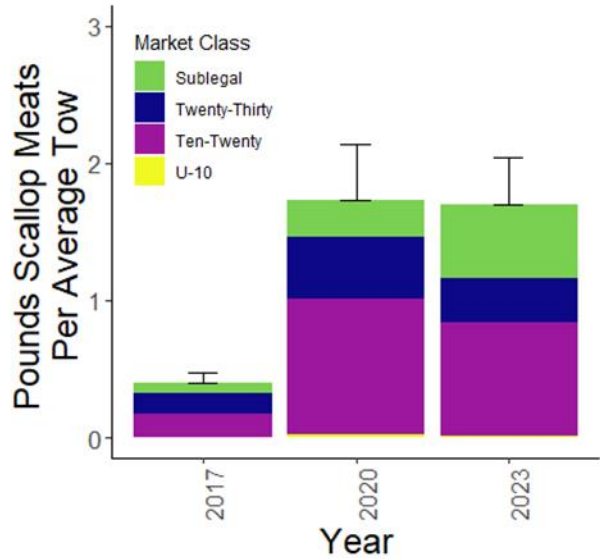


### Englishmen/ Sand Bay



Englishmen Bay has seen a steady decrease in the survey abundance and total yield. In 2023, scallops were observed at the same stations as in the past but in lower numbers with no tows in 2023 catching more than 100 scallops. There was evidence of seed scallops particularly around Halifax Island and the Brothers. The landings plot at the bottom right shows the pounds reported (solid bars) going down by around 30,000 pounds in the last rotation. Effort (black line) has also decreased and the maximum number of boats in the area dropped for 88 to 63. Few clappers were observed. The inside stations had mixed catches with urchins, sea cucumbers and clam/mussel/scallop shell. The catch at the outer stations was dominated by rocks.

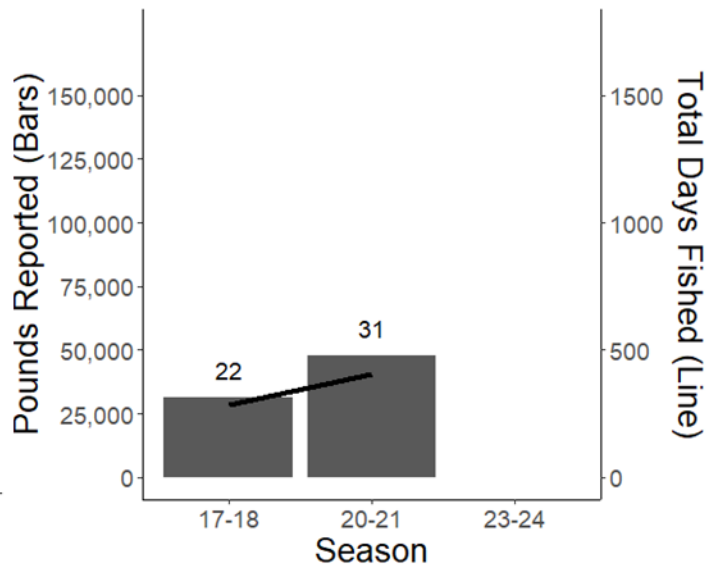
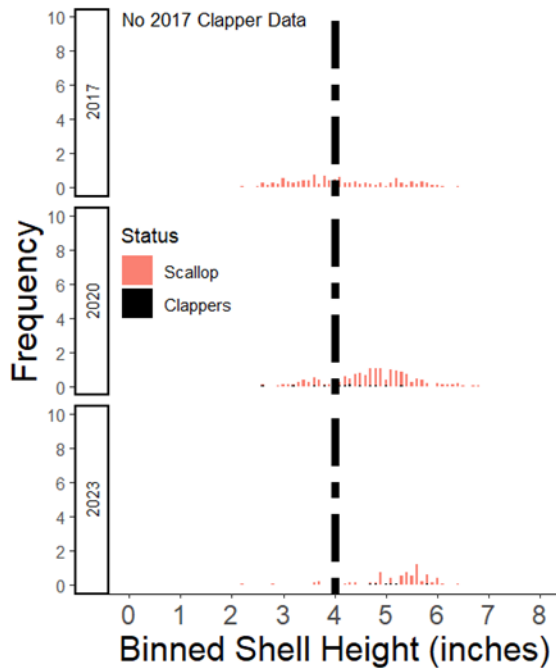
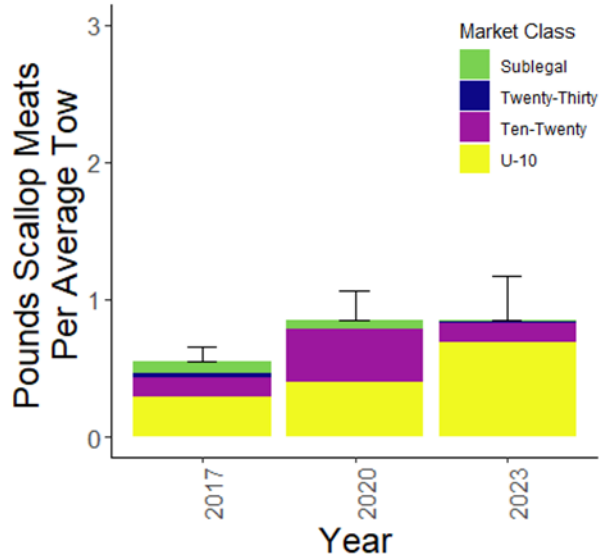
### Addison



In Addison, the reported catch by weight of scallops from the 2023 survey was nearly the same as the 2020 survey. There were high catches of seed and sublegal scallops from many stations during this survey, particularly around Harrington Bay and Sand Island. There were two stations catching more than 100 scallops and around half the catch of these stations was sublegal. The landings plot at the bottom right shows the pounds reported (solid bars) and effort (line) has remained relatively steady. Due to similar survey results, historical stability of effort in this small area, and the high observed abundance of small scallops the Department does not anticipate this area can sustain increased fishing effort for the upcoming season.

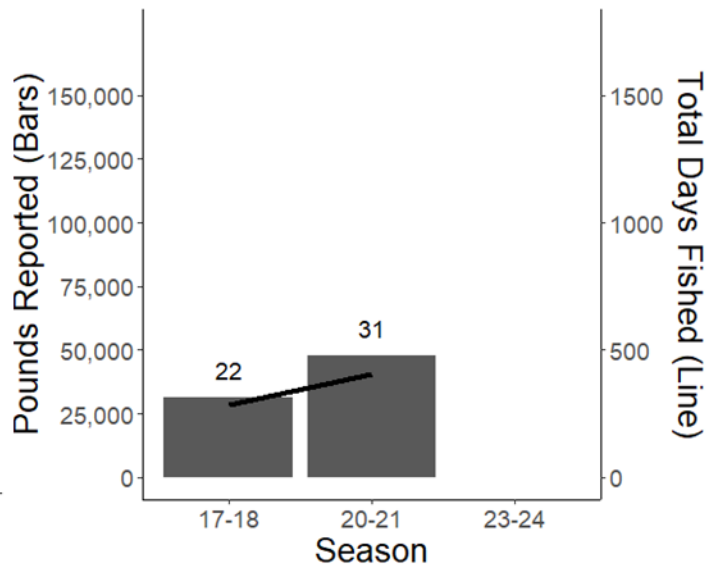
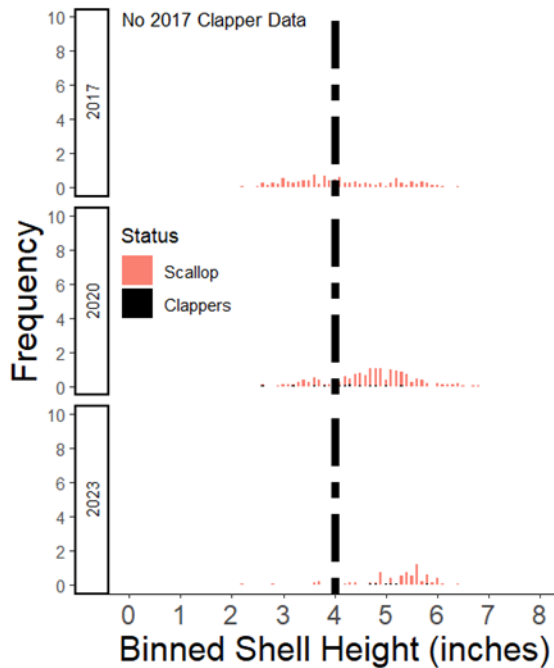
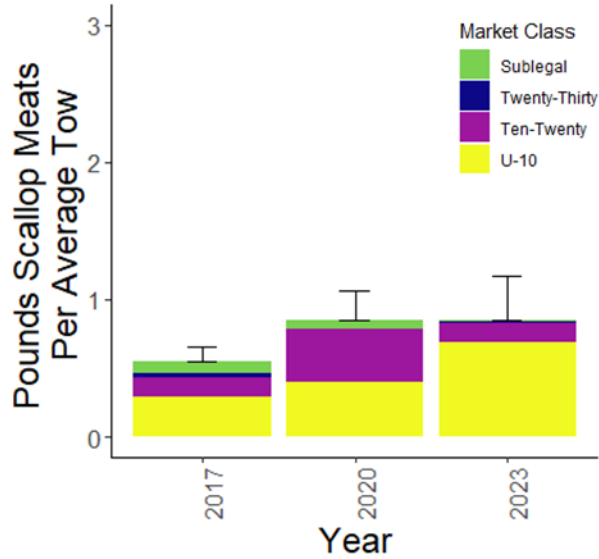
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## Frenchmen's Bay



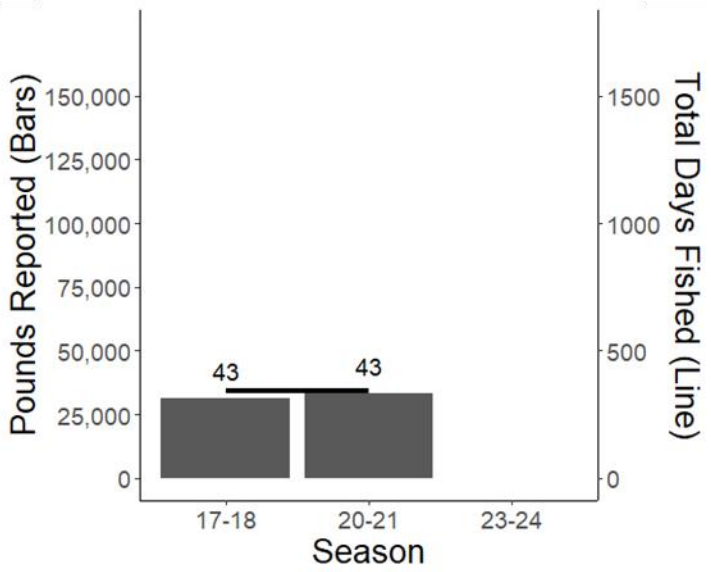
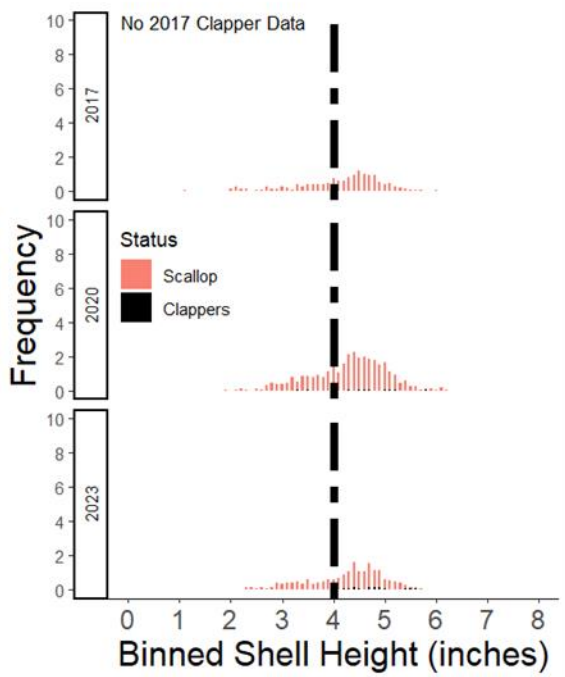
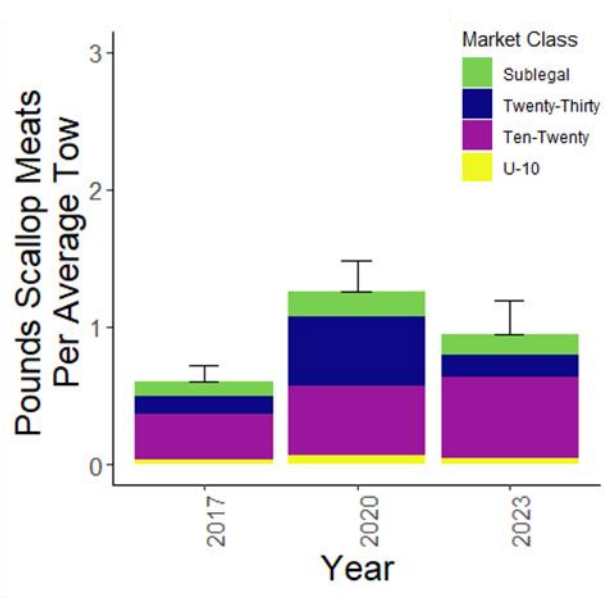
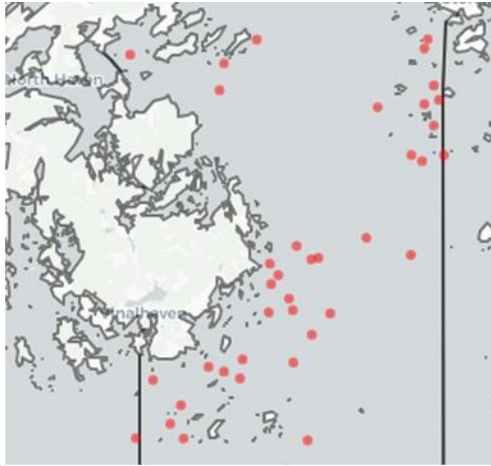
The majority of stations in Frenchmen's Bay did not catch scallops and those that did were not sampled in the previous rotation. The scallops that were caught this year were larger with high yield. The landings plot at the bottom right shows the pounds reported (solid bars) and effort (line) increased, tracking the observations of increased abundance in the survey. The Department is concerned that no smaller scallops were observed in the 2023 survey of this area and would appreciate suggestions of where the seedbeds in this area may be.

### Swans Island



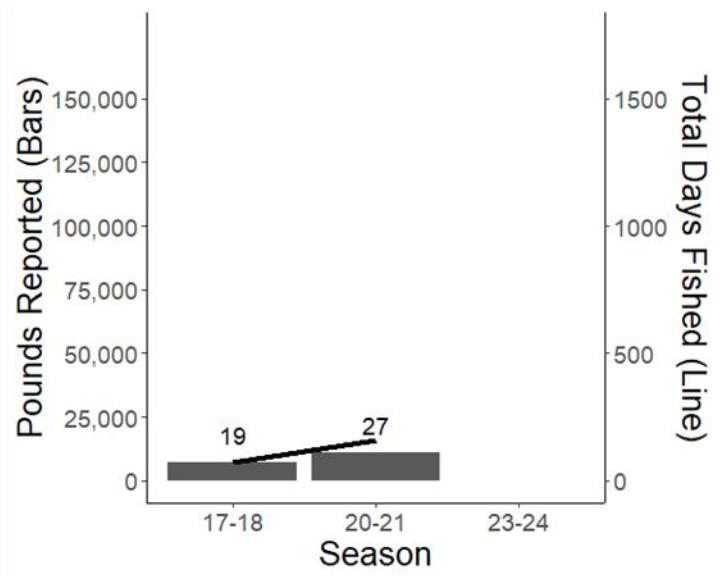
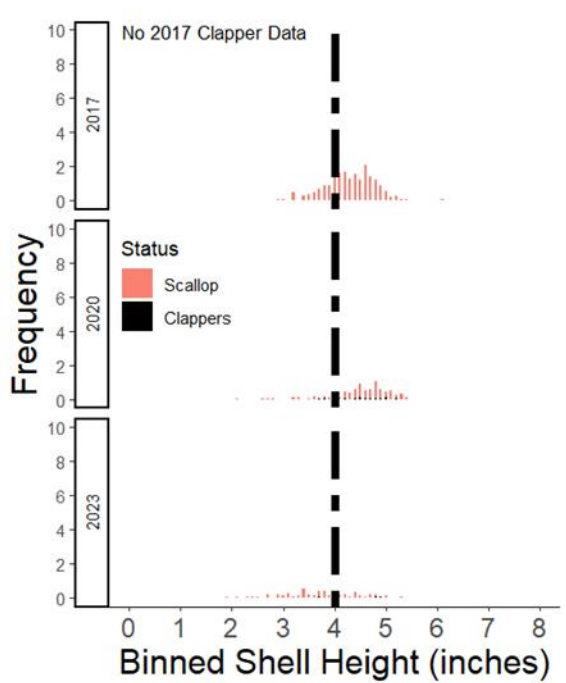
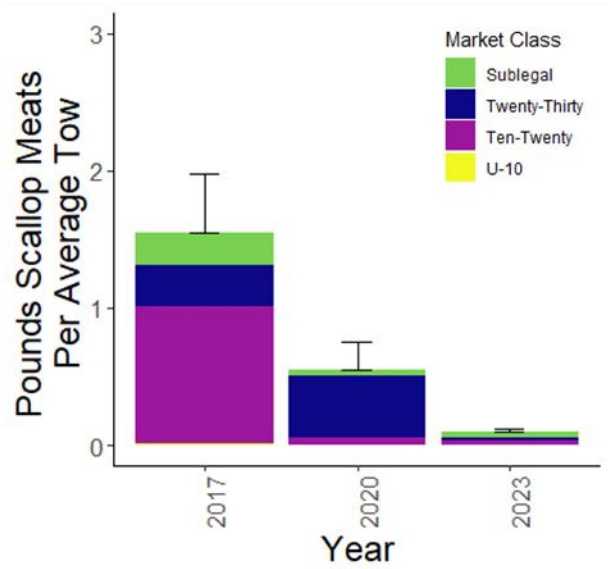
The northern portion of the Swans Island area around Casco Passage saw a significant decrease in the scallop catch, but, for the entire area, the estimated catch/tow of U-10s and ten-twenties is better than detected in the 2020 survey, with better yield for all scallops. This area observed higher number of clappers, compared to areas to the east. The landings plot at the bottom right shows the pounds reported (solid bars) and effort (line) has decreased significantly in the past rotation, while there were 21 fewer boats fishing in the area. The stations near Bass Harbor observed large amounts of clam shell, while the deeper stations north of the cable area had more horse mussels. Some stations encountered large numbers of sand dollars. There was some seed observed in the Casco Passage as well as in the deeper water south of Swans Island.

**Isle au Haut Bay/East Vinalhaven**



The Isle au Haut Bay 2023 survey saw fewer scallops than in 2020, however the decrease was only observed in the scallops just at legal size with smaller yield. There were a few locations of seed (<2.5 inches) and sublegal scallops observed throughout the area. The survey also encountered areas of tunicates (sea squirts) in the northern section, especially in the Fox Island Thorofare. Landings data shown in the bottom right indicates that the landings were relatively steady for the past two rotations. This area also observed a relatively high abundance of clappers (~6% of the scallop catch), mostly near the legal size.

### Upper Penobscot Bay



In Upper Penobscot Bay, scallops were not observed at the majority of stations sampled. The Department would appreciate suggestions of how to modify the survey stations to encounter scallops if they are present in this area. The scallops caught were mostly 2-3 years old, with a few legal sized scallops present.

Appendix 2 Scallop Rotational Areas 2023-2024

