

2014

# Fishermen's Knowledge of Halibut and Their Habitat

Julia Beaty  
*University of Maine*

Follow this and additional works at: [https://digitalcommons.library.umaine.edu/seagrant\\_pub](https://digitalcommons.library.umaine.edu/seagrant_pub)



Part of the [Aquaculture and Fisheries Commons](#)

---

## Repository Citation

Beaty, Julia, "Fishermen's Knowledge of Halibut and Their Habitat" (2014). *Maine Sea Grant Publications*. 30.  
[https://digitalcommons.library.umaine.edu/seagrant\\_pub/30](https://digitalcommons.library.umaine.edu/seagrant_pub/30)

This Report is brought to you for free and open access by DigitalCommons@UMaine. It has been accepted for inclusion in Maine Sea Grant Publications by an authorized administrator of DigitalCommons@UMaine. For more information, please contact [um.library.technical.services@maine.edu](mailto:um.library.technical.services@maine.edu).

# Fishermen's knowledge of Halibut and their habitat



This report contains the results of a study aimed at **collecting and summarizing fishermen's knowledge of Atlantic halibut and their habitat off the coast of Maine.**

## Methodology

- 25 halibut fishermen from Knox, Hancock, and Washington counties were interviewed in 2013 & 2014.
- Interviews focused on the general characteristics of areas where halibut are caught. Fishing areas were not mapped as part of this project.



C. Bartlett



J. Runnebaum

## Why is this research needed?

- Relatively few scientific data are available to describe the biology, behavior, and distribution of Atlantic halibut (*Hippoglossus hippoglossus*) in the Gulf of Maine.
- Our current understanding of the habitat preferences of halibut is based mostly on studies from Canada and Europe (1).
- A local understanding of halibut and their habitat in the Gulf of Maine can help inform management of the halibut fishery.
- Fishermen are keen observers of the marine environment and can provide information that cannot be easily measured and analyzed scientifically.
- This report presents fishermen's knowledge of halibut and their habitat. This information will be used in conjunction with the results of statistical models to improve our understanding of halibut in the Gulf of Maine.



School of Marine Sciences

# Findings: where are halibut?

## Bottom

- Halibut are caught on all but the hardest bottom types.
- **Halibut prefer “edges”**, usually meaning a change in depth corresponding with the boundary between two or more sediment types.
- In terms of catching halibut, depth is generally not as important as the structure of the bottom and the sediment type in any given area.
- “Old timers” used to catch halibut closer inshore and in shallower water than is the current practice. This is partly (but not entirely) because technological advances have made it easier to fish farther from shore and also because high densities of lobster traps in the spring now limit where fishermen can set their halibut gear. \*



C. Bartlett

*“[I]t’s a] fishermen’s tale that easterly wind, you don’t catch fish on easterly wind. So generally we wouldn’t fish around that.”*

— Washington county fisherman

*“[S]ome of the old timers talk[ed] about halibut getting up into the bottom, up on the harder bottom. And I’ve tried it but I’ve never got any up on the hard bottom so I stay off it. But I like to fish the edges of it. Especially where there’s a clear edge where the hard comes down to a flat.”*

— Hancock county fisherman

## Weather

- **Wind:** Many participants said that when it comes to catching halibut, “**east is least, west is best**”, meaning that they don’t catch as many halibut when the wind blows from the east. Several others thought this saying wasn’t necessarily true. \*
- **Tides:** Many participants said that they are usually not very successful on the biggest tides (during the full and new moons). When current speeds are strong, as they are on big tides, it is difficult to set gear.
- **Temperature:** Participants noticed that in warm years halibut come inshore earlier than in average years.

## Prey species

- **Halibut are not picky eaters;** interviewees listed 20 different items found in halibut stomachs.
- Small **crabs** (mostly the jonah crab, *Cancer borealis* and rock crab, *C. irroratus*) were the most frequently mentioned prey species, followed by small **lobster**. Shrimp, Atlantic herring, and longhorn and shorthorn sculpin were also mentioned many times.
- Several participants had caught halibut with empty stomachs, which may be evidence of a defense mechanism causing the halibut to regurgitate when hooked through the jaw.
- **When it comes to bait, the fresher the better.** The most commonly used baits are alewives, herring, and mackerel, all of which are available fresh when the Maine commercial halibut season takes place.
- Because of the high inshore abundances of lobsters and crabs during the halibut season, bait does not stay on the bottom for very long.

## Migration

- Halibut are generally still offshore when the season opens on May 1st but they come closer inshore by late May and early June. In warmer years they arrive earlier and leave earlier.
- Small halibut are occasionally caught as bycatch in lobster traps, shrimp nets, or scallop drags between October and March, **suggesting that not all halibut migrate offshore in the fall and winter as is generally thought.**\* Because adult halibut can outswim trawl nets, some larger halibut may also stay relatively close inshore during the fall and winter, but fishermen do not have a way of observing them.

## Big halibut and little halibut

- Participants observed that large and small halibut do not travel together. Different sizes of halibut can be caught in the same area, but generally not at the same time. \*
- Juveniles may avoid adults to minimize the risk of cannibalism.
- Many participants thought that larger halibut usually do not come as close inshore as smaller halibut.
- Maine halibut fishermen are restricted to a size 14/0, 15/0, or 16/0 circle hook. These hook sizes likely prevent them from catching both very large and very small halibut.



C. Bartlett

## Population trends

- Most participants mentioned that they had noticed a **considerable increase in the abundance of juvenile halibut** in recent years.
- The high degree of consensus regarding this increase in abundance is particularly striking given that no participants were asked if they had observed changes in halibut abundances.

*"Sometimes you get down there and get big fish and sometimes you go down there and catch all little fish. So I don't know if there are waves of them that are coming through or if they're just hungry at different times and they're biting."*

— Hancock county fisherman

## Management of the halibut fishery

- Many participants were frustrated by the fact that while Canadian fishermen and Maine fishermen target the same population of halibut (2), Canadians fishing on the nearby Scotian Shelf may keep a 32" halibut (3), while Maine fishermen are subject to a 41" minimum size. Halibut in nearby Canadian waters can legally be harvested before many of them have reached the size of reproductive maturity (3).
- **Participants expressed a desire that management decisions be based on science.**
- Many participants stated that with a catch limit of 25 halibut per year, the fishery is economically viable and keeps population impacts low, but they wished this number was supported by scientific studies.
- Some participants wanted increased access to halibut in federal waters.

## Most important factors

When asked, "What is the most important determinant of whether or not you will catch a halibut?" the most frequent answers were:

- Tide
- Bait
- Being on the right bottom



C. Bartlett

*"I've said it at meetings. I've said in front of Canadian scientists. I've said it in front of Canadian fishermen. We are their sustainable fishery... But we need to recognize this is all one big pot that everything is being caught in and so we are very much dependent on one another. I just see this as such a weak point, such a problem in terms of the way the Canadians fish in relation to what we do..."*

— Washington county fisherman

\* Items marked with an asterisk represent phenomena that, to the best knowledge of the author, are not documented in the scientific literature.

## The social and economic importance of the halibut fishery

- The halibut fishery **provides a helpful supplemental** income for fishermen in the spring before lobstering takes off. The lobster fishery provided the main source of income for virtually all interviewees.
- There is high demand for halibut and fishermen receive good prices for the halibut they sell.
- Most participants said they enjoyed fishing for halibut because it is exciting to catch fish with hooks and lines.

## In conclusion

- Interviewees' responses provided a wealth of information about halibut and their habitat, some of which was not previously documented in the scientific literature.
- Interviewees were better able to observe some aspects of the marine environment than others. Scientific studies also have limitations, which is why it is beneficial to bring fishermen's knowledge and scientific data together to allow for a more complete understanding of the natural world.

## Stay tuned...

- If you would like to read the full-length report on this project which has much more detail, please contact Julia Beaty (contact info below).
- A statistical model describing habitat preferences is in the works and should be complete by May 2014. The results of the statistical model will work together with the fishermen's knowledge contained in this report to provide a more complete understanding of the habitat preferences of Atlantic halibut.

Questions? Comments? Want to read  
the full report? Contact:

**Julia Beaty, University of Maine**  
Julia.beaty@maine.edu, 207.581.4432

**Advisors:**

Dr. Jim Wilson, University of Maine  
jwilson@maine.edu

Dr. Yong Chen, University of Maine  
ychen@maine.edu

## THANK YOU!

Many thanks to the 25 fishermen who  
contributed their knowledge to this project!

*Also thanks to:*

**Paul Anderson, Maine Sea Grant**

**Carla Guenther, Penobscot East Resource Center**

**Chris Bartlett, Maine Sea Grant**

**Kristan Porter, F/V Whitney and Ashley, INC.**

Many thanks to **Maine Sea Grant** for financial  
support of this project!



### References

1. Cargnelli L M, Griesbach S J, and Morse W M. 1999. Essential fish habitat source document: Atlantic Halibut, *Hippoglossus hippoglossus*. NOAA Tech. Memo. NMFS-NE-125.
2. Kanwit J K. 2007. Tagging Results from the 2000-2004 Federal Experimental Fishery for Atlantic Halibut (*Hippoglossus hippoglossus*) in the Eastern Gulf of Maine. *Journal of Northwest Atlantic Fishery Science*. Vol. 38. Pp. 37-42.
3. DFO. 2010. Assessment of Atlantic Halibut on the Scotian Shelf and Southern Grand Banks (NAFO Divisions 3N0Ps4VWX5Zc). DFO Canadian Science Advisory Secretariat. Science Advisory Report 2010/006.