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MEMORANDUM

TO: Marine Fisheries Advisory Commission (MFAC)

FROM: Daniel J. McKiernan, Director

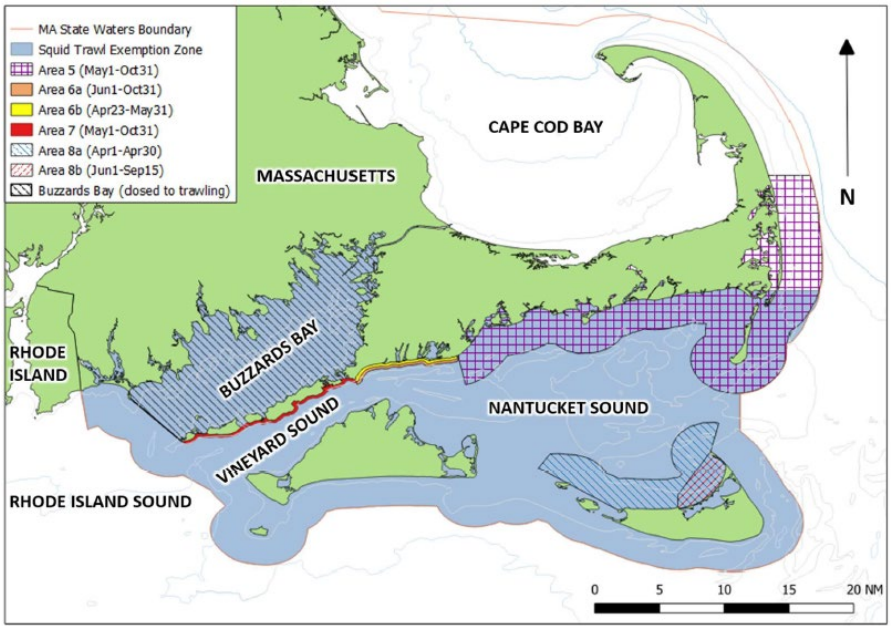
DATE: August 13, 2021

SUBJECT: Proposal to Adjust the Timing of the Inshore Small Mesh Trawl Squid Season

Proposal

I recommend going to public hearing this coming fall or winter with a proposal that would adjust the timing of the inshore small mesh trawl squid season. At present, regulations at 322 CMR 4.06(5)(a) allow this fishing activity to occur within the seasonal Small Mesh Squid Trawl Exempted Area (Fig 1) from April 23 – June 9 and the Director may extend the season beyond June 9 via permit condition. My proposed adjustment would extend the season by an additional six-days — through June 15—and strike the language about the Director extending the fishery.

Figure 1.
Small Mesh Squid Trawl Exempted Area and Mobile Gear Closures



Source: MA DMF

Background

The current timing of the inshore small mesh trawl squid fishery dates back to the early 1990s. At that time, the closure date was frequently amended, moving it between earlier and later dates in June. These changes sought to find a balance between providing commercial fishermen with access to the resource while abundant in state waters; preventing large catches of small squid and juvenile scup, black sea bass, or summer flounder; and addressing concerns from other

stakeholder groups, namely recreational fishermen. Note that in the early to mid-1990s the interstate and federal Summer Flounder, Scup, and Black Sea Bass management plans were being developed to rebuild these species.

Eventually, a small mesh trawl season of April 23 to June 9 was codified in 322 CMR, and DMF was granted the authority to extend the season if sea sampling data demonstrated the catch of squid was predominately large tubes and there was little bycatch of small squid or juvenile scup, black sea bass, and summer flounder[1]. This approach was developed based on sea sampling work that I conducted with former Director Pierce, as well as feedback from stakeholders.

By the early 2010s, the state's observer program deferred much of the sampling to the more robust federal observer program. As a result, DMF became reliant on federal observer data to determine if it was appropriate to extend the squid fishery. This was problematic because federal observer data is typically not available until at least 90 days after trip completion. However, the federal observer program expedited sampling data to DMF, allowing for analysis of trips occurring within a week. Despite this cooperation, DMF was unable to review near-real time data; found it difficult to determine why some bycatch was being discarded (e.g., size restrictions, lack of permits to retain certain species, other regulatory constraints, marketability); and there were only a small number of observed tows that DMF could determine occurred exclusively in state-waters and could be used in our analysis.

In 2018, this regulation was modified to more broadly allow the Director to extend the fishery via permit condition. This eliminated the requirement that such a decision be supported by evidence that an extension would not result in large catches of small squid and juvenile scup, black sea bass, and summer flounder. Instead, staff would call various fishermen and dealers to get a sense of what was being caught and landed, and then try to verify this anecdotal data against the most recent federal observer reports (if available).

Since 2015, DMF extended the fishery beyond June 9 on three occasions. In 2015, the fishery was extended through June 18, and in 2016 and 2019, it was extended through June 16. In 2017, 2018, 2020, and 2021 the fishery closed as scheduled on June 10. This past year provides an interesting scenario, as a nor'easter blew through around Memorial Day and fishing conditions waned during the first week of June. Accordingly, I determined that based on reports of sparse local abundance, we would not extend the fishery beyond June 9 and this announcement was made on June 7. However, immediately following this announcement we received multiple reports that another run of large squid had made their way into the Sound. Had this occurred a day or two before, my decision likely would have been different.

<u>Rationale</u>
Annually, as we approach June 9 closure date, DMF receives frequent calls from constituents advocating a certain position on a potential seasonal extension. Based on the information available to us, we try to make the best decision we can on whether or not to extend the season. This decision has become more and more difficult to make, as we have become more reliant on

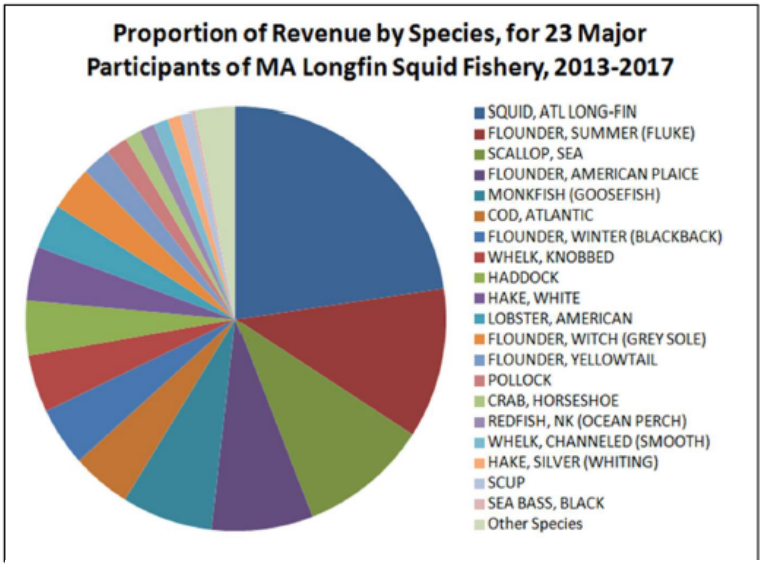
[1] The regulation at 322 CMR 4.06(4)(c)(1)(d) read, "the Director may extend the seasonal small mesh squid fishery if it is determined that continued fishing with small mesh will not result in large catches of small squid less than five inches mantle length, or juvenile scup, black sea bass, or summer flounder."

federal observer data and anecdotal reports. Considerable staff resources (both at DMF and the federal observer program) are allocated to acquiring, keypunching, analyzing and preparing the sampling data, as well as communicating with the fishing industry leading up to the closure. It is certainly an imperfect system, and it frequently foments consternation and frustration among whatever user group feels negatively impacted by our ultimate decision.

From an administrative perspective—based on my experience as Director grappling with this closure date—I prefer moving forward with a more streamlined approach to managing this fishery. First and perhaps most importantly, I think a firm end date would provide greater certainty to all stakeholders. *Commercial fishermen and dealers would be able to better structure their operations knowing the fishery firmly ends on a certain date. In addition, recreational fishermen would be assured the fishery would end on a certain date, providing for fewer user-group conflicts and leaving forage in the water for target predator species.*

Expanding the season by an additional six days would also benefit the trawl fishery without substantially departing from how we currently manage the fishery. The performance of the inshore squid fishery is subject to interannual variability, and this is likely dependent upon squid that survive the offshore wintertime fishery. In years when there is a strong run of squid later in the season, DMF typically extends the fishery; when the run is not as strong, the fishery typically tapers off early as fishermen move on to target other species. This change would effectively allow for this to continue to occur without the added administrative action of having to extend the fishery.

Figure 2.
Proportion of Revenue by Species for 23 Major Participants of MA Longfin Squid Fishery, 2013 – 2017.

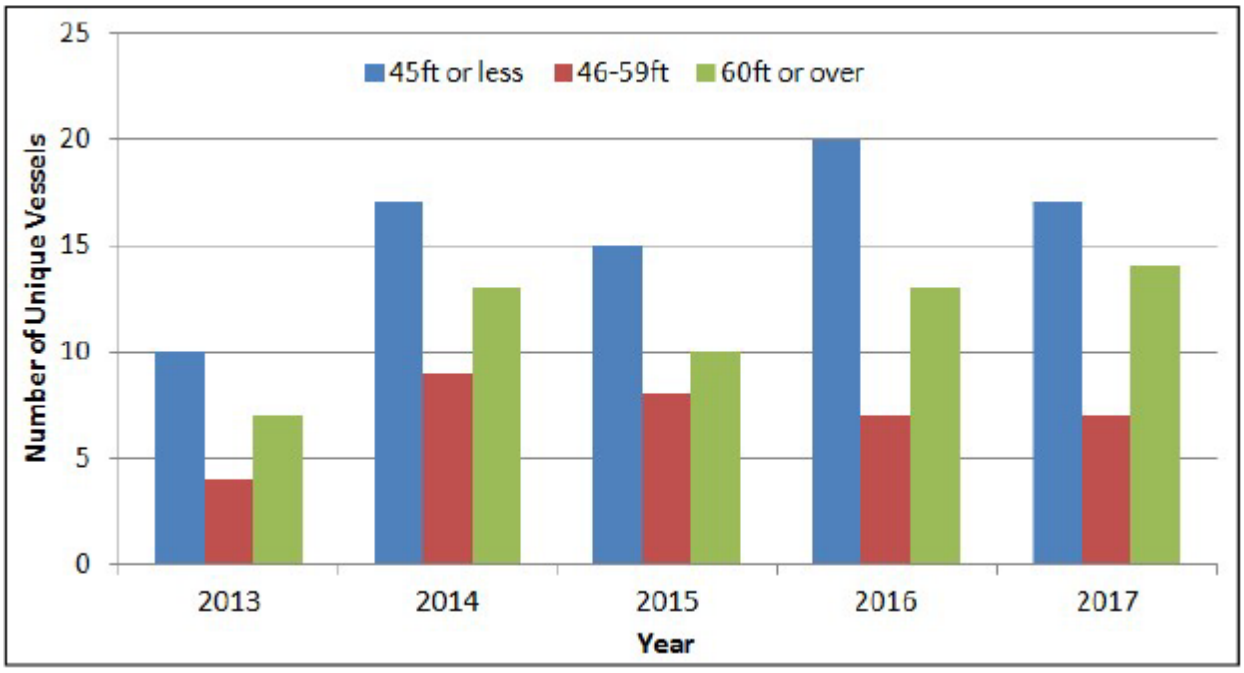


Source: Unpublished NMFS Dealer Data

Providing this economic opportunity to the trawl fishery is important. In 2020, DMF biologists Brad Schondelmeier and Bill Hoffman, produced the report titled, "Characterization of the Massachusetts Spring Longfin Squid Fishery" or "Squid Report". The report concluded, "the longfin squid fishery represents an important fishing opportunity and source of income for vessels" based on the fact that during the period of 2013 – 2017, "longfin squid sales accounted for 22.7% of total annual revenue ($30,011,000 over 5 years) for 'Massachusetts squid boats'". For these vessels that consistently participated in the squid fishery and landed their catches in MA ports, it is the single most important species by value on an annual basis (Fig 2). Therefore, providing opportunity for these fishermen to take advantage of the squid resource while it is in our waters helps to ensure their profitability over the calendar year. This is particularly important for those

smaller sized trawlers who are the most active participants in the Nantucket Sound squid trawl fishery (Fig 3).

Figure 3.
Number of Unique Vessels Landing Squid from Trips in Federal Statistical Area 538 (Nantucket Sound) by Vessel Length Class



Source: Unpublished NMFS and MA DMF Dealer and VTR Data

Anticipated Concerns

Based on prior experience managing the squid fishery, I expect this proposal will be met with some concerns regarding bycatch and discards, localized forage depletion, and egg mop disturbance. However, I do not view this modest proposal as having a meaningful impact on these items. This proposal will only allow for a small increase in fishing access in both space and time. If current rules are to persist, in years when the squid run is good in June it can be anticipated that DMF will extend the squid fishery though at least June 15 based on prior actions. Therefore, the only real change in management would be the extension of the squid fishery in years when the squid run is not strong in June and effort during these years will likely be constrained by resource availability and fishery economics. Therefore, I do not think this proposal will meaningfully impact bycatch and discards or egg mop disruption caused by the overall inshore small mesh trawl fishery for squid. This is also supported by the findings of DMF's 2020 Squid Report.

Bycatch Concerns

The 2020 DMF report concludes, "bycatch in the overall small-mesh otter trawl fishery is near the median when measured against other fisheries and gear types. This is not surprising, nor concerning, considering the use of small-mesh nets." The Squid Report further demonstrates the

most commonly caught bycatch species are scup (14.3% of total catch), followed then by black sea bass (2.1% of total catch) and summer flounder (1.1% of total catch) (Figure 4).

Figure 4.
Aggregated Catch Rates and Proportions for Top 20 Finfish and Other Species of Interest

Species	Kept lbs	Discard lbs	Total lbs	% Discard	% Finfish Catch	% Total Catch
SCUP	23,881	136,933	160,814	85.1%	49.5%	14.3%
SEA BASS, BLACK	1,354	22,091	23,445	94.2%	7.2%	2.1%
BUTTERFISH	6,330	15,376	21,706	70.8%	6.7%	1.9%
SKATE, LITTLE	0	20,679	20,679	100.0%	6.4%	1.8%
SEA ROBIN, NORTHERN	24	19,129	19,152	99.9%	5.9%	1.7%
SKATE, WINTER	1,162	17,705	18,867	93.8%	5.8%	1.7%
FLOUNDER, SUMMER (FLUKE)	3,007	9,325	12,331	75.6%	3.8%	1.1%
MACKEREL, ATLANTIC	1,988	7,811	9,798	79.7%	3.0%	0.9%
DOGFISH, SMOOTH	189	6,483	6,672	97.2%	2.1%	0.6%
FLOUNDER, WINTER	105	4,457	4,561	97.7%	1.4%	0.4%
FLOUNDER, WINDOWPANE	250	3,354	3,604	93.1%	1.1%	0.3%
ALEWIFE	100	3,249	3,349	97.0%	1.0%	0.3%
SKATE, LITTLE/WINTER, NK	0	2,250	2,250	100.0%	0.7%	0.2%
BLUEFISH	2,053	131	2,184	6.0%	0.7%	0.2%
HERRING, NK	0	2,145	2,145	100.0%	0.7%	0.2%
HAKE, SILVER (WHITING)	145	1,636	1,781	91.9%	0.5%	0.2%
TAUTOG (BLACKFISH)	195	1,496	1,690	88.5%	0.5%	0.1%
BASS, STRIPED	0	1,479	1,479	100.0%	0.5%	0.1%
FLOUNDER, FOURSPOT	0	1,399	1,399	100.0%	0.4%	0.1%
SKATE, NK	0	1,050	1,050	100.0%	0.3%	0.1%
SEA ROBIN, STRIPED	64	872	936	93.2%	0.3%	0.1%
SEA ROBIN, NK	122	700	822	85.2%	0.3%	0.1%
HERRING, ATLANTIC	135	652	787	82.9%	0.2%	0.1%
HERRING, BLUEBACK	0	468	468	100.0%	0.1%	0.0%
SHAD, AMERICAN	0	444	444	100.0%	0.1%	0.0%
MENHADEN, ATLANTIC	4	244	248	98.6%	0.1%	0.0%
MONKFISH	99	97	196	49.4%	0.1%	0.0%
WEAKFISH	0	34	34	100.0%	0.0%	0.0%
COD, ATLANTIC	4	13	17	79.3%	0.0%	0.0%
Other Finfish Species	149	1,814	1,963	92.43%	0.60%	0.17%
Finfish Total	**41,357**	**283,516**	**324,873**	**87.3%**	**100.0%**	**28.8%**

Source: Unpublished NEFOP Data

Scup is the predominant species being incidentally caught and discarded in this fishery. The 2021 management track stock assessment for scup shows the stock is not overfished and overfishing is not occurring. Moreover, spawning stock biomass was estimated at 389 million pounds in 2019, which is about two times the biomass target of 198 million pounds. Adding an additional six-days of fishing opportunities within the Small Mesh Squid Trawl Exempted Area should not contribute significantly to overall bycatch or bycatch mortality rates of these species.

It is noteworthy that moving the inshore squid season to June 15 would align it with the April 15 – June 15 season when small mesh trawlers are allowed to land up to 2,000 pounds of scup according to the interstate and federal management plans. This seasonal trip limit was implemented in 2019 to reduce the regulatory discarding of scup in the squid trawl fishery. This synchronization would eliminate any confusion as to where scup retention with small mesh may occur. This should result in enhanced enforcement, compliance, and data collection.

Historically, there has also been some concern about the bycatch and discard of other species, such as river herring and striped bass. With regards to river herring, the 2020 report concluded that while small mesh fisheries are likely contributing to the delayed rebuilding of populations, it is difficult to conclude to what extent this is being influenced by the squid trawl fishery. Bycatch of river herring represents .34% of total catch (Fig 4), which is an order of magnitude lower than other small mesh fisheries in the region (e.g., herring, mackerel, whiting). As for striped bass, they only make up a nominal amount of bycatch by weight (0.1%) in this fishery and are lively when returned to the water quickly.

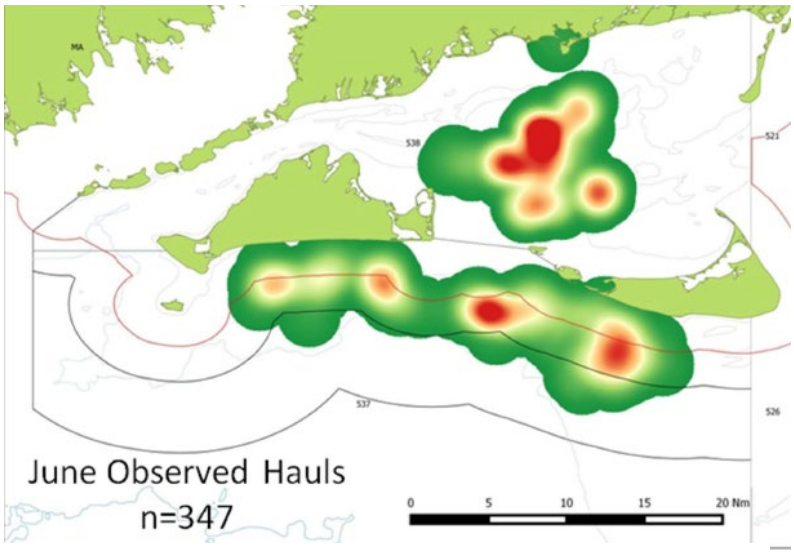
Forage and Striped Bass

Concerns have also been raised that the squid fishery is influencing access to the striped bass resource by depleting forage availability and bycatch mortality. The Squid Report did not find support for these conclusions. A 2003 study by DMF demonstrates striped bass inhabiting Nantucket Sound have a diverse diet (Nelson et al., 2003). Crustaceans (50% by weight) and bony fish (40% by weight) were the primary prey items, while unidentified cephalopods (e.g., squid) only comprised 3.3% of stomach contents by weight. where as.

Egg Mop Disruption

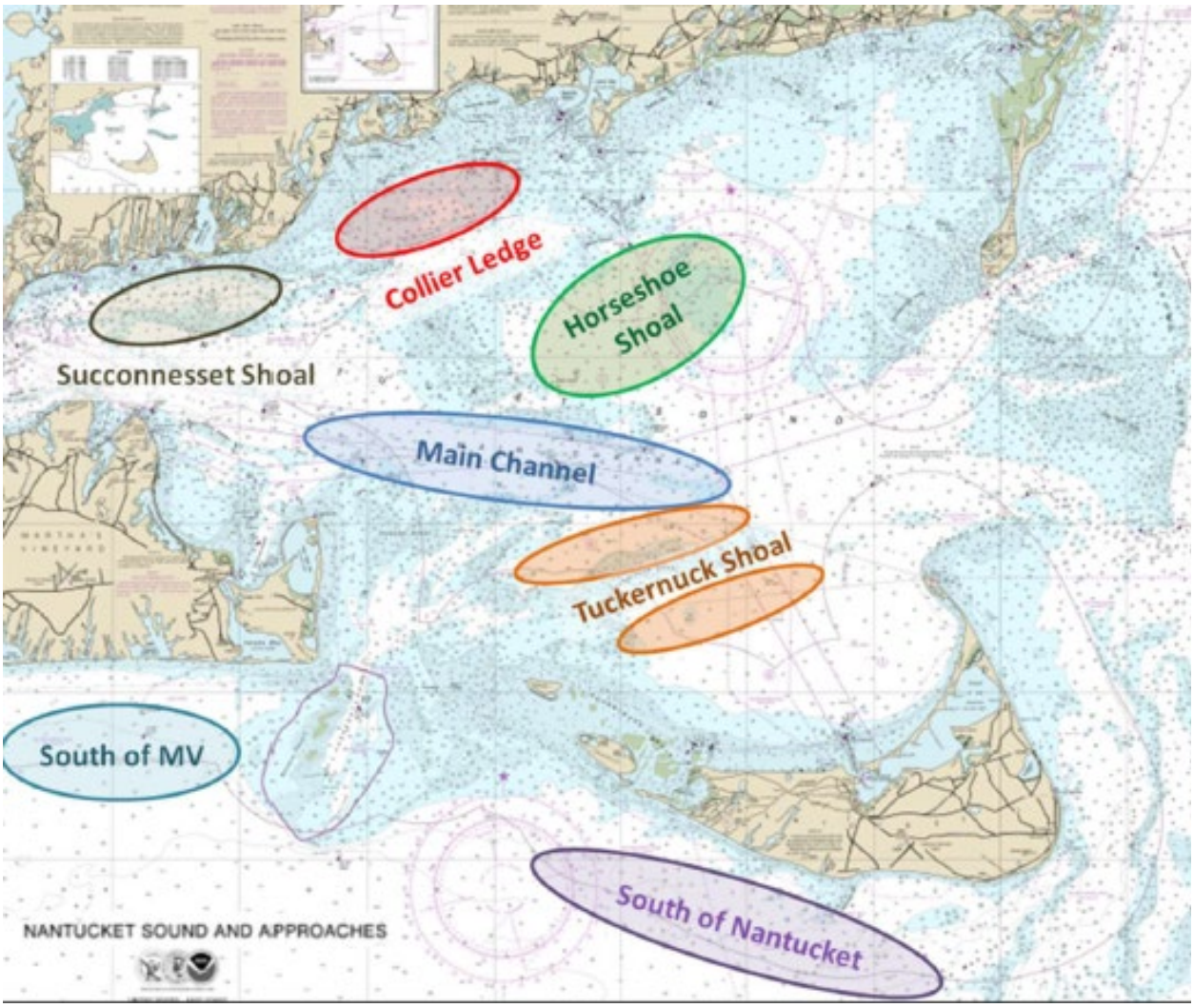
Another commonly voiced concern regarding the inshore squid fishery is the disruption of egg mops by trawlers. The Squid Report shows that nearly all observed squid trawling effort in state waters during June is centralized in two discrete areas: South of the Islands between Squibnocket (Martha's Vineyard) and Madequecham Beach (Nantucket) along the state/federal line and in Nantucket Sound between Horseshoe Shoal and Tuckernuck Shoals (Figs. 5 and 6). Fishing effort is not as intense in other areas in response to several factors, including regulatory closures (e.g., Buzzards Bay, inshore Cape Cod) and untowable bottom (e.g., shoals and fixed gear). This provides substantial spatial refuge where egg mops remain undisturbed on the bottom.

Figure 5.
June Heat Map of Starting Points of Observed Hauls



Source: Unpublished NEFOP Data

Figure 6.
Common Names for Fishing Grounds within Small Mesh Squid Trawl Exempted Area



Source: MA DMF

Proposed Regulatory Language and 322 CMR 4.06 and 6.39

4.06: Use of Mobile Gear

(4) Trawl Net Mesh Minimum Size.

(a) Trawl Net Mesh Measurement. Minimum mesh size is measured by the inside stretch of the net mesh. The net mesh is measured by a wedge-shaped gauge having a taper of two centimeters in eight centimeters, inserted into the meshes under a pressure or pull of five kilograms. The mesh size will be the average of measurements of any series of 20 consecutive meshes. The mesh in the cod end will be measured at least ten meshes

from the lacings beginning at the after-end and running parallel to the long axis. Upon request, the Director may approve in writing the use of other mesh size gauges or methods.

(b) Minimum Trawl Net Mesh Size. Except as authorized at 322 CMR 4.08(2)(c), all vessels fishing with trawl gear within the waters under the jurisdiction of the Commonwealth shall only possess and fish with nets that have a minimum mesh size opening that measures at least 6½ inches throughout the cod-end and six inches throughout the remainder of net.

(c) Exempted Small Mesh Fisheries. To authorize commercial trawl fishermen to seasonally target valuable finfish species that cannot be caught in commercially viable quantities without the use of small mesh trawls, the following exemptions are authorized. While fishing in an exempted small mesh trawl fishery, a vessel shall not also possess nets that conform with the minimum mesh size at 322 CMR 4.08(2)(b)

1. Seasonal Small Mesh Squid Fishery. From April 23rd through **June 15th** ~~**June 9th**~~, lawfully permitted vessels may fish small mesh trawls within the small mesh squid exempted area.
   a. Vessels participating in this fishery must hold a CAP further endorsed for squid, issued in accordance with M.G.L. c. 130, § 80 and 322 CMR 7.01(4)(a): *Regulated Fishery*.
   b. The seasonal mobile gear closures at 322 CMR 4.06(2)(h) and (i) apply.
   c. No vessel that is in possession of small mesh trawls within the small mesh squid exempted area may possess, retain and land more than 100 pounds of winter flounder, yellowtail flounder, summer flounder or windowpane flounder, in any combination.
   ~~**d. Fishery Extension. The Director may extend the seasonal small mesh squid fishery if it is determined that continued fishing with small mesh will not result in large catches of small squid less than five inches mantle length, or juvenile scup, black sea bass or summer flounder.**~~
2. Seasonal Whiting Small Mesh Raised Footrope Trawl Fishery.
   a. Area 5. From September 1st through September 30th, lawfully permitted vessels may fish with a small mesh raised footrope trawl, as defined at 322 CMR 8.06(2): *White Perch*, within Area 5, defined at 322 CMR 4.06(1).
      i. Vessels participating in this fishery must hold a CAP further endorsed for whiting and North Shore mobile gear, issued in accordance with M.G.L. c. 130, § 80 and 322 CMR 7.01(4)(a): *Regulated Fishery*.
      ii. Vessels participating in this fishery must comply with the Area 5 restrictions set forth at 322 CMR 4.06(2)(a)1.d.
   b. Upper Cape Cod. From September 1st through November 20th, lawfully permitted vessels may fish with a small mesh raised footrope trawl in the Upper Cape Cod Whiting Area defined in 322 CMR 8.06(1)(a): *Area*.
      i. Vessels participating in this fishery must hold a CAP further endorsed for whiting, issued in accordance with M.G.L. c. 130, § 80 and 322 CMR 7.01(4)(a).
      ii. Vessels participating in this fishery must comply with 322 CMR 8.06: *Minimum Size and Possession Limits*.

c. Raised Footrope Trawl Specifications. The raised footrope trawls fished by vessels under these exemptions must comply with the trawl and sweep specifications set forth at 322 CMR 8.14(2): *Trawl Specifications*.

(d) Net Modifications.

1. No fishing vessel may use any means, device, or material, including but not limited to ropes, lines, chafing gear, liners, net strengtheners, or double nets, if it obstructs the meshes of the net or otherwise diminishes the size of meshes of the net described in 322 CMR 4.08(2).
2. All netting in trawl nets not made on a braiding machine, whether of braided or twisted twine, whether machine made or hand-made, shall use only one knot, the weavers knot or sheet bend or a knot by another name, which in only a weavers knot.
3. The ends of the twine, called the bars, that exit the knot are constructed so their lay does not cross or twist.
4. One splitting strap and one bull rope (if present) consisting of line or rope no more than two inches in diameter, may be used if such splitting strap and/or bull rope does not obstruct the meshes of the net or otherwise diminish the size of meshes of the net.
5. Canvas, netting, or other material may be attached to the underside of the cod end to reduce wear and prevent damage provided that no more than 25% of the meshes are obstructed.

6.39: **Longfin Squid (*Dorytheuthis pealeii*) ~~*Loligo* Squid~~** Management

(1) Season. It is unlawful for any commercial fisherman to land or possess ~~*Loligo*~~ **longfin** squid using small-mesh otter trawls **except as authorized at 322 CMR 4.06(4)(c)(1) during the April 23 through June 15 seasonal small mesh squid fishery within the small mesh squid exempted area, as defined at 322 CMR 4.06(1).** ~~**as specified in 322 CMR 8.07: *Mesh Size Restrictions* from June 16th June 10th through April 22nd, unless the period when trawlers are allowed to use small-mesh nets to fish for squid is amended by the Director.**~~

(2) Possession Limits. It is unlawful for commercial fishermen using mobile gear to land or possess greater than 2,500 pounds of ~~*Loligo*~~ **longfin** squid per vessel per 24-hour day when:
(a) NOAA Fisheries has announced that the federal incidental trip limit is in effect;
(b) the Director has filed a notice with the *Massachusetts Register*; and
(c) the Director has sent notice *via* the Division's email listserve and posted notice on the Division's website.

(3) Commercial Fishery Limit Adjustments. The director may adjust ~~*Loligo*~~ **longfin** squid commercial fishery landing/possession limits to correspond to limits established by NOAA Fisheries.