

Massachusetts Trawl Gear Characterization
Prepared by the Atlantic States Marine Fisheries Commission

1.1 TRAWLS

1.1.1.1 Gear Description

The Massachusetts trawl fishery consists of otter and beam trawls, including mid-water trawls, and bottom pair trawls.

1.1.2 Otter and Beam Trawls

1.1.2.1 Gear Description

For general descriptions and diagrams of otter and beam trawls see the gear appendix.

Massachusetts' regulations on gear parameters for trawlers are generally consistent with or more restrictive than federal plans (McKiernan 2006, pers. comm.). Trawl nets have a minimum mesh size of 6.5 inches (17 centimeters) throughout the cod-end and six inches (15 centimeters) throughout the remainder of the net. Nets cannot have disks, rollers, or rockhoppers greater than 12 inches (30 centimeters) in diameter (322 CMR 8.11).

Trawls operating under a north shore mobile gear endorsement have a maximum footrope length of 80 feet (23 meters) and no rollers may be used (MA DMF 2005d).

From September 1 through November 20 trawlers with a small-mesh endorsement for whiting may fish with a minimum mesh size of 2.5 inches (6.4 centimeters). With this endorsement, the headrope must be rigged with floats at least eight inches (20 centimeters) in diameter and must be attached along the entire length of the headrope with a maximum spacing of four feet (1.2 meters). The total length of the ground cables must not be greater than 40 fathoms (73 meters) from the doors to the wing ends. The footrope must be longer than the headrope, but not more than 20 feet (6.1 meters) longer, and rigged so that it does not contact the bottom while fishing. The raised footrope trawl may be used with or without a chain sweep (322 CMR 8.14).

From April 23 through June 9 trawlers are allowed to use small-mesh nets to fish for squid with a small-mesh permit (322 CMR 8.07). The net rollers for these trawls must be 12 inches (30 centimeters) in diameter (MA DMF 2005d).

1.1.2.2 Gear Deployment

For general information on how otter and beam trawls are deployed see the gear appendix.

1.1.2.3 Targeted Species

Trawls primarily target groundfish north of the Cape. South of the Cape, there is a fishery for summer flounder and squid (McKiernan 2006, pers. comm.). Trawl fishermen holding a small-mesh endorsement for whiting target whiting, and those holding a small-mesh permit for squid target squid (MA DMF 2005d).

1.1.2.4 Number of Permitted and Active Fishermen

Commercial fishermen are required to have either a boat or individual permit and a regulated fishery endorsement. The types of endorsements applicable to trawlers include inshore net, mobile gear coastal access, north shore mobile gear coastal access, small-mesh fishing for whiting, and small-mesh fishing for squid. Species-specific endorsements are sometimes required for summer flounder, scup, sea herring, sea bass, and dogfish, if applicable (MA DMF 2005d). For descriptions of the permits and number of permits and endorsements issued in 2004, see Appendix 2, Tables 2-1 and 2-3. Except for summer flounder, none of these endorsements requires a catch report, and no other catch and effort data was available.

In 2004, 417 permit applicants indicated that otter/beam trawls would be the primary gear, while 25 indicated that mid-water trawls would be the primary gear (Appendix 2, Table 2-2). Many of those permit applicants that indicated that otter/beam trawls would be the primary gear fish in federal waters. In 2004, 359 vessels were authorized to fish in state waters with mobile gear (Coastal Access Permits). There is a 72-foot (23-meter) length limit for vessels with a Coastal Access Permit; no vessel longer than 72 feet (23 meters) can fish in state waters (McKiernan 2006, pers. comm.).

1.1.2.5 Effort

Areas closed to mobile gear include Inshore Net Areas (estuaries and harbors including Buzzards and Mt Hope Bays), Fish Weir Buffer Zone within the area marked by anchor buoys, North Shore state waters (Broad Sound to New Hampshire except for Areas 5 and 6 where Regulated fishery endorsement is required), and other areas based on time of year. For specific details on areas closed to mobile gear, see 322 CMR 3.04, 4.02, 4.04, 8.09, and 8.12. Areas closed to lobster harvest include the Fish Weir Buffer Zone within the area marked by anchor buoys, Greater New Bedford Harbor north of a line from Ricketson's Point (Dartmouth) to Wilbur Point (Fairhaven). The eastern portion of the Uppder Cape Cod Bay Whiting Area is closed from October 1 to November 20. For specific descriptions of areas closed to lobster harvest, see 322 CMR 6.29. Trawling at night is prohibited (322 CMR 8.03). Except for summer flounder, none of the endorsements applicable to trawling requires a catch report, and no other catch and effort data was available. The depth and time of day fished is not available.

1.1.2.6 Status of the Fishery

Except for summer flounder, none of the other endorsements applicable to trawling requires a catch report, and no other catch and effort data was available. Five-year trends for catch and effort in the otter and beam trawl fisheries are not available.

1.1.2.7 Sea Turtle Bycatch

As part of a 2001 stock assessment of loggerhead and leatherback sea turtles, Braun-McNeill and Witzell summarized observed and estimated incidental take levels for permitted and non-permitted activities impacting sea turtles. They received personal communication from the Wellfleet Bay Wildlife Sanctuary that during bottom trawling in state waters, there was one observed take of an immature loggerhead sea turtle (NMFS SEFSC 2001).

There is no state-run observer program for sea turtle bycatch in the otter and beam trawl fishery. The Division of Marine Fisheries conducts fisheries dependent investigations, including an

industry-based survey for Gulf of Maine cod. From April 1 through September 30, a DMF employee spent seven days at sea on commercially active fishing vessels using standardized net, door, meshsize, and pre-picked tow locations. This represents less than one percent coverage of the beam and otter trawl fishery. Two sea turtle interactions have been observed through this program. In November 1993 an inshore trawler targeting winter flounder in four to six fathoms (seven to eleven meters) in Cape Cod Bay caught a Kemp's ridley. In July of 1999 an inshore trawler targeting summer flounder in four to six fathoms (seven to eleven meters) caught a small loggerhead. Both turtles were released alive (McKiernan 2006, pers. comm.).

1.1.2.8 Laws and Regulations

Nets cannot have disks, rollers, or rockhoppers greater than 12 inches (30 centimeters) in diameter (322 CMR 8.11). Trawls operating under a north shore mobile gear endorsement have a maximum footrope length of 80 feet (23 meters) and no rollers may be used (MA DMF 2005d). For areas closed to mobile gear, see 322 CMR 3.04. Spawning areas are closed to commercial finfish fishing from February 1 to May 31. For descriptions of these areas, see 322 CMR 8.09. For groundfish closure areas, see 322 CMR 8.12.

1.1.3 Bottom Pair Trawls

1.1.3.1 Gear Description

For a general description of bottom pair trawls see the gear appendix, and for more information on trawling in Massachusetts see section 4.1.2.1.

1.1.3.2 Targeted Species

Trawl fishermen holding a small-mesh endorsement for whiting target whiting, and those holding a small-mesh permit for squid target squid. Fishermen may not catch striped bass, shad, smelt, tuna, and billfish with bottom pair trawlers (MA DMF 2005d).

1.1.3.3 Number of Permitted and Active Fishermen

Commercial fishermen are required to have either a boat or individual permit and a regulated fishery endorsement. The types of endorsements applicable to trawlers include inshore net, coastal access, north shore mobile gear coastal access, small-mesh fishing for whiting, and small-mesh fishing for squid. Species-specific endorsements are sometimes required for summer flounder, scup, sea herring, sea bass, and dogfish, if applicable (MA DMF 2005d). For descriptions of the permits and number of permits and endorsements issued in 2004, see Appendix 2, Tables 2-1 and 2-3. Except for summer flounder, none of these endorsements requires a catch report, and no other catch and effort data was available.

In 2004, four permit applicants indicated that pair trawls would be the primary gear (Appendix 2, Table 2-2).

1.1.3.4 Effort

Areas closed to mobile gear include Inshore Net Areas (estuaries and harbors including Buzzards and Mt Hope Bays), Fish Weir Buffer Zone within the area marked by anchor buoys, North Shore state waters (Broad Sound to New Hampshire except for Areas 5 and 6 where Regulated fishery endorsement is required), and other areas based on time of year. For specific details on

areas closed to mobile gear, see 322 CMR 3.04, 4.02, 4.04, 8.09, and 8.12. Trawling at night is prohibited (322 CMR 8.03). None of the endorsements applicable to trawling requires a catch report, and no other catch and effort data was available. The depth and time of day fished is not available.

1.1.3.5 Status of the Fishery

None of the endorsements applicable to bottom pair trawling requires a catch report, and no other catch and effort data was available. Five-year trends for catch and effort in the bottom pair trawl fishery is not available.

1.1.3.6 Sea Turtle Bycatch

There is no state-run observer program for the bottom pair trawl fishery, and no other bycatch reports were available.

1.1.3.7 Laws and Regulations

Nets cannot have disks, rollers, or rockhoppers greater than 12 inches (30 centimeters) in diameter (322 CMR 8.11). Areas closed to mobile gear include Inshore Net Areas (estuaries and harbors including Buzzards and Mt Hope Bays), Fish Weir Buffer Zone within the area marked by anchor buoys, North Shore state waters (Broad Sound to New Hampshire except for Areas 5 and 6 where Regulated fishery endorsement is required), and other areas based on time of year. For specific details on areas closed to mobile gear, see 322 CMR 3.04, 4.02, 4.04, 8.09, and 8.12. Spawning areas are closed to commercial finfish fishing from February 1 to May 31. For descriptions of these areas, see 322 CMR 8.09. For groundfish closure areas, see 322 CMR 8.12.

WORKS CITED

Chase, B. 2006. Massachusetts Division of Marine Fisheries. Personal communication.

Dean, M. 2005. Massachusetts Division of Marine Fisheries. Personal communication.

Dean, M.J., K.A. Lundy, and T.B. Hoopes. 2005. 2003 Massachusetts lobster fishery statistics. Massachusetts Division of Marine Fisheries Technical Report TR-23.
http://www.mass.gov/dfwele/dmf/publications/lobster_report_2003_tr23.pdf

Dean, M.J., K.A. Lundy, and T.B. Hoopes. 2004. 2002 Massachusetts lobster fishery statistics. Massachusetts Division of Marine Fisheries Technical Report TR-20.
http://www.mass.gov/dfwele/dmf/publications/lobster_report_2002_tr20.pdf

Dean, M.J., K.A. Lundy, and T.B. Hoopes. 2002. 2001 Massachusetts lobster fishery statistics. Massachusetts Division of Marine Fisheries Technical Report TR-13.
http://www.mass.gov/dfwele/dmf/publications/lobster_report_2001_tr13.pdf

Kelly, B. 2005. Massachusetts Division of Marine Fisheries. Personal communication.

Macfarland, R. 2005. Massachusetts Division of Marine Fisheries. Personal communication.

- MA DMF. 2005a. Data provided by Micah Dean.
- MA DMF. 2005b. Massachusetts Division of Marine Fisheries Commercial Fishing Permits. http://www.mass.gov/dfwele/dmf/commercialfishing/permit_index.htm.
- MA DMF. 2005c. Massachusetts Division of Marine Fisheries Commercial Shellfish Harvest; 1996-2000. http://www.mass.gov/dfwele/dmf/commercialfishing/5yr_shellfish.pdf
- MA DMF. 2005d. Massachusetts Division of Marine Fisheries Rules & Regulations Summary (as of January 2005).
- McBride, H.M., M.J. Dean, and T.B. Hoopes. 2002. 2000 Massachusetts lobster fishery statistics. Massachusetts Division of Marine Fisheries Technical Report TR-9. http://www.mass.gov/dfwele/dmf/publications/lobster_report_2000.pdf
- McBride, H.M., and T.B. Hoopes. 2001. 1999 Lobster fishery statistics. Massachusetts Division of Marine Fisheries Technical Report TR-2. http://www.mass.gov/dfwele/dmf/publications/lobsterstatistics1999_tr2.pdf
- McKiernan, D. 2006. Massachusetts Division of Marine Fisheries. Personal communication.
- McKiernan, D., M. Pol, and V. Malkoski. 2002. A study of the underwater profiles of lobster trawl ground lines. Commonwealth of Massachusetts; Department of Fisheries, Wildlife, and Environmental Law Enforcement; Division of Marine Fisheries.
- NMFS SEFSC. 2001. Stock assessments of loggerhead and leatherback sea turtles and an assessment of the impact of the pelagic longline fishery on the loggerhead and leatherback sea turtles of the Western North Atlantic. U.S. Department of Commerce NOAA Technical Memorandum NMFS-SEFSC-455, 343 pp.

APPENDIX 1. MAP DEPICTING MASSACHUSETTS REPORTING AREAS

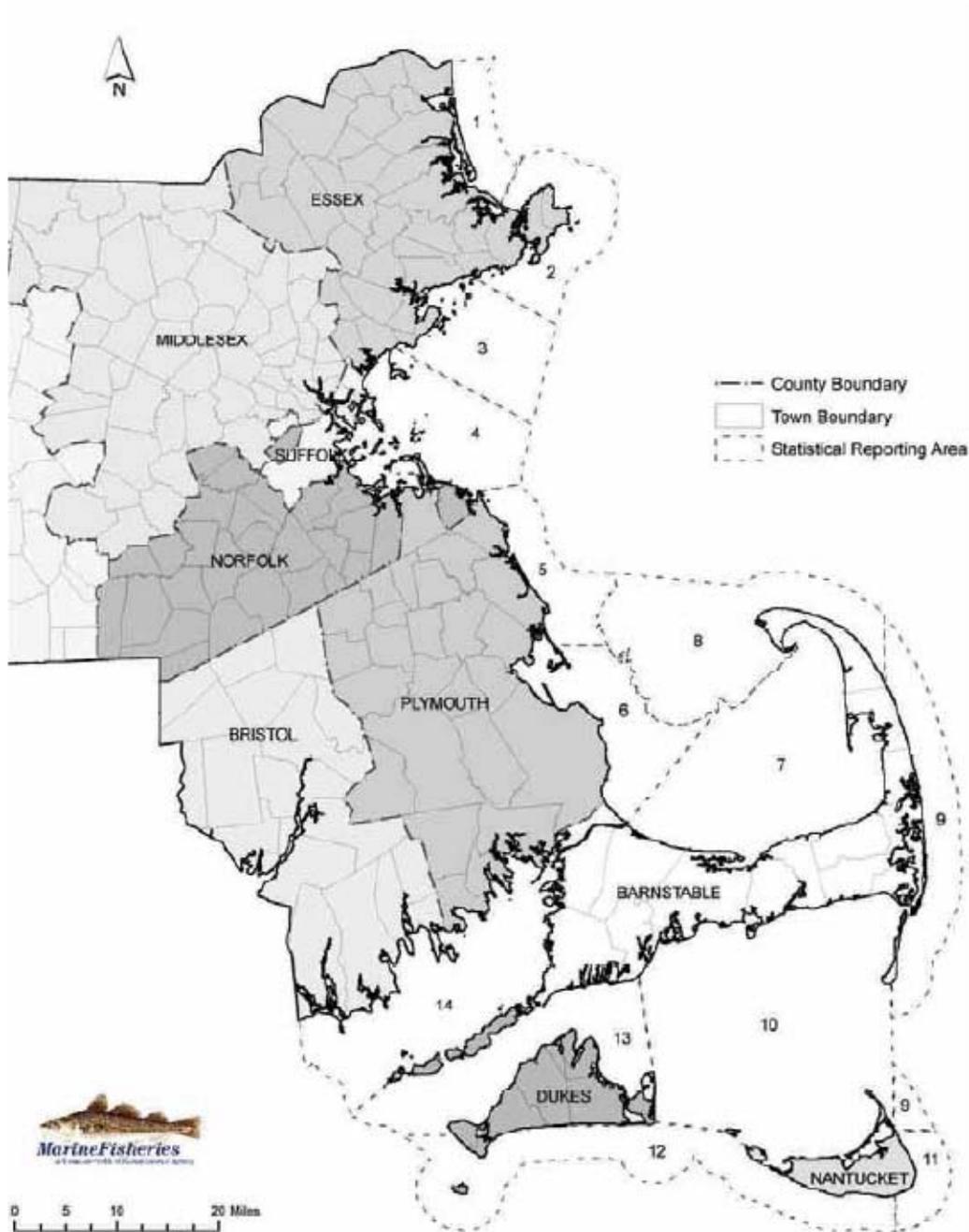


Figure 1-1. Map of coastal Massachusetts showing county boundaries and statistical reporting areas

For purposes of this report, areas one through eight make up areas in the north, and areas nine through 14 make up areas in the south. Map taken from Dean et al. 2005

APPENDIX 2. PERMITS AND ENDORSEMENTS

All persons who land and sell finfish, shellfish, lobsters, edible crabs or other living marine resources in Massachusetts must have a commercial fisherman permit from the DMF, and must sell only to licensed Massachusetts dealers. Commercial permits may be endorsed for access to the many regulated fisheries. Regulated fisheries include most gear types (other than hook fishing), and species that are restricted by quota. All commercial permits except Rod & Reel and Seasonal Lobster may be endorsed for shellfish at no additional cost (MA DMF 2005b).

There are three Boat Permits, depending on the size of the vessel, and allow the taking, landing, and sale of fish (to a licensed dealer). They may be endorsed for shellfish, though no lobsters may be taken. The permits cover everyone aboard the vessel (MA DMF 2005b).

The Coastal Lobster permit allows the taking, landings, and sale of lobsters (to a licensed dealer) harvested within the coastal waters of Massachusetts. There is a maximum of 800 lobster pots per vessel that may be set in state waters. The permit may be endorsed to take and sell shellfish and finfish (MA DMF 2005b).

The Seasonal Lobster permit is issued to full-time students only and allows the licensee only to take and sell lobsters (to a licensed dealer) from June 15 through September 15. A maximum of 25 pots may be used. The sale of fish and/or shellfish is not permitted (MA DMF 2005b).

The Individual permit allows the holder only to take, land, and sell fish (to a licensed dealer) and may be endorsed for shellfish, though no lobster may be taken (MA DMF 2005b).

The Rod & Reel permit allows the holder only to catch and sell finfish (to a licensed dealer) caught by rod and reel only. No other gear types may be used (MA DMF 2005b).

The Shellfish permit allows an individual to take, land, and sell (to a licensed dealer) shellfish and seaworms. A shellfish ID card, from the DMF, and a town permit are also required (MA DMF 2005b).

Table 2-1. Number of permits issued and the number and percent with reported activity in 2004.

Permit Type	Number Issued	Number Reported Fishing	% Active Permits
Boat 0 to 59 Feet	2,830	1,158	41%
Boat 60 to 99 Feet	146	3	2%
Boat 99+ Feet	43	0	0%
Coastal Lobster	1,464	1,022	70%
Seasonal Lobster	100	37	37%
Endorsement Only	291	1	0%
Individual	581	194	33%
Rod & Reel	1,529	508	33%
Shellfish and Rod & Reel	590	207	35%
Shellfish and Seaworms	859	211	25%

Data from MA DMF 2005a

Fishermen indicate on their permit application the gear types that they primarily use.

Table 2-2. The number of permits issued by primary gear type in 2004.

Primary Gear	Number of Permits
Gill Net	108
Longline	98
Mid-water Trawl	25
Otter/Beam Trawl	417
Pair Trawl	4
Pots and Traps	1,655
Purse Seine	10
Rod and Reel	4,355
Shellfish Dredges	482

Data from MA DMF 2005a

Fishermen may opt to obtain none, one, or several endorsements to their permit, which enables them to participate in certain fisheries. Some of these fisheries/endorsements have reporting requirements and are the sources of the catch and effort data in this report.

Table 2-3. The number of endorsements issued in 2004.

Endorsement Type	Number Issued	Catch Report Required?
Inshore Net	274	No
Bluefin Tuna Seine	5	No
Bluefish Gill Net	1	Yes
Dogfish Gill Net	11	Yes
Gill Net	135	Yes
Coastal Access Permit (CAP)	44	No
CAP North Shore Mobile Gear	94	No
CAP Sea Herring	36	No
CAP Sea Scallop Dredge	13	No
CAP Squid	146	No
CAP Whiting	35	No
Quahog Dredge	64	Yes
Sea Urchin Dredge	179	No
Fish Pot - Conch	166	Yes
Fish Pot - Scup	171	Yes
Fish Pot - Sea Bass	66	Yes
Fish Weir	7	Yes
Fluke (Summer Flounder)	1,130	Yes
American Eel	86	Yes
Dogfish	549	No
Horseshoe Crab	230	Yes
Ocean Quahog	34	Yes
Scup	1,417	No
Sea Bass	1,329	No

Sea Herring	143	No
Shellfish Endorsement	3,557	Yes
Striped Bass	4,370	Yes
Surf Clam	41	Yes
Charter Boat	549	No
Guide Boat	15	No
Head Boat	51	No

Data from MA DMF 2005a