

4.1 Biological impacts

4.1.1 Impacts on Gulf of Maine cod

The Council considered four primary Options for Gulf of Maine cod, described in Section 3.1.1 (proposed action, Option 2) and Section 3.2.1 (alternatives rejected). Options 1 and 2 incorporate many of the same elements (options for counting of DAS, area closures and trip limits) and are differentiated by the following:

- Option 1 proposed that vessels (except Day gillnet vessels) fishing in the Gulf of Maine during May, June, July, November and December must take layover days equal to the trip length; Day gillnet vessels would be limited to 80 net tags (a reduction of 50 percent) during the same period
- Option 2 contained two alternative closures: either close the Cashes Ledge Closed Area in November and Blocks 124 and 125 in January if 50 percent of the TAC (or 759 metric tons) is landed by July 31 (the proposed action), or close the northern half of Block 124 year round (rejected).

Options 3 and 4, both rejected by the Council, share many elements but differ in the following ways:

- DAS: both retain status quo allocations but Option 4 includes a Western Gulf of Maine Restricted Fishery Program (limit of 25 DAS or trips in the area during May, February-April)
- Area closures: both have the same primary closures but Option 3 includes a closure of the northern half of Block 124 March – August, Option 4 would prohibit party and charter vessels from fishing in the GOM closed areas during February – May, and Option 4 would include a year-round closure of the Cashes Ledge Closed Area while Option 3 would close the area July – October or longer if needed based on the analysis
- Trip limits: both options propose to reinstate the running clock and add a 2-day layover for trips that land an overage, except Option 4 suspends this requirement during February – May; as an alternative, Option 3 proposes to retain the Framework 31 trip limit/overage provisions
- Minimum fish size: Option 3 proposes to increase the cod minimum size to 21 inches, throughout the range

4.1.1.1 Impact of Options 1 and 2

4.1.1.1.1 Counting of DAS

Options 1 and 2 proposed to charge a minimum of 15 or 24 hours to every fishing trip that is three hours or more in length. The Council did not adopt these changes. There was an initial discussion that this requirement may be applied only to vessels fishing in the Gulf of Maine, but the final proposal is that it would apply to all groundfish vessels. Estimates of the impacts of this proposal are hindered by data limitations. Days-at-sea data is maintained by the NMFS Office of Enforcement, Vessel Trip Report (VTR or logbook data) is maintained by the Northeast Regional Office, and dealer data is maintained by the Northeast Fisheries Science Center. There is no direct link between the DAS database and

landings data in either the vessel logbook or dealer databases. Only the VTR database has information on catch locations entered by the fisherman completing the logbook. Landings from individual trips in the dealer database cannot be directly linked to landings in the VTR database. For these reasons, the DAS used on a particular trip cannot be associated with landings in either database, or a fishing trip in a particular area.

In order to characterize the length of trips so that the impacts of the proposal could be estimated, all three databases (DAS, dealer, and vessel logbook/VTR) were used. In addition, vessel characteristics (size, permit category) were obtained from various permit files. For the purposes of the analysis, a "trip" is defined as one call-in/call-out cycle regardless of the number of times a vessel may leave or return to port. DAS information was extracted from the DAS file (file fish97 and fish98 maintained by the Office of Enforcement). Trips were broken down into categories of three hours to twenty-four hours in length, and total trips and DAS. Principal ports were identified based on landings as reported in the dealer database; in this analysis, principal port is the port that a vessel landed most of its catch (based on revenues). A vessel's primary gear was determined as the gear the vessel used to land the majority of its catch. The analysis was performed for all groundfish vessels that used DAS, and for those vessels that reported landings from the Gulf of Maine. Because DAS cannot be assigned to specific fishing trips, vessels were identified as fishing in the Gulf of Maine if they recorded landings from this area in their VTR during the course of the year.

There are shortcomings in this analytic approach. The analysis assigns principal landing port based on the port that the vessel made the majority of its landings. Most vessels land almost their entire catch at one port, but some vessels do spread their landings among several different ports. Evaluation of the impacts on various landing ports will be incorrectly estimated if the principal port information is based on a relatively low percentage of landings. The analysis assumes that some vessels will reduce the number of trips they take to stay within DAS limits, but this is not the only possible reaction. There are additional shortcomings for that part of the analysis that focuses on vessels that fished in the Gulf of Maine. Since some vessels fish in both the Gulf of Maine and other areas during the course of the year, the number of DAS expended in the GOM may be overestimated. This will cause the analysis to overestimate the impacts of the proposal to the extent that trips outside the GOM were less than twenty-four hours in length. Since most of the trips were by vessels that landed in Portland or Gloucester, and one-way transit times from these ports to areas outside the Gulf of Maine are a minimum of four hours, it's unlikely this error significantly affects the results. The analysis also underestimates the proportion of GOM trips affected to the extent that trips assumed to be in the GOM actually took place in other areas. For example, some vessels in New Bedford fish in the Gulf of Maine, and some of their trips are shorter than 24 hours. Because of the transit time from New Bedford to Gulf of Maine fishing areas, it's unlikely that many of these short trips were actually in the Gulf of Maine, yet the analysis assumes they were.

A further shortfall in this analysis is that it makes no attempt to model changes in fisherman's behavior. Unlike the trip limit analyses that are usually performed, this analysis does not model how fishermen may shift fishing effort to other time periods to reduce

their loss in revenues. While it does try to estimate changes in level of effort it does not determine whether fishermen will compensate for the impacts on their effort by changing fishing patterns. In part because there was no attempt to model changes in behavior, the following analysis does not attempt to predict the impact on landings. It also does not consider permits that are not currently using DAS.

The following discussion characterizes trips and estimates the impacts of counting trips as a minimum of twenty-four hours because the data was readily available. If trips are counted as minimum of 15 hours, the impacts will be less. Many of the proposal's impacts are on sink gillnet vessels, who are already charged a minimum of 15 hours for any DAS trip.

Characterization of Trip Length

Under the proposal to count trips as a minimum of fifteen or twenty-four hours, there are three broad possibilities for the length of trips. Trips of three hours or less are counted based on the actual time used. This provides fishermen a small window of opportunity to start the days at sea clock and then return to port and stop the clock for a variety of reasons: poor weather, equipment failure, because something was forgotten, etc. Trips of more than three hours up to twenty-four hours (or up to fifteen hours) will be charged a minimum of twenty-four hours on the DAS clock. These trips are referred to as "short trips" in the following discussion. Trips over twenty-four hours in length will be charged the actual time used. In the following characterization of trips, vessels are described according to the number of trips taken that are either three hours or less or more than twenty-four hours (since these trips count actual hours), and for trips that are more than three hours in length up to twenty-four hours (since these trips are charged a minimum of twenty-four hours).

All Areas

Figure 9 summarizes, by groundfish permit category, the number of trips taken by groundfish vessels in all areas in fishing year 1997. In all permit categories, most vessels take 25 trips or less. For the individual DAS and hook gear permit categories, almost all vessels made 50 trips or less. For vessels in the fleet DAS permit category, there is a wide range in the number of trips taken, with nearly 25% of the vessels taking more than 50 trips during the year. Figure 10 summarizes the information for trips that were greater than three hours and less than or equal to twenty-four hours (referred to as short trips in the following discussion). Just over half the individual DAS vessels did not make any trips of this length, and the remainder of the individual DAS vessels made 25 trips or fewer short trips. About 19% of the fleet DAS vessels did not make any short trips, while nearly half made 25 or fewer short trips. 21% of the fleet DAS vessels made more than 50 short trips.

Figure 11 summarizes frequency of trip length for the four major groundfish gear types. The data in this figure is based on vessels that used a gear for the majority of its landings, by value. For each of the gear types, the most vessels take 25 or fewer trips during the course of the year. 74% of the handline vessels, 66% of the bottom trawl vessels, 38% of the bottom longline vessels, and 37% of the sink gillnet vessels made 25 trips or less.

Figure 12 illustrates similar information for short trips. 82% of the handline vessels, 79% of the bottom trawl vessels, 53% of the bottom longline vessels, and 48% of the sink gillnet vessels made 25 or fewer short trips. 41% of the sink gillnet vessels, 27% of the bottom longline vessels, 12% of the bottom trawl, and 7% of the handline vessels made more than 50 short trips.

Figure 13 and Figure 14 summarize all trips and short trips by fifteen principal landing ports. Each vessel was assigned to a port based on where it landed the majority of its catch. The most frequent number of trips taken in every port except for Provincetown is twenty-five trips or less. In South Bristol ME, Portland, Boston, New Bedford, Newport, and Barnstable, there are only a small proportion of vessels that take more than 25 trips. 45% of the vessels that landed in Hampton/Seabrook, 43% of the vessels landing in Chatham, and 38% of the vessels landing in Gloucester took more than 50 trips. When examining short trips, 45% of the vessels in Hampton/Seabrook, 39% of the vessels in Chatham, and 37% of the vessels in Gloucester took more than 50 short trips.

Figure 15 through Figure 20 summarize groundfish DAS trips taken during fishing year 1998. There are minor differences between observed activity in 1997 and that in 1998. Overall, more vessels took a fewer number of trips in 1998, but the changes are relatively minor. It is still true that the majority of vessels take 25 trips or less in all permit categories. There is a small increase in the number of bottom trawl vessels that took 25-50 trips, while the number of sink gillnet vessels that took more than 50 trips declined.

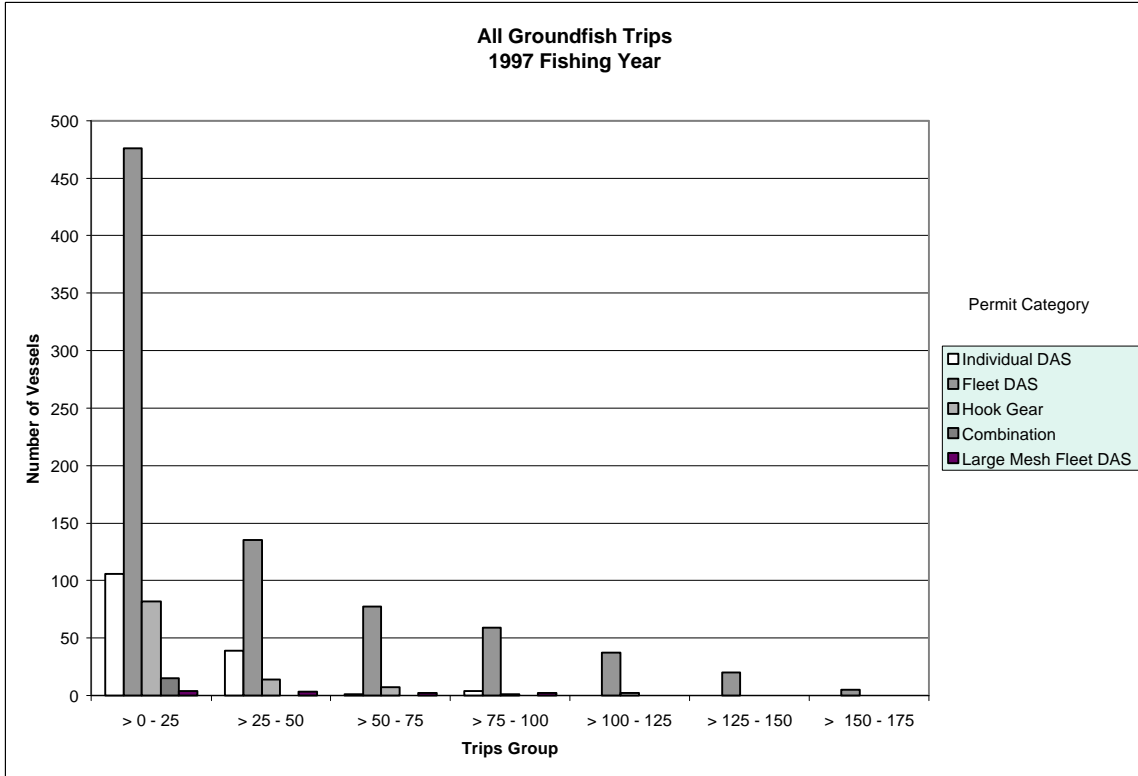


Figure 9 – Number of trips by permit categories, fishing year 1997

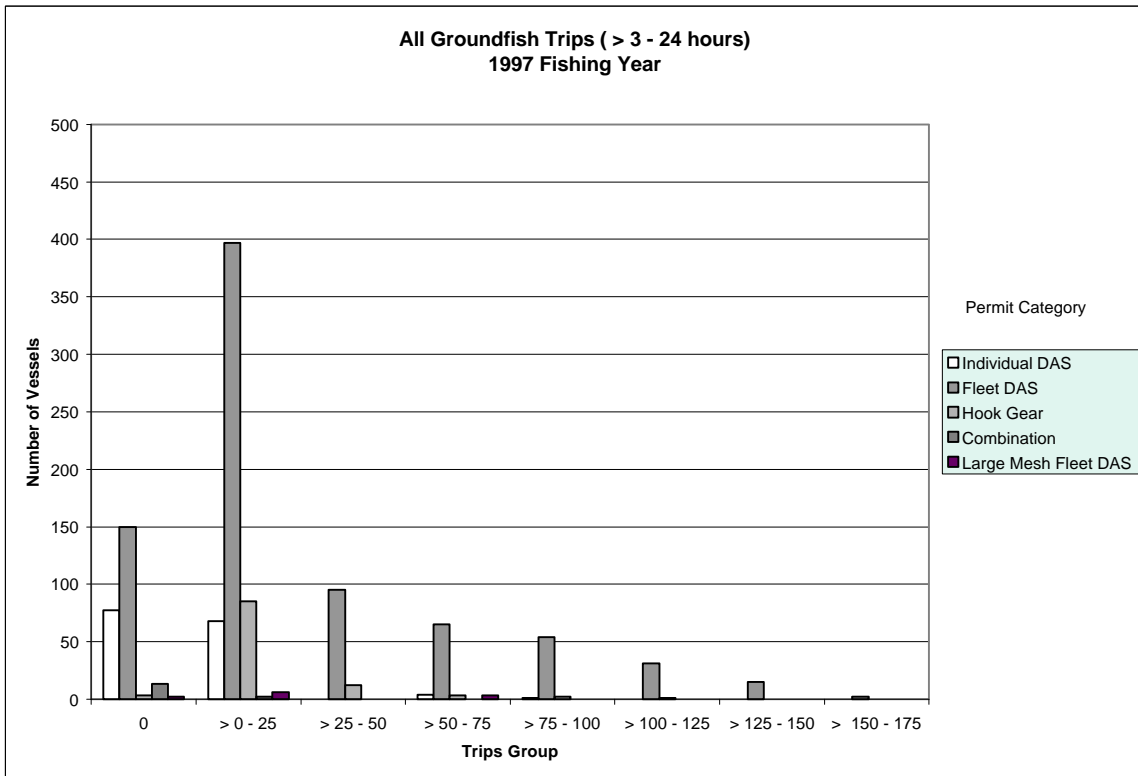


Figure 10 – Groundfish trips (> 3 – 24 hours), by permit category, fishing year 1997

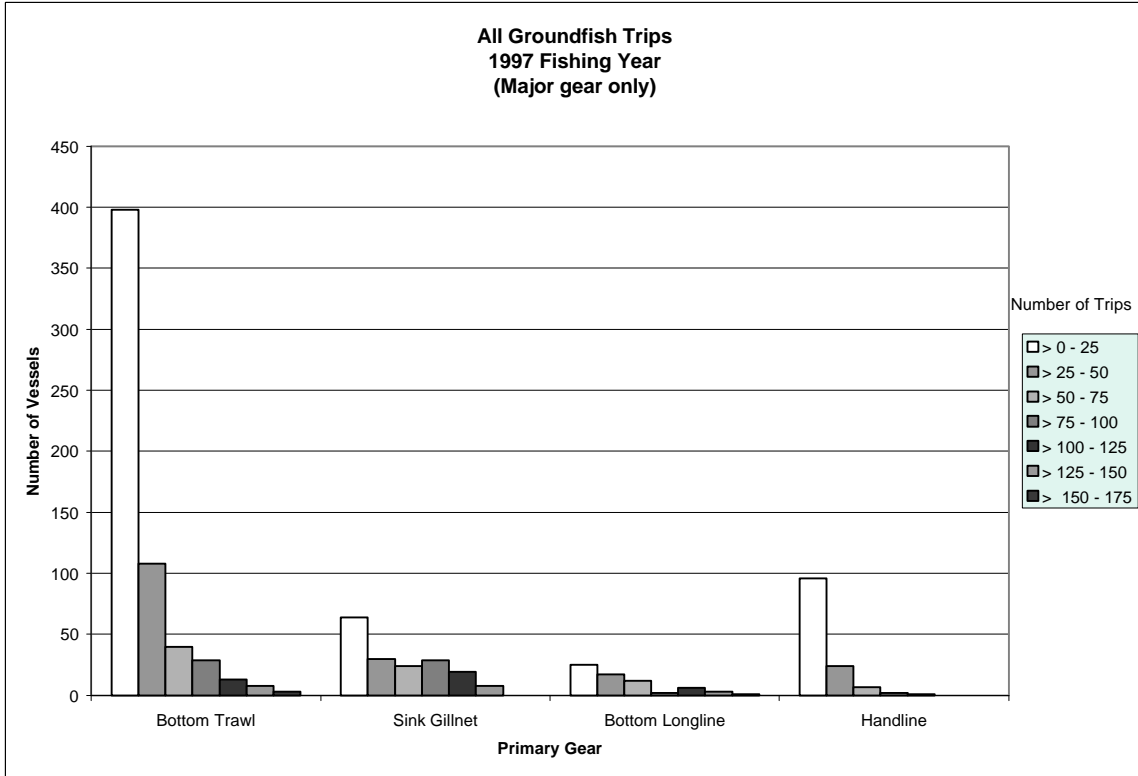


Figure 11 – Groundfish trips, by major gear types, fishing year 1997

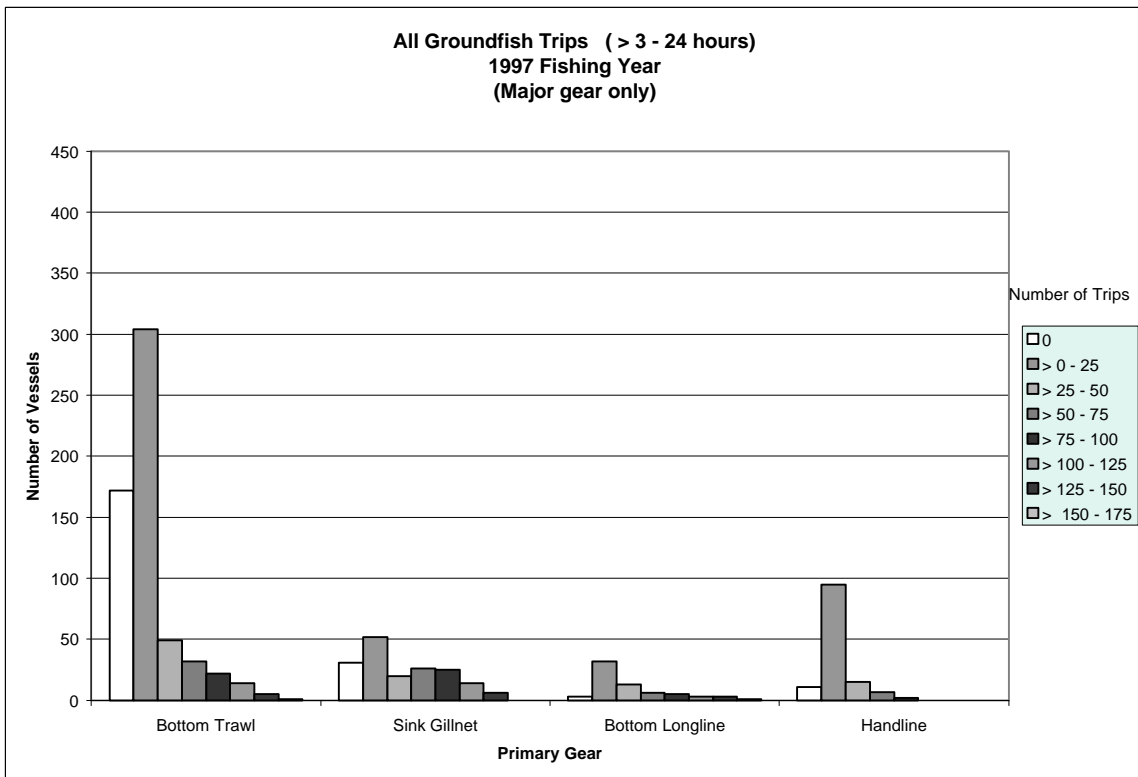


Figure 12 – Groundfish trips (> 3 – 24 hour)s, by gear type, fishing year 1997

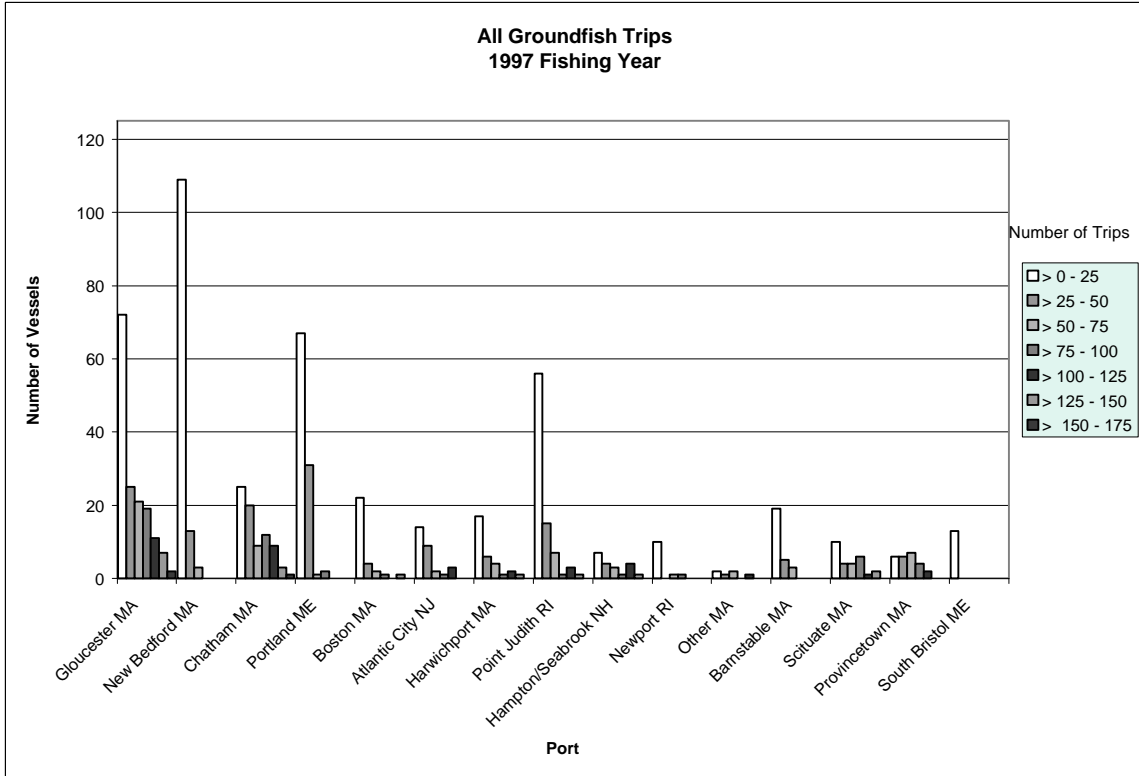


Figure 13 – Number of groundfish trips, by landing port, fishing year 1997

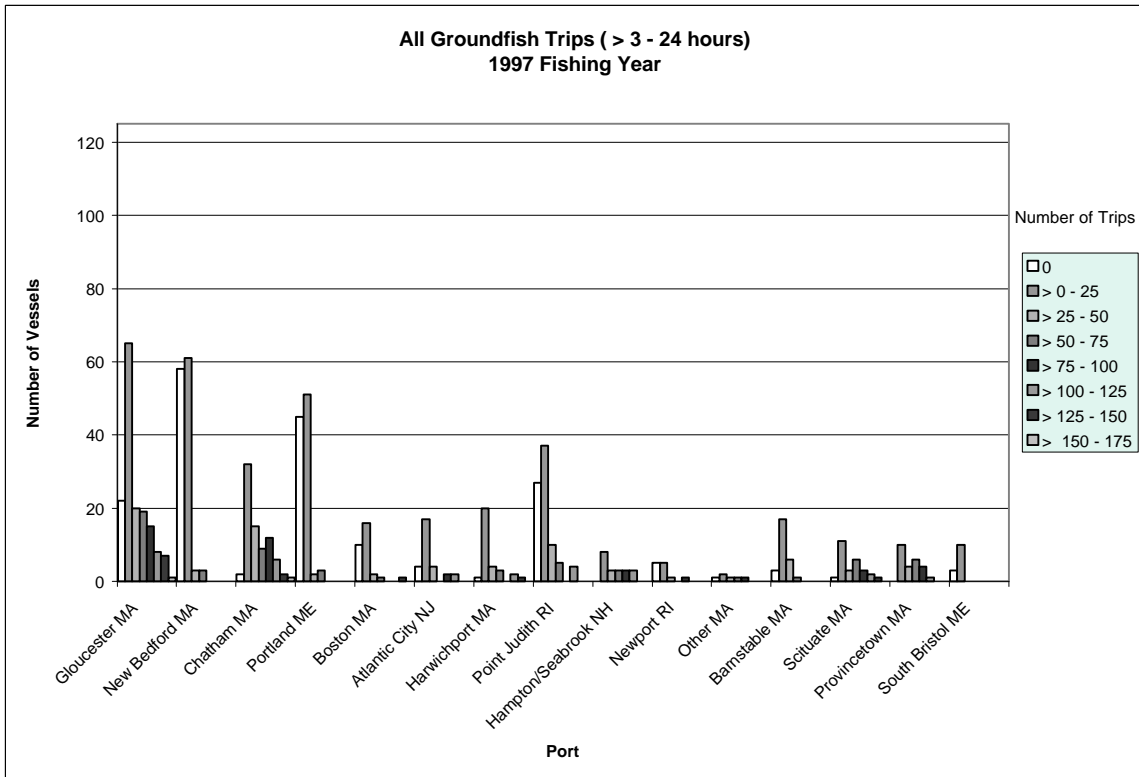


Figure 14 – Groundfish trips (>3 – 24 hours), by landing port, fishing year 1997

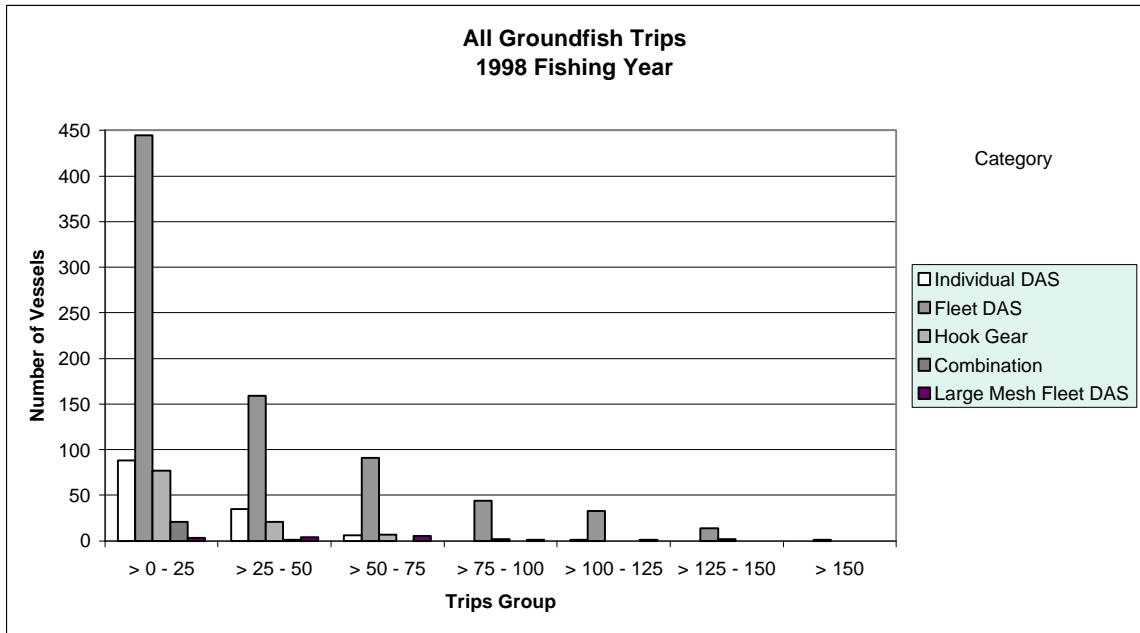


Figure 15 – Groundfish trips, by permit category, fishing year 1998

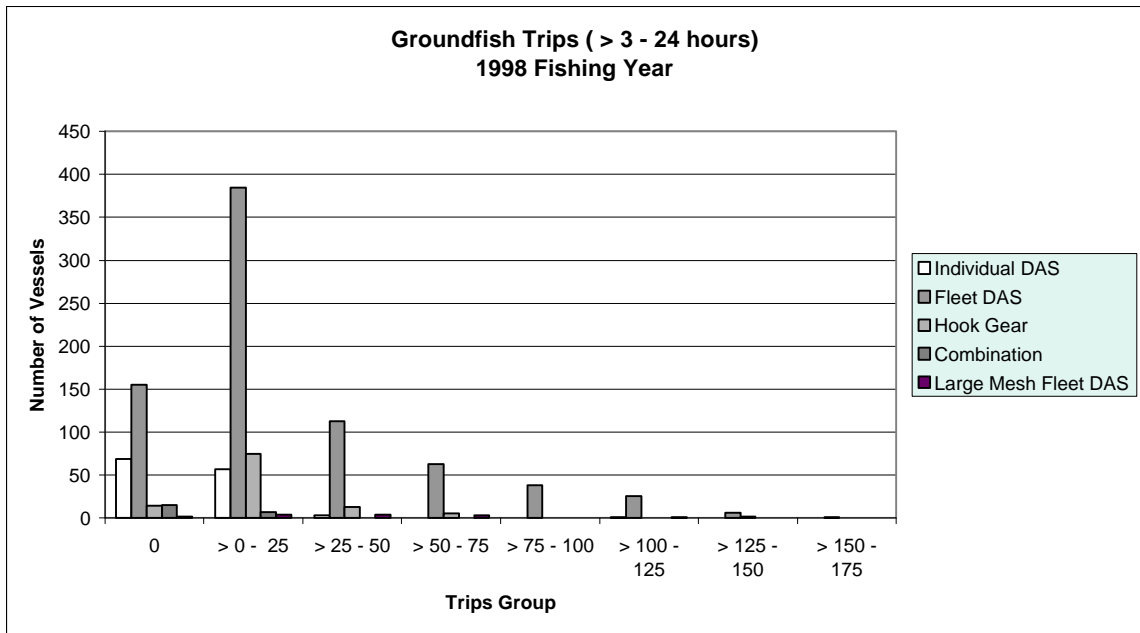


Figure 16 – Groundfish trips (> 3 – 24 hours), by permit category, fishing year 1998

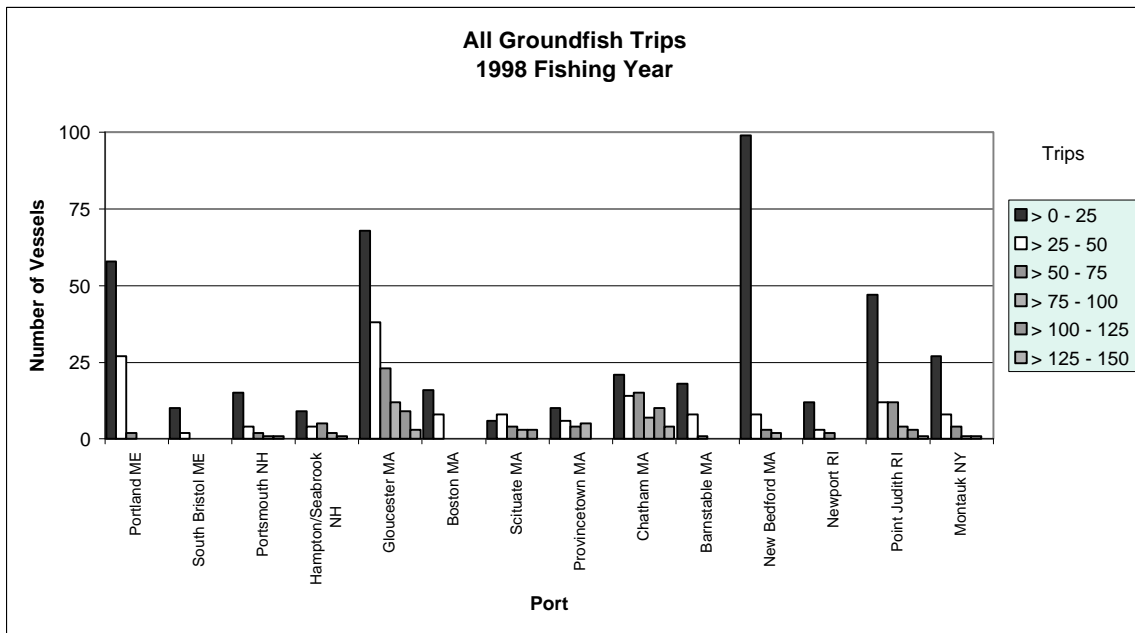


Figure 17 – Groundfish trips, by principal landing port, fishing year 1998

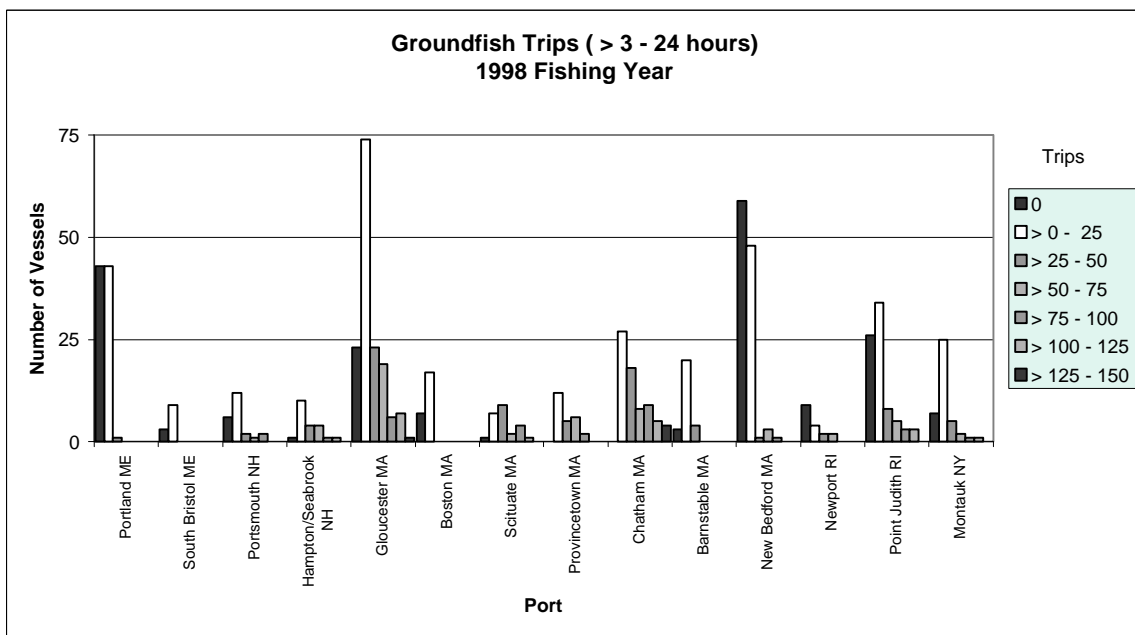


Figure 18 - Groundfish trips (> 3 – 24 hours), by principal landing port, fishing year 1998

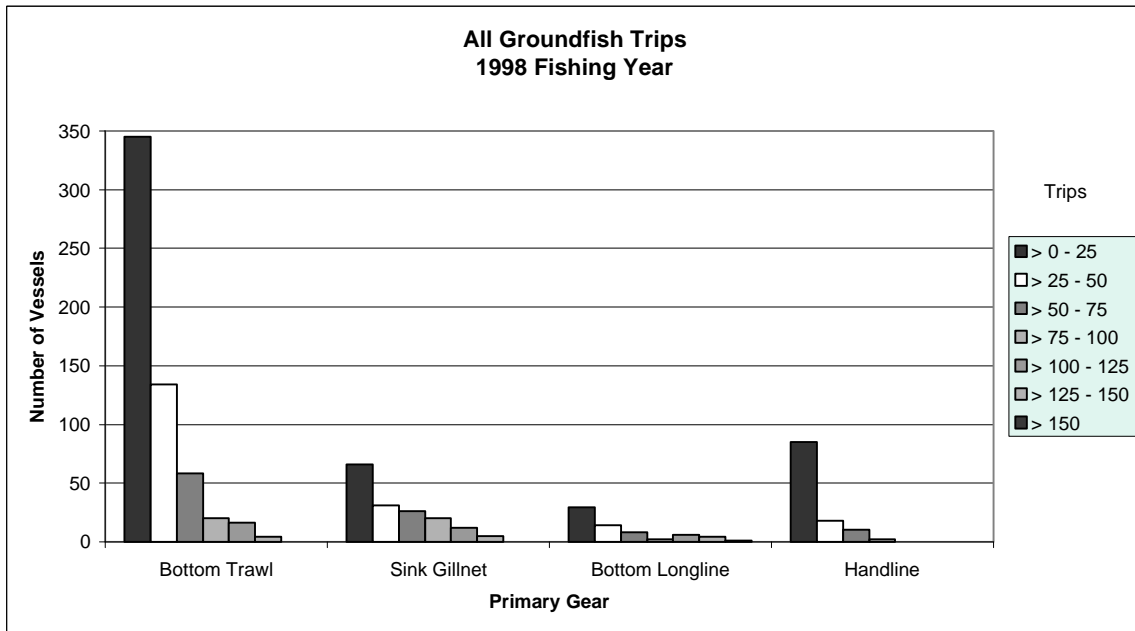


Figure 19 - Groundfish trips, for major gear types, fishing year 1998

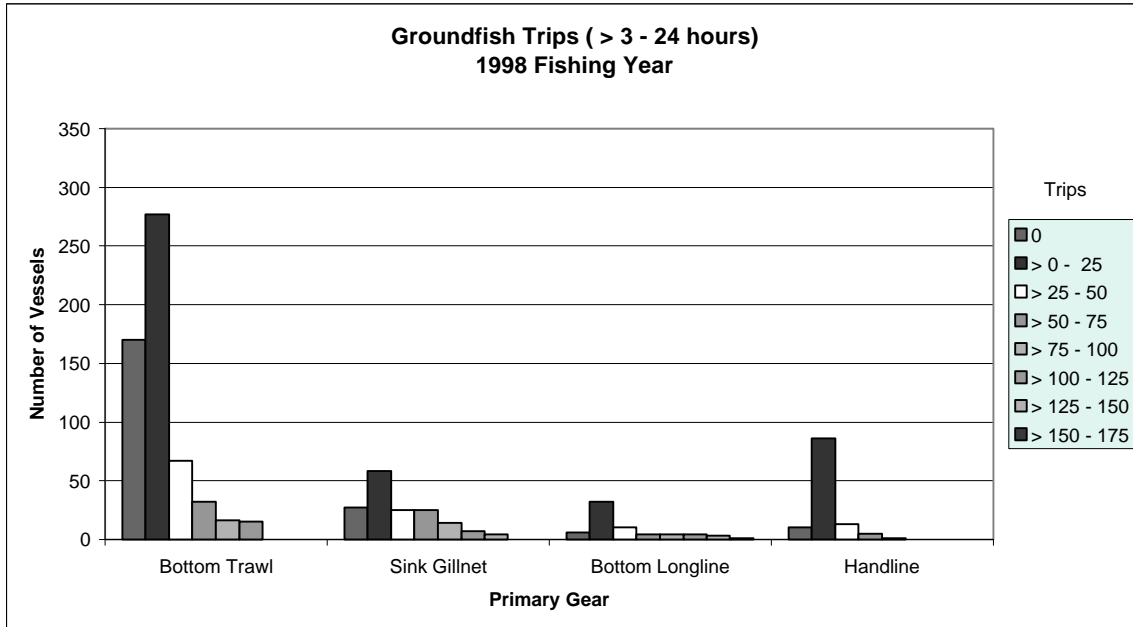


Figure 20 – Groundfish trips (> 3 – 24 hours), for major gear types, fishing year 1998