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Preventing Fishing Gear Loss from Vessel Interactions in New England

Rhode Island Sea Grant Law Fellow Program, Marine Affairs Institute (MAI), Roger Williams University School of Law

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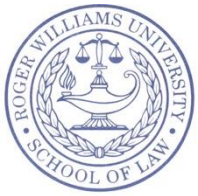

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The Rhode Island Sea Grant Law Fellow Program provides answers to important marine law and policy questions by matching highly-qualified law students with requests from constituent groups. Law Fellows carry out projects under the supervision and guidance of expert attorneys from the Rhode Island Sea Grant Legal Program. The Program is non-partisan and does not provide legal advice or participate in lobbying, litigation, or other advocacy activities. The Law Fellow Program is supported by Rhode Island Sea Grant and housed at the Marine Affairs Institute.

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1 PREVENTING FISHING GEAR LOSS FROM VESSEL INTERACTIONS IN NEW ENGLAND

Lost fishing gear causes substantial harm not only to marine ecosystems but also to the economy.[1] While a growing body of work considers the impacts of derelict gear, less attention has been focused on the causes of gear loss.[2] This study seeks to increase understanding of the causes of gear loss to provide a sound foundation for policy actions that may be needed to reduce gear loss and prevent its consequent harms.

Vessel-gear interactions—interactions between gear that has been placed in the water (such as lobster pots or nets) and vessels that destroy, damage, or otherwise hinder the gear—may cause substantial gear loss. While reporting a higher incidence of gear loss due to naturally-occurring hazards such as storms and accidental loss such as gear failure, a report on gear loss in the Chesapeake Bay suggested that vessel interactions also play an important part:

> Resource user conflicts between commercial crabbers, recreational users, and commercial shipping activities can result in pot loss due to propeller or keel entanglement . . . . In the Chesapeake Bay a relationship between high shipping and recreational boat traffic and pot loss exists . . . . Restricting commercial vessel traffic to channels and keeping pots out of channels can reduce pot loss. Education of recreational boaters on the consequences of lost pots, how to avoid pots, and what to do should their vessel become entangled in a pot should be an ongoing program (i.e. Coast Guard auxiliary, boater safety classes). The use of reflective tape on pot buoys has been shown to reduce pot loss rates from 17% to 7% in some areas . . . . In addition, the use of "line cutters" . . . on propellers in areas where potting activity occurs can be problematic and lead to additional unnecessary pot loss.[3]

These findings were echoed by a group of state resource managers from New England convened by the National Fish and Wildlife Foundation in 2015 as part of the Fishing for Energy initiative.[4] This study seeks to increase understanding of this cause of gear loss by

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[1] A.M. Scheld et al., *The Dilemma of Derelict Gear*, 6 SCI. REP. 19671 (2016) (reporting that removal of derelict pots increased Chesapeake Bay blue crab harvest by 13,504 MT, at a value of $21.3 million).
[2] *See, e.g.*, NOAA MARINE DEBRIS PROGRAM, IMPACT OF "GHOST FISHING" VIA DERELICT FISHING GEAR (2015)
[3] Donna Marie Bilkovic et al., ECOLOGICAL AND ECONOMIC EFFECTS OF DERELICT FISHING GEAR IN THE CHESAPEAKE BAY: 2015/2016 FINAL ASSESSMENT REPORT 40 (rev. 2 2016).
[4] *See* NFWF, FISHING FOR ENERGY, http://www.nfwf.org/fishingforenergy/Documents/ffe_factsheet_16-0329.pdf (last visit Aug. 21, 2017).

conducting research to characterize the nature of vessel-gear conflicts in New England and how legal requirements for gear placement may affect vessel-gear interactions.

The Rhode Island Sea Grant Legal Program / Marine Affairs Institute at the Roger Williams University School of Law conducted this study in partnership with the National Sea Grant Law Center. This study is part of a larger project, *Increasing Awareness of the Legal Framework Governing Removal of Marine Debris and Placement of Fishing Gear in New England,* which is supported by a Fishing for Energy grant from the National Fish and Wildlife Foundation and its funding partners, the National Oceanic and Atmospheric Administration and Covanta Energy Corporation (Grant ID 0304.15.050924).

This study includes findings from two areas of research. First, the research team conducted interviews with harbormasters from each state in New England to understand and characterize the frequency and causes of vessel-gear interactions known to harbormasters across the region. Second, the team conducted legal research to identify the legal requirements for gear placement in relation to navigational areas. Research in each area is presented below. This study closes by presenting challenges, opportunities, and solutions drawn from key findings derived from the research.

2 INSIGHTS FROM HARBORMASTER INTERVIEWS

2.1 Methodology

This report is based on the results of interviews with harbormasters in Connecticut, Maine, Massachusetts, New Hampshire, and Rhode Island regarding vessel-gear interactions within their jurisdiction. Where possible, interviewees were selected to focus on jurisdictions with a substantial known or expected incidence of vessel-gear interactions, and the interview sample therefore is not random. The harbormasters targeted for interviews were identified through personal contacts and referrals and, where necessary, by referencing online listings of harbormasters. Additional recommendations for harbormasters to target were solicited at the end of each interview.

Interviews were based on a protocol developed in consultation with project partners (Appendix A). The questions in the protocol were intended to capture sufficient information to understand the nature and causes of vessel-gear interactions experienced by the harbormaster and to take 15-20 minutes. The template was tested on harbormasters from Rockland, Massachusetts. Targeted harbormasters were first contacted via email, with follow up by telephone. Interviews were conducted primarily by telephone, except in the case of harbormasters located within driving distance of Roger Williams University, which were conducted in person. In practice, most interviews lasted the expected fifteen to twenty minutes, with some variation based on harbormaster responses. Interviews were conducted on a confidential basis, so no harbormasters or locations are named in this study. Overall, harbormasters interviewed averaged more than eight years of experience as senior or deputy harbormaster, and they collectively represented more than 175 years of experience.

2.2 Overall Results

Harbormasters are the local officials with regulatory authority and expertise related to vessels and navigation. These positions require working closely with both fishermen and boaters and provide substantial insight into the issue of vessel-gear conflicts. This section presents findings from interviews conducted with New England harbormasters to gather information and views on vessel-gear conflicts.

The New England region includes geographically and economically diverse areas with different patterns of vessel and fishing activity. However, the harbormaster interviews reveal some common patterns.

Harbormasters throughout the region are deeply experienced and supported by regional associations. Most harbormasters were not aware of legal restrictions regarding gear placement in navigation areas. However, they do generally recognize that gear is prohibited

in channels, though unsure of the legal authority for this limitation. In addition, few harbormasters are empowered to enforce relevant local ordinances and are educated on the relevant provisions of these ordinances. Harbormasters are generally curious whether additional legal restrictions might apply, and only a few have received specific training relevant to avoidance of conflicts between vessels and fishing gear. Those with training mostly received it through prior employment, such as work for a marine law enforcement agency or service in the U.S. Coast Guard. Given the level of interest and gaps in knowledge this study uncovered, harbormasters associations may welcome and their members benefit from targeted training on the issue.

Most harbormasters—with a few notable exceptions—receive only a few reports of vessel-gear interactions. This appears to be due to one or more of several reasons, including:

- incidents on smaller vessels are often cleared by operators and not reported;
- incidents involving larger vessels with line cutters are neither noticed by operators nor reported;
- fishermen generally do not report gear losses to harbormasters because they expect to lose gear; and
- incidents are not particularly common.

Many incidents appear to be handled directly by the vessel operator and the persons whose gear was damaged—an outcome that is particularly likely in small communities with strong social linkages among waterfront users. In addition, even when incidents are reported, the environmental police or Coast Guard is often called rather than the harbormaster. As a result, harbormasters may underestimate the true frequency and extent of vessel-gear interactions.

While not believing that vessel-gear interactions are an important issue in general, many harbormasters identify specific categories of interactions that are particular problems in areas under their jurisdiction. These issues are almost uniformly related to fixed gear fisheries and aquaculture (with the exception of Rhode Island's pair trawl fishery) including lobster, conch/whelk, fish traps, oysters, and kelp. Vessel-gear interactions therefore appear to be a highly localized problem, occurring in different forms and frequencies that depend on the type of gear used, where target species occur, and the characteristics of the recreational fishing and boating environment.

With respect to location, harbormasters agree that inshore areas—and specifically, congested areas like mooring fields and ports—are the primary location where they see conflicts occurring. This is particularly true for fisheries such as whelk, where mooring fields are good habitat for the target species. Harbormasters differ in their treatment of such instances, with many declining to intervene directly without specific legislative

authorization to do so, while others are willing to take action by relocating gear that may damage vessels on moorings or inhibit access to moorings. Harbormasters routinely address such issues by contacting and working with the responsible fisherman and affected boaters to reduce potential conflicts, and this often, but not always, resolves the issues.

Harbormasters rarely hear about offshore issues but indicate that these areas are much less likely to result in interactions, except in cases where charter fishermen intentionally moor to fixed gear or the rare instance when a vessel interacts with a longline or gillnet. In such instances, they generally agree that conflicts result from actions by boaters, such as failure to keep a lookout and limited skill in reading charts, recognizing gear, and boat handling.

Harbormasters generally agree on the groups of users most often involved in vessel-gear interactions. The vast majority of harbormasters report that recreational fishermen and boaters are the groups most often involved in the majority of vessel-gear interactions. Problems most often involve recreational boaters not reading buoys properly or not knowing where gear is likely to be placed. Recreational fixed gear fishermen are more common in northern New England due to declining lobster populations south of the Gulf of Maine. These fishermen may be conservative in gear placement to avoid the costs associated with gear loss, but gear can be highly concentrated in some areas and may not be controlled through the social norms or area management that are used to manage gear in the commercial fishery. Commercial fishermen do not want to lose their gear and are generally up to date on the requirements for gear placement and navigation; however, they may expect some degree of gear loss as a cost of doing business and place their gear strategically so the oldest gear is placed in the areas at highest risk of loss.

Harbormasters agree that the reason for higher incidence of conflicts by recreational users is the lower levels of knowledge and experience of recreational users, as compared to commercial users. Recreational users often do not know laws or rules, and therefore often do not comply with restrictions. On the other hand, a few harbormasters suggest that recreational users violate restrictions intentionally due to a “Wild West” environment, particularly during the summer high season. Boaters in such instances may recognize that enforcement capacity is stretched at such times, so that they are unlikely to be caught, and that even if caught they are unlikely to be penalized. Regardless of who is involved in interactions, harbormasters largely view the overwhelming majority of such instances as unintentional, and not malicious, acts.

Harbormasters also largely agree on the appropriate actions to reduce vessel-gear interactions. They view the legal requirements for both navigation and gear placement to be effective in limiting interactions, and do not believe that further gear placement restrictions are necessary, appropriate, or enforceable. However, there is some evidence

that local ordinances are associated with lower incidence of vessel-gear conflicts (see Maine, *infra*). Many harbormasters believe that increased education for recreational boaters is needed, but caution that such efforts need to be long-term efforts to result in cultural change on the water.

2.3 Connecticut

Most Connecticut harbormasters have extensive experience, but only one reported receiving specific training on gear placement and avoidance, which was offered through a regional harbormasters' association. Restrictions on gear placement exist in only a few cases, although at least one location has prohibited mooring in a shellfish bed.

All but one of the harbormasters interviewed in Connecticut indicate that vessel-gear interactions are not really a problem in their jurisdiction. In some locations, harbormasters find that the issue has become less important as a result of the reduction in lobster fishing in state waters, which has resulted in a decrease in the total number of traps in the water.

The one harbormaster reporting frequent vessel-gear interactions reports that the area sees frequent use for multiple purposes. The area has commercial shellfish beds both under lease and in public use, some of which abut a mooring field. The area also sees heavy use by a variety of vessels, including racing yachts, rowing schools, and triple-masted ocean sailing schooners. The confluence of uses in this particular area is seen to increase the risk of vessel-gear conflicts.

Some Connecticut harbormasters identify the management of private and public waters (e.g., shellfish beds) as an issue affecting the frequency of vessel-gear interactions. Fishing in leased areas, such as private shellfish beds, is limited to fishermen who have the leaseholder's permission. Fishing in public waters and shellfish beds, by contrast, is open to all. Harbormasters note that public waters therefore exhibit more complex, and potentially conflicting, patterns of gear placement, which may result in increased vessel interactions.

Two types of aquaculture production raise interaction concerns within Connecticut waters. Some report that kelp farms have caused some complications and damaged boats, but that most such issues are resolved through arrangements between the farm owner and vessel owner. Oyster farms marked with bamboo stakes do not present such issues because these stakes are designed to break if anything gets caught in or hits them.

Connecticut harbormasters report that recreational vessel operators, and mainly newer boaters, are the primary source of interactions because they do not know the rules of the road or which areas are likely to have fishing gear in them. Other operators and fishermen—whether commercial or recreational—may also exhibit low compliance. However, the general consensus is that experience, rather than sector, is the driving force in vessel-gear conflict.

Generally, harbormasters in Connecticut agree that the requirements for gear placement in Connecticut are strict enough and compliance is sufficient such that legal changes are not needed: when compliance is strong, the current system works.

2.4 Maine

Maine harbormasters report that they have not received any specific training on gear placement or vessel avoidance of gear during their time as a harbormaster. However, they often have relevant training from other sources, such as work in the state marine law enforcement sector. Maine harbormasters report different levels of current legal limitations on placement of fishing gear—several areas have local ordinances limiting gear placement in mooring areas or other locations, while other places do not.

Most vessel-gear interaction issues reported by Maine harbormasters relate to lobster pots. While interactions are apparently uncommon in some areas, one harbormaster observes 20 to 30 instances of vessel-gear interactions per year. The apparent difference between this location and others is a lack of legal authorities governing gear placement. While the harbormaster identified the lack of legal authority as a causal factor inhibiting his ability to minimize conflicts, he also noted that the area's relatively dense population may also contribute to the observed increased incidence of interactions. Some harbormasters also report loss of gear due to trawl activity during certain times of year.

Maine harbormasters report that commercial fishermen and vessel operators both know of and comply with gear placement and navigation requirements. Reasons provided include the greater experience and local knowledge on the commercial side and their presence on the water during more of the year than recreational users. Harbormasters believe that recreational boaters and fishermen tend to be less experienced and are out on the water for significantly less time. Some recreational boaters are not full-time residents in the area and therefore lack local knowledge. However, despite these limitations, harbormasters generally report a reasonable level of general knowledge and compliance, especially in areas where gear is checked frequently and where violations may carry heavy fines and loss of commercial licenses.

As for improving the vessel gear conflicts in Maine, most harbormasters agree that the state already has a sufficient set of requirements in place to minimize interactions, but additional local legal authorities may be justified where interactions are frequent. Some harbormasters suggest additional education requirements for recreational boaters, but others believe that vessel-gear interactions are a part of the business and that education and other interventions would have limited benefit.

2.5 Massachusetts

No Massachusetts harbormasters report receiving specific training in regards to gear placement or vessel avoidance of gear. Several of them expressed interest in such training.

Few harbormasters report local ordinances limiting gear placement, but they indicate that state law creates exclusionary zones in state waters where gear cannot be placed.

Massachusetts harbormasters report that they deal with or are aware of a small number of conflicts between vessels and gear each year. The conflicts that do happen occur primarily during the summer or during fishing seasons. One harbormaster believes that gear loss commonly occurs during storms, but that it is caused mainly by gear being moved rather than as a result of vessel interactions.

Massachusetts harbormasters indicate that most vessel-gear interactions derive from recreational activity—both fishing and boating. The consensus is that many recreational fishermen and boaters do not know the requirements and/or do not care enough to follow them. In rare instances, commercial boaters do not comply or are not knowledgeable about the rules. Most harbormasters stress that experience is the most important predictor of compliance with boating and navigation rules.

As for lessening the vessel-gear conflicts, Massachusetts harbormasters support education for both commercial and recreational boaters, as they believe that few interactions are intentional or malicious. A few harbormasters want more accountability and believe that there is not enough enforcement. No harbormasters suggested changes to the laws governing navigation or gear placement.

2.6 New Hampshire

Due to New Hampshire's limited coastline, only one harbormaster from the state was interviewed. The harbormaster has extensive experience, but has not received training on vessel-gear conflicts. The harbormaster reports no special requirements for gear placement other than a prohibition on gear in channels.

Few vessel-gear conflicts are reported to harbormasters in New Hampshire, as most users free themselves or call the Fish and Game Department for assistance. The gear involved in such interactions is almost uniformly lobster pots. The main issue in New Hampshire seems to arise when lobster pots are located too close to the port. The reported incidents most often occur during the summer and in inshore areas.

The harbormaster reports that commercial fishermen and vessel operators make it their business to be knowledgeable about and comply with the law. Recreational fishermen appear to be less knowledge about the laws, but overall compliance is nonetheless high. Recreational vessel operators, however, seem to be geared towards a "Wild West"

standard. Nonetheless, when recreational boaters know the law, they most often adhere to the requirements.

The harbormaster does not think that any practical steps could reduce gear loss caused by vessel conflict. The harbormaster suggests that an educational program will be ineffective unless it was long-term and includes constant re-education.

2.7 Rhode Island

Most Rhode Island harbormasters have been employed as harbormasters for a substantial period, and those who are more recent appointees generally have substantial prior experience in the U.S. Coast Guard or other agencies. Harbormasters report limited education on vessel-gear interaction, with education primarily provided in prior work. Several harbormasters are interested in having educational opportunities and a better understanding of gear placement requirements.

Harbormasters report few special rules limiting gear placement, although some note rules limiting placement in channels and fairways or in mooring areas during boating season. They treat gear in mooring areas differently from location to location. Some harbormasters allow gear in these areas in all cases, while others allow gear only if it does not interfere with navigation. Harbormasters uniformly report that when conflicts do arise, they are resolved through extralegal means through personal communications and negotiation, and harbormasters are not often consulted or involved—although some harbormasters directly engage with fishing and boating communities seasonally to maintain communication with stakeholders.

Rhode Island harbormasters report a limited number of vessel-gear interactions, with the frequency and type of interactions varying by location. At the lower end, harbormasters report hearing about interactions three to five times per year, while other locations report up to a dozen reported interactions per year. However, all note that they know about only a small number of all interactions, because small boats can disentangle or cut loose fouled gear, while larger vessels use line cutters and may not even be aware of fouling.

The timing and causes of vessel-gear conflicts in Rhode Island differ by location. In most areas, most conflicts are reported during the summer, when recreational vessel traffic is substantially greater than during the winter season. However, the state winter pair trawl fishery may cause gear loss in Narragansett Bay. Gear usage and fishing seasons also contribute to interactions. Lobster pots and longlines are most often lost, but other fisheries have issues in particular locations. The whelk season contributes to conflict due to the use of pots in heavily-used areas, including mooring fields, and fish traps may “catch” a substantial number of vessels (particularly, sailboats). Although these traps are marked on charts and their coordinates are in statutes and regulations, issues may still arise either

from changes in specific fishing trap placement or boaters' lack of education and avoidance skills. Finally, aquaculture gear is lost in some locations, but other causes (e.g., ice) may be more important than vessel interactions for these gear types.

Harbormasters uniformly report that commercial fishermen and vessel operators have substantial knowledge and expertise that allows them to avoid gear conflict and losses. While a few fishermen may place older gear in higher-risk areas or may place traps or pots in mooring areas intentionally, these actions appear to be less common. As a result, most vessel conflicts appear to result from recreational boaters, who are reported to have little education and, in many cases, limited expertise in understanding buoys, rules of the road, and vessel operation. Harbormasters feel that alcohol use can be an important factor in noncompliance by recreational boaters. However, most recreational boaters comply when they know the rules. Many of the harbormasters feel that education for recreational boaters who do not know the requirements would be beneficial.

Rhode Island harbormasters report little or no appetite for new or changed requirements for gear placement—rather, changes requested related to education and adequate enforcement tools. In the few instances where a harbormaster would consider new authority, the requested authority would be intended to increase uniformity (e.g., mandating buoy color or reflectivity) or to provide explicit authority for harbormasters to regulate gear placement in harbors, rather than relying on general authority to protect navigation.

3 STATE REGULATIONS ON PLACEMENT OF FISHING GEAR IN NAVIGATION AREAS

Prevention of vessel-gear interactions requires lawmakers to balance the traditional right to fish in public waters with the need to reasonably regulate activities, including fishing, that may pose risks to navigation safety and commerce. The New England states have managed this tension in different ways, which reflect their individual legal structures and traditions. Statutory and regulatory approaches to preventing vessel-gear interactions in New England arise from two primary sources: the law of navigation and the law of fisheries. While they differ in specifics, it is possible to identify general principles for the approaches to vessel-gear conflict to date.

Navigation law includes general prohibitions on obstructing navigation, specific limitations on fishing gear placement in navigation facilities, and authorization for removal of gear that poses a hazard to navigation. Some states have broadly worded restrictions on unlawful placement of articles in the water that may obstruct navigation. In most instances, such restrictions will not apply to fishing gear unless that gear is placed in violation of another regulation (e.g., out of season). States may also explicitly prohibit gear placement in some or all navigation facilities, such as harbors and channels, or authorize a local government to do so. In Maine, for example, any local government may establish channels and harbor lines and prohibit fishing within those areas. These and similar explicit prohibitions clearly apply to and restrict fishing activity, but they may or may not authorize removal of offending gear. States may authorize officials—usually harbormasters—to remove or otherwise alleviate obstructions to navigation if they violate the law or when they pose a hazard to navigation. These laws may require written or oral notice to the owner of the gear, a court order, or may authorize the official to immediately remove obstructions that present an immediate danger. Interviews with harbormasters suggest that verbal communications among harbormasters and fishermen are effective for addressing improper gear placement. However, statutes requiring a court order to remove gear may undermine the ability of the navigational authorities to effectively and timely respond to instances of noncompliance where communication does not resolve the problem.

Fisheries laws and regulations primarily regulate and allocate fishing rights, including when, where, and who can engage in commercial and recreational fishing activity. In some instances, fisheries statutes and regulations include provisions intended to avoid navigation conflicts. Such regulations are particularly likely for gear that is known to present a heightened risk to navigation, such as fish traps in Rhode Island, or to prevent fishing in areas or times known to present heightened navigational risks, such as summer weekends or local channels or harbors. Unlike the navigation provisions, such fisheries

restrictions are not enforceable by harbormasters, but rather by the enforcement staff of the state fisheries management agency. In some instances, a single individual may serve in both roles, but in a majority of cases, fisheries enforcement agents may not be immediately available.

The following sections illustrate these general observations by providing state-by-state overviews of the relevant laws governing vessel-gear interactions. These overviews include information on restrictions on fishing gear placement in both fishing laws and navigation laws. The full text of the authorities cited can be found in Appendix B – Appendix F.

3.1 Connecticut

Connecticut statutes do not expressly prohibit placement of fishing gear in areas used for navigation. However, two provisions of Connecticut law do appear to restrict such activities. First, harbormasters' authority extends to the removal of "obstructions so moored or anchored that, by the action of wind or tide, they may be carried into such harbor and navigable waterways."[5] Second, an old and little-used provision declares that any person who places material tending to obstruct navigation in a navigable water, other than in a designated oyster bed, may be fined $100, and the obstruction may be removed at that person's expense.[6] In neither of these instances is "obstruction" defined, nor have courts defined it.

Connecticut fishing laws also govern where gear can be placed. The Commissioner of Energy and Environmental Protection regulates fishing in state waters and may restrict or designate certain areas to be used for different types of fishing activity. It is unlawful to fish or attempt to fish within 250 feet of any fishway, except where the Commissioner alters this rule.[7] The Commissioner may also "designate certain areas of water in or near the mouth or entrance of any stream or estuary" where certain net types are prohibited; the statutes identify a number of such sites.[8] Connecticut statutes also limit the use of particular gear types in defined areas. For example, the use of nets, seines, pound nets, and set nets is prohibited or limited to certain purposes and vessels in Long Island Sound areas bordering Darien, Stamford, and Greenwich.[9] Other areas under restrictions (primarily on the use of nets and pounds) include other areas of Long Island Sound, Long Island Beach, Norwalk Harbor, the Pawcatuck River, Wright's Cove, Kenney Cove, the Mystic River, and

[5] CONN. GEN. STAT. § 15-8.
[6] *Id.* § 19a-338.
[7] *Id.* § 26-137.
[8] *Id.* § 26-154.
[9] *Id.* § 26-169.

the Thames River.[10] In addition, it is unlawful to place an obstruction in or on any fishing place or grounds that may legally be swept by seines.[11]

3.2 Maine

Maine explicitly authorizes local governments to establish, regulate, and keep open channels and anchorage areas.[12] Fishing gear is not allowed in locally-established channels, and can be enforced by the harbormaster: "[i]n the event fishing gear is within the boundary lines of a channel in violation of local rules, the harbor master may issue a warning of navigational interference and may commence court action to order removal of that gear."[13] Such gear would also be a nuisance, as Maine has provided by statute that obstruction of navigation (by any means) is a nuisance unless legally authorized.[14]

Maine includes navigation conflicts in several parts of its fishing statutes. First, the Commissioner of Marine Resources has the power to amend or adopt rules that can promote the prevention of gear conflict.[15] While primarily intended to limit conflicts *among* fishermen, the statute as written can potentially be used to close areas with high levels of vessel-gear conflict. Other fishing provisions explicitly address placement of fixed gear to avoid obstruction of navigation, including restrictions on:

- constructing or maintaining a fish weir or trap that impedes or obstructs navigation;[16] and
- obtaining an aquaculture lease or municipal shellfish aquaculture permit in a location that unreasonably interferes with navigation.[17]

3.3 Massachusetts

Massachusetts harbormaster authority is limited to regulating the movement of vessels in areas under harbormaster jurisdiction and certain other actions, which do not include authority over placement of fishing gear.[18] Certain other navigation authorities do prohibit obstructions in channels, without specifically referencing fishing gear. These authorities include prohibitions on: (1) "throw[ing] or drop[ping] into [navigable tide] waters any barrel, box, log, timber or other object, tending to obstruct the navigation;"[19] and (2)

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[10] CONN. GEN. STAT. §§ 26-170 - 26-184.
[11] *Id.* § 26-166.
[12] ME. STAT. tit. 38, § 2.
[13] *Id.*
[14] *Id.* tit. 17, § 2802.
[15] *Id.* tit. 12, § 6171-A.
[16] *Id.* tit. 38, §§ 1022, 1026.
[17] *Id.* tit. 12, §§ 6072 (research and aquaculture leases), 6072-A (limited purpose commercial or scientific research leases), 6072-C (limited purpose aquaculture leases), 6673 (municipal shellfish aquaculture permits).
[18] MASS. GEN. LAWS ch. 102, §§ 21-26.
[19] *Id.* ch. 102, § 17.

passing a warp or line across a channel.[20] The courts have not been called upon to determine whether placement of fishing gear is an object tending to obstruct navigation.

Massachusetts fishing laws contain several provisions explicitly governing placement of gear in relation to navigation. Fishing is controlled at the state level by the Division of Marine Fisheries (DMF) within the Department of Fish and Game. The Director of DMF may occupy coastal areas for departmental use in fish propagation (e.g., for hatchery use) but may not obstruct navigation for this purpose.[21] Statutes governing fishing generally do not contain such limitations on placement of gear, although they may contain gear design requirements affecting the susceptibility of gear to loss. For example, lobster gear must be buoyed separately and plainly within the waters of Gosnold.[22] This requirement increases the number of vertical lines as compared to a trawl-up that strings together multiple traps, while it reduces the number of traps that can be lost through a single vessel interaction.

Certain fishing requirements are delegated to municipalities, subject to requirements set out in state law. Municipalities are responsible for shellfish aquaculture licensing in Massachusetts, but they cannot issue any such license that will "materially obstruct navigable waters."[23] Municipalities can also authorize the construction of weirs, pound nets, or fish traps, but only where no harbor lines exist or beyond established harbor lines.[24]

3.4 New Hampshire

New Hampshire law contains explicit prohibitions on lobster and crab fishing in certain state waters—specifically, in Rye harbor and its approach.[25] Authorized enforcement officers, including harbormasters and state conservation officers, can make verbal requests to fishermen to move gear in restricted areas.[26] Officers can themselves remove gear that is not moved within 24 hours after a verbal request.[27]

New Hampshire laws also include more general restrictions on obstructions to navigation that could apply to fishing gear in certain cases. Any person who places an obstruction to navigation in state waters without taking reasonable precautions to protect the public is guilty of a misdemeanor.[28] The Commissioner of Safety is further required, among other responsibilities, to "remove obstructions tending to impede navigation."[29] These provisions

[20] *Id.* ch. 102, § 18.
[21] *Id.* ch. 130, § 17(7).
[22] *Id.* ch. 130, § 37.
[23] MASS. GEN. LAWS ch. 130, § 57.
[24] *Id.* ch. 130, § 29.
[25] N.H. REV. STAT. ANN. § 211:19-a.
[26] *Id.*
[27] *Id.*
[28] *Id.* § 270:26.
[29] *Id.* § 270:1.

would apply to placement of fishing gear only when that gear might obstruct navigation and when markings or other safeguards are not used; however, in such cases, it might be used as authority to remove gear.

New Hampshire fisheries regulations place some limits on the use of specific types of fishing gear in specific locations. These restrictions may reduce vessel interactions. The use of sea urchin sleds is prohibited in Great Bay, state harbors, and other inland waters.[30] The use of gillnets in these waters is also limited based on, among other criteria, the time of year, time of day (night fishing prohibited), and net size.[31] Fishermen must also remain within unaided viewing distance of these nets.[32] Fishing is also closed in waters surrounding dams with fishways.[33]

3.5 Rhode Island

The right of fishery is protected in the Rhode Island state constitution,[34] but it is restricted by regulation, including to avoid navigation conflicts. State harbormaster laws do not explicitly authorize removal or relocation of fishing gear or limitations on where gear may be placed, except that the town of Little Compton is explicitly authorized "to enact ordinances to regulate or ban the setting of lobster pots, fish nets, or cribs, within the harbor at Little Compton to prevent interference with the use of moorings or navigation therein."[35] This authority extends to ordinances providing for enforcement of town provisions and specifically to the placement of lobster pots.[36]

Rhode Island has also created statutory prohibitions on acts tending to obstruct navigation in certain waters, including the (estuarine) Seekonk River, Goat Island, and upper Narragansett Bay.[37] With the exception of Goat Island, where restrictions are focused on avoiding interference with the Navy torpedo range, these restrictions are focused on the deposition of substances, not including oysters, and therefore do not appear to set practical limits on placement of fishing gear.[38]

The Department of Environmental Management (DEM) is assigned the duty of removing "any unlawful or unauthorized structure or thing" that "is liable to cause or become an obstruction to the safe and convenient use of the waters for navigation."[39] Fishing gear would not normally be unlawful or unauthorized, but gear placed out of season or

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[30] N.H. CODE ADMIN. R. ANN. Fis. 603.17.
[31] *Id.* at Fis. 602.06.
[32] *Id.*
[33] *Id.* at Fis. 602.02.
[34] R.I. CONST. Art. 1, § 17.
[35] 46 R.I. GEN. LAWS § 46-4-2.
[36] *Id.* § 46-4-6.7.
[37] *Id.* §§ 46-6-4, 46-6-6, 46-6-7.
[38] *Id.*
[39] *Id.* § 46-6-8.

otherwise not in compliance with rules could be removed under this authority. In such cases, the Director of DEM must notify the owner of the obstruction in writing, requiring removal within 30 days.[40] However, DEM can remove the obstruction immediately, at the owner's expense, if it is a hazard to navigation.[41]

Rhode Island fisheries law limits placement of certain gear in order to reduce navigation conflicts. While authorized by statute, most such limitations are found in DEM regulations. Fish traps[42] require a permit from DEM and can only be erected in certain locations that are explicitly identified by regulation and demarcated on navigational charts.[43] Fish traps require the placement of no less than four radar-reflective buoys, and specific traps are subject to enhanced requirements for aids to navigation.[44] Commercial netting is prohibited in certain locations, including, but not limited to, in the Harbor of Refuge, salt pond channels, and coastal rivers.[45] Fixed (net) gear is also prohibited in the Foster Cove Channel and the narrows of Charlestown Pond.[46] Trawling is restricted at certain times and places—notably, during weekends and holidays during the peak recreational boating seasons.[47] Rhode Island also prohibits the use of fyke nets and seines in certain high-conflict locations.[48]

[40] 46 R.I. GEN. LAWS § 46-6-9.
[41] *Id.* § 46-6-10.
[42] Fish traps include nets that extend seaward from shore, and are distinct from lobster pots and other types of traps and pots.
[43] 25-8-4 R.I. CODE R. § 6.6.16.
[44] *Id.* § 6.6.15.
[45] *Id.* § 6.5.1.
[46] *Id.*
[47] *Id.* § 6.5.2
[48] 25-8-4 R.I. CODE R. §§ 6.5.4, 6.5.5.

4 CHALLENGES, OPPORTUNITIES, AND POTENTIAL SOLUTIONS TO MINIMIZE VESSEL-GEAR INTERACTIONS

State and local governments can deploy a variety of tools to minimize loss of fishing gear due to vessel interactions, including development of laws and regulations, educational programming, and modification of enforcement practices. By deploying these tools appropriately, governments can:

- prohibit high-risk behaviors by both fishermen and boaters;
- change behavior and improve compliance with the rules by teaching users how to avoid conflicts;
- reduce risk associated with particular fishing or navigational gear;
- empower harbormasters to move gear to prevent conflicts before they occur; and
- enable enforcement of fisheries regulations in congested areas without the presence of environmental police.

This section presents challenges, opportunities to address those challenges, and potential solutions that relate to each of these goals. The applicability and need for these steps differs by state and local conditions. As a result, the order in which the challenges, opportunities, and solutions are discussed does not indicate their priority, and not all potential solutions are likely to be accepted or appropriate in all states. New England states have the opportunity to consider regional models and experiences for addressing vessel-gear conflict to ensure that they are effectively and appropriately designed to minimize gear loss due to vessel conflicts under local conditions.

1. **Challenge:** Vessel-gear conflicts are most common in congested areas, close to shore, and with fixed gear. However, the specifics of vessel-gear conflict hot spots is highly localized in terms of specific gear types involved and patterns of boating. As a result, effective solutions must be deployed at the local scale.

   Opportunity: Harbormasters are employed on the local level to manage congested areas and are embedded in marine communities. In addition, Maine towns that have used legal authority to limit gear placement in congested areas reported lower incidence of vessel-gear interactions.

   Potential Solution: Empower municipalities or other local authorities to issue ordinances limiting gear placement in locally managed navigation facilities, including local channels and harbors. Empower harbormasters to enforce those

ordinances by removing gear, adjusting gear placement, and/or requesting that fishermen move their gear.

2. **Challenge:** When gear placement poses a navigational hazard, harbormasters may have limited authority to take action. Even where they are authorized to order gear moved, state laws may require the harbormaster to obtain a court order to enforce the order, and harbormasters may be prohibited from moving the gear unless the fisherman refuses to comply with the order, which may take 30 days.

   Opportunity: Some states allow harbormasters to issue verbal or written requests to move gear and authorize them to move gear upon refusal of such requests without court action.

   Potential Solution: Amend relevant laws to authorize removal upon failure to heed verbal request to move gear within 24 hours or when gear presents an immediate hazard to navigation.

3. **Challenge:** Vessels increasingly employ line-cutters and therefore may not be aware of gear interactions and are unlikely to report interactions to harbormasters, resulting in underestimation of the scope of the conflicts.

   Opportunity: Certain high-conflict gear types, such as fish traps in Rhode Island, require enhanced marking, including radar reflectors. While the use of radar reflectors on fixed gear may raise other navigational safety concerns related to navigation at night, use of reflectors may be appropriate for certain other gear types.

   Potential Solution: Incorporate radar reflector requirements in high-risk stationary gear types and/or areas to assist in avoidance.

4. **Challenge:** Fishing activity is highly regulated. Further regulation to avoid vessel-gear conflicts is unwelcome.

   Opportunity: Harbormasters and fishermen often have close relationships and open lines of communication to identify and address problems without regulatory intervention.

   Potential Solution: Authorize harbormasters to adjust gear that poses a navigation

challenge if fishermen decline to do so upon request, but focus other efforts on education and enforcement of existing regulations.

5. **Challenge:** Recreational boaters are the primary cause of vessel-gear interactions, but their behavior is difficult to change.

   Opportunity: Boater education is required as a condition of licensing for vessel operation in many states.

   Potential Solution: Enhance boater education curricula to include material on fishing gear, including how to avoid it and the laws against interfering with gear, to supplement existing material on navigation rules of the road. Develop continuing education materials on the subject to provide to already-licensed boaters with registration materials or through other means.

6. **Challenge:** Harbormasters are unsure about the laws and authorities governing gear placement around navigation facilities.

   Opportunity: Harbormaster training is required and generally managed through state or regional harbormaster associations.

   Potential Solution: Develop a training module on fishing gear laws relevant to harbormasters for inclusion in annual or regular training.

7. **Challenge:** Fishing activity is under the jurisdiction of natural resource agencies, not navigation authorities, and therefore harbormasters have limited enforcement authority.

   Opportunity: Harbormasters often have law enforcement training through service in the U.S. Coast Guard or other prior service, and harbormasters may also serve as environmental police.

   Potential Solution: Cross-deputize harbormasters and fisheries enforcement agents so that they can enforce fishing laws and navigation infractions, respectively, within their areas of jurisdiction.

States and, where authorized, municipalities, can successfully reduce vessel-gear interactions by identifying the particular challenges that affect them, by understanding the strengths of existing resources and the availability of models, and applying tested solutions used elsewhere in the region. The solutions may require statutory or regulatory amendment, education, or alteration of practices under existing authorities. However designed, the solutions offered here should be feasible without substantially interfering with existing legal regimes and should be adaptable to the particularities of different local contexts, customs, and problems. When successfully deployed, they promise to reduce gear loss and associated environmental harm.

5 APPENDIX A: INTERVIEW PROTOCOL

Interviewer name:

Interviewee name:

Interviewee position:

Date:

1. We'd first like to know a little about you and your local situation.
    a. How long have you been a harbormaster in [location]?

    b. What area do you have jurisdiction over?

    c. Are there any special rules for gear placement in areas under your jurisdiction? If so, where are they located (e.g., municipal ordinances, harbor management plan)?

    d. Do fishers or boaters ever ask questions about gear placement or avoidance? If so, how often and what do you tell them?

    e. Have you received any training specific to gear placement or vessel avoidance of gear?

2. We would like to get a sense of how often vessels inadvertently contact fishing gear in your location.
    a. In general, how often do you see or hear about vessel-gear interactions in your area?

    b. Are interactions most common . . .
        i. during particular times of year?

        ii. with particular types of fishing gear (recreational/commercial; fixed/mobile)?

        iii. with particular types of vessels (recreational/commercial; small v large vessel)?

iv. in particular locations (inshore/offshore; specific ports; specific waterbodies)?

3. We'd next like to hear about your views on the use of gear placement requirements.
    a. Do you believe that commercial fishers are knowledgeable about the legal requirements governing gear placement relative to navigation areas? Is there a difference between full-time and part-time fishers? What about recreational fishers?

    b. Do you believe that most commercial fishers comply with these gear placement requirements? Any difference between full-time and part-time fishers? What about recreational fishers?

    c. Do you believe that these gear placement requirements are effective for limiting vessel-gear interactions?

4. Vessel operators may also contribute to gear loss.
    a. Do you believe that commercial vessel operators are knowledgeable about the legal requirements governing navigation to avoid gear in congested areas? What about recreational boaters?

    b. Do you believe that most commercial vessel operators comply with these navigation requirements? What about recreational boaters?

    c. Do you believe that these navigation requirements are effective for limiting vessel-gear interactions?

5. Is there an avenue for vessel operators, harbormasters, and fishers to communicate with each other about improperly placed gear, vessel operators putting properly placed gear at risk, or to enable recovery of lost gear?

6. In your opinion, what legal or practical steps would reduce vessel-gear interactions?

7. Can you identify any other harbormasters or other knowledgeable people who you recommend we speak with about this issue?

6 APPENDIX B: CONNECTICUT LAWS

CONN. GEN. STAT. § 19a-338. Obstruction of navigable waters

Any person who places any material which tends to obstruct navigation in navigable waters shall be fined not more than one hundred dollars, and such person shall be ordered by the court before which the conviction is had to remove such material within thirty days, and, on his failure to do so, any person may remove such material at the expense of the person who placed it there; but the provisions of this section shall not apply to oyster beds that have been designated and set out for the purpose of planting and cultivating oysters thereon. Nothing in this section shall prohibit the filling or wharfing out in such waters between the shore and the harbor lines established in any harbor.

CONN. GEN. STAT. § 15-8. Power to station vessels. Penalty for resisting

Each harbor master may station all vessels riding at anchor in the harbor and navigable waterways under his care, and all vessels or obstructions so moored or anchored that, by the action of wind or tide, they may be carried into such harbor and navigable waterways while so moored or anchored, and he may remove, from time to time, such vessels within such harbor and navigable waterways, or such vessels or obstructions so moored or anchored, as are not employed in receiving or discharging their cargoes, to make room for the passage of other vessels up or down such harbor and navigable waterways. He shall be the sole judge of whether any vessel so at anchor is so in the harbor or navigable waterways as to obstruct or hinder the passage of any other vessel, or whether such vessel or obstruction is so moored or anchored that it may, by the action of the wind or tide, obstruct or hinder the passage of any other vessel within such harbor or navigable waterways; and may determine how far within such harbor, and in what instances, masters or others having charge of vessels at anchor within such harbor or navigable waterways shall remove the same; and, upon the application of the owner or lessee of any wharf, dock or pier in such harbor or navigable waterways, shall station any vessel lying at or adjacent to such wharf, dock or pier, or remove it therefrom to make room for the dockage or passage of any other vessel, when, in the judgment of such harbor master, the interest and convenience of commerce or navigation or public access require; and may exercise all the powers and duties with reference to such vessels which he might exercise with reference to vessels at anchor in such harbor and navigable waterways. Any person who obstructs, resists or wilfully refuses to obey the order of any harbor master or deputy harbor master in the execution of the duties of his office shall forfeit two hundred fifty dollars, to be recovered, with costs, in the name of such harbor master or deputy harbor master, in which action such vessel may be attached as in other actions; and all forfeitures, after deducting

the necessary expenses of enforcing the same, to be determined by the court rendering judgment therefor, when collected, shall be paid to the General Fund.

CONN. GEN. STAT. § 26-154. Restricted waters near mouth of stream or estuary. Use of otter trawls in estuaries

(a) The commissioner may designate certain areas of water in or near the mouth or entrance of any stream or estuary within which area no person shall use any purse net, beam or otter trawl, or pound or trap net.

(b) No person may use any otter trawl in any waters shoreward of the following described line: From the southern extremity of Stonington Point, Stonington; to the east end of the Stonington inner breakwater; follow the breakwater; from the west end of the breakwater to Wamphassuc Point. From the southern extremity of Dodge's Island, Stonington to the southern extremity of Ender's Island, Stonington; straight line to the southern extremity of Mason Point, Stonington; from the southerly extremity of Ram Point, Stonington straight line to the southern extremity of Morgan Point, Groton; from the entrance to Venetian Harbor, Groton to the southern extremity of Mumford Point, Groton; from the western extremity of Bushy Point Beach, Groton to the southern extremity of Avery Point, Groton; from the western extremity of Eastern Point, Groton, to the Old New London Harbor Lighthouse, New London; from the southern extremity of Magonk Point, Waterford; to the southern extremity of Millstone Point, Waterford; to the one fathom contour of Niantic Bay, thence to the southwest extremity of Black Point, East Lyme straight line to Buoy C-5 at Seal Rock, East Lyme; thence to the southern extremity of Lands End, East Lyme; thence to the mouth of the Three Mile River, Old Lyme; straight line to Hatchett Point, Old Lyme; straight line from Hatchett Point, Old Lyme to Hawk's Nest Beach Point, Old Lyme.

From the eastern extremity of Griswold Point, Old Lyme to Buoy 2 Old Saybrook Channel Entrance to Buoy 1 Old Saybrook; thence to the southern extremity of Old Saybrook Point. From Cornfield Point, Old Saybrook to the mouth of the Oyster River, Old Saybrook; straight line to Chapman Point, Old Lyme; straight line to Old Kelsey Point, Westbrook, from Money Point, Westbrook to Lobster Rock, Westbrook; from Lobster Rock, Westbrook to Buoy 3 Westbrook mouth of the Menunketesuck River; from Buoy 3 Westbrook to Kelsey Point, Clinton; to Hammonasset Point, Madison. From Hogshead Point, Madison to the southern extremity of Grass Island, Guilford; to the southern extremity of Mulberry Point, Guilford; to the southern extremity of Vineyard Point, Guilford; to the southern extremity of Outer Island, Branford; to the southern extremity of Haycock Point, Branford; from Haycock Point, Branford to the northeast extremity of Spectacle Island, Branford; from the southwest extremity of Spectacle Island, Branford to the flag pole at Mansfield Point, Branford; from the flag pole at Mansfield Point, Branford to the southern extremity of South End, East Haven; to the southern extremity of Morgan Point, East Haven to the

southwest ledge on the east breakwater, New Haven; to the Luddington Rock breakwater to the west breakwater light in West Haven; to Oyster River Point, West Haven; to the southern extremity of Merwin Point, Milford to the southern extremity of Pond Point, Milford; to Welch's Point, Milford; to Buoy 7 Milford Outer Harbor; from Buoy 7 Milford Outer Harbor to Buoy 5 to the northwest corner of Charles Island, Milford; from the northwest corner of Charles Island, Milford to the southwest corner of Charles Island, Milford; to the south end of the outer breakwater at the Housatonic River to the southern extremity of Stratford Point, Stratford and Point No Point, Stratford. From Point No Point, Stratford to the southerly end of the east breakwater at Pleasure Beach, Bridgeport; to the south end of the west breakwater at Seaside Park, Bridgeport; to Buoy 4 Black Rock Harbor, Bridgeport. From Buoy 4 Black Rock Harbor, Bridgeport to Pine Creek Point, Fairfield; from Pine Creek Point, Fairfield to Buoy 4 Southport Harbor, Fairfield; from Buoy 4 to the southern extremity of Frost Point, Westport; to the southern extremity of Sherwood Point, Westport; to the southern point of Cedar Point, Westport; to Buoy 1 Georges Rock, Westport; to Buoy 2 Cockenoe Shoal; to Buoy 24 Westport to Buoy 24-B Norwalk; to Buoy 3 Darien Five Mile River Entrance; to the Fish Island Buoy, Darien; to Long Neck Point, Darien. From Long Neck Point, Darien to Buoy 2 Cove Rocks, Stamford; to the southeast extremity of Shippan Point, Stamford; from the southwest extremity of Shippan Point, Stamford to the east end of the breakwater, Stamford Harbor; from the west end of the breakwater, Stamford Harbor to Buoy C-1 Greenwich South Reef; to Buoy 3 Greenwich Harbor Entrance; to the northeast extremity of Great Captain's Island, Greenwich; from the southwest extremity of Great Captain's Island, Greenwich to Byram Point.

CONN. GEN. STAT. § 26-169. Nets and seines prohibited in Darien, Stamford and Greenwich

No person shall draw, set or use any net, seine, pound net or set net in any of the waters of Long Island Sound or in any creek or tributary thereof lying north and west of a line drawn from the southeasterly point of Hay Island in the town of Darien to the southeasterly point of Indian Rocks and thence to the southeasterly point of Great Island in said town. No person shall draw, set or use any net, seine, pound net or fyke or set net in any of the waters of Long Island Sound or in any river or creek or tributary thereof lying north of a line drawn from the extreme southerly end of Collender's or Long Neck Point in the town of Darien to the extreme southerly end of Greenwich Point in the town of Greenwich, except in fishing for killies, shiners or shrimp with a net or seine not exceeding thirty feet in length, or in fishing for menhaden for personal use with a seine or gill net.

CONN. GEN. STAT. § 26-170. Use of seine in Norwalk Harbor

No person shall draw a seine with a mesh less than one and one-half inches square in the water known as Norwalk Harbor or in any waters adjacent to said harbor northerly of a line drawn from Sprite Island to a point opposite the mouth of Five Mile River.

CONN. GEN. STAT. § 26-174. Pawcatuck River

No person shall erect or continue any pound or weir upon any flat or other part of the bottom of the Pawcatuck River eastward or westward of its channel, between the first day of June and the twentieth day of March, or shall erect or continue any stationary net or like obstruction to the main channel of said river. No person shall fish with mesh or scoop nets in Pawcatuck River, or any of its branches, between sunset on Friday and sunrise on Monday from March twentieth to June first; and no person shall use more than one net therein.

CONN. GEN. STAT. § 26-175. Long Beach and Penfield Reef

No person shall draw, set or use any net, seine, pound net, fyke net or set net in any waters of Long Island Sound or any creek or tributary thereof, lying north of a line drawn from the breakwater on what is known as Long Beach to the Penfield Reef lighthouse, and thence along said Penfield Reef to the shore or mainland in the town of Fairfield.

7 APPENDIX C: MAINE LAWS

ME. STAT. tit. 38, § 2. Rules for channel lines; enforcement

The municipal officers of all maritime towns and plantations, other bodies empowered to regulate municipal harbors and the county commissioners in the case of maritime unorganized townships may make rules and regulations, with suitable provision for enforcement, to keep open convenient channels for the passage of vessels in the harbors and waterways of the towns or townships for which they act, and may establish the boundary lines of those channels and assign suitable portions of their harbors and other coastal and tidal waters within their jurisdiction for anchorages.

In the event fishing gear is within the boundary lines of a channel in violation of local rules, the harbor master may issue a warning of navigational interference and may commence court action to order removal of that gear.

Such rules and regulations as may be made by those municipal officers, other bodies empowered to regulate harbors or county commissioners shall be enforced and carried out by the harbor master of that town or unorganized township, or any other law enforcement officer of the State or any political subdivision of the State.

The harbor master may appoint deputies who, under his direction, shall enforce and carry out the rules and regulations of this section.

ME. STAT. tit. 17, § 2802. Miscellaneous nuisances

. . . obstructing or impeding, without legal authority, the passage of any navigable river, harbor or collection of water; . . . [is one of a list of] nuisances within the limitations and exceptions mentioned.

ME. STAT. tit. 12, § 6171-A. Protection of public health and safety and prevention of gear conflicts

1. Commissioner's powers. The commissioner may investigate conditions affecting public safety, public health or property and conflicts among harvesters of marine organisms. The commissioner, with the advice and consent of the Marine Resources Advisory Council, may adopt or amend such rules as the commissioner considers necessary to:

A. Protect public health;

B. Protect public safety;

C. Prevent property damage; or

D. Prevent gear conflicts and promote the optimum development of marine organisms.

Rules adopted in accordance with this subsection may include, but are not limited to, rules governing area closures when necessary to address conflicts among persons who fish commercially that may cause a threat of harm to a person.

. . .

ME. STAT. tit. 38, § 1022. License to build or extend; application

Any person intending to build or extend any wharf, fish weir or trap in tidewaters, within the limits of any city or town, shall apply in writing to the municipal officers of the city or town . . . asking license for the intended erection or extension. . . .

Any licenses issued under this chapter shall constitute an approval and determination by the issuer thereof that the licensed wharf or weir constructed and operated within the limits imposed by such license does not adversely affect nor impair the interests of the issuer in such area, including navigation and the rights of private citizens in the area. Such license does not confer any right, title or interest in submerged or intertidal lands owned by the State.

ME. STAT. tit. 38, § 1026. Extension of herring weirs and wharves; shore owner's consent

No fish weir, trap or wharf shall be extended, erected or maintained except in accordance with this chapter. No fish weir, trap or wharf shall be erected or maintained in tidewaters below low-water mark in front of the shore or flats of another without the owner's consent, under a penalty of $50 for each offense, to be recovered in a civil action by the owner of said shore or flats.

This chapter applies to all herring weirs and traps, but does not apply to other weirs or traps, the materials of which are chiefly removed annually, provided such weirs or traps do not obstruct navigation nor interfere with the rights of others. This section shall not affect any wharves so erected or maintained on the 21st day of April, 1901.

ME. STAT. tit. 12, § 6072. Research and aquaculture leases

. . .

7-A. Decision. In evaluating the proposed lease, the commissioner shall take into consideration the number and density of aquaculture leases in an area and may grant the lease if the proposed lease meets the following conditions as defined by rule.

. . .

B. The lease will not unreasonably interfere with navigation.

ME. STAT. tit. 12, § 6072-A. Limited-purpose lease for commercial or scientific research

1. Authority. The commissioner may issue a limited-purpose lease for areas in, on and under the coastal waters, including the public lands beneath those waters and portions of the intertidal zone, for commercial aquaculture research and development or for scientific research.

. . .

13. Decision. The commissioner may grant a lease if a proposed project:

. . .

B. Will not unreasonably interfere with navigation;

. . .

ME. STAT. tit. 12, § 6072-C. Limited-purpose aquaculture license

1. License required. A person may not engage in the activities authorized under this section without a current limited-purpose aquaculture license or a lease issued under this Part authorizing the activities.

2. Licensed activities; criteria. The holder of a limited-purpose aquaculture license may place marine organisms on the ocean bottom without gear or utilize approved aquaculture gear in a site in the coastal waters of the State to engage in certain aquaculture activities that meet the criteria established in this subsection and in rules adopted by the commissioner. The license also authorizes unlicensed individuals to assist the license holder in the licensed activities with the written permission of the license holder. The commissioner, or qualified professional department staff designated in writing by the commissioner, may issue a limited-purpose aquaculture license for certain aquaculture activities if:

. . .

C. The gear, excluding mooring equipment, does not cover more than 400 square feet of area and the gear does not present an unreasonable impediment to safe navigation;

. . .

ME. STAT. tit. 12, § 6673. Municipal shellfish aquaculture permit

A municipality that has established a shellfish conservation program as provided under section 6671 may, consistent with the rights of property owners, issue a municipal shellfish aquaculture permit to a person for the exclusive use of shellfish in a designated area in the intertidal zone to the extreme low water mark within the municipality for the purpose of shellfish aquaculture.

. . .

2-A. Decision. In evaluating a proposed municipal shellfish aquaculture permit, a municipal officer shall take into consideration the number and density of permits and leases in the area and may issue the permit if the municipal officer finds the proposed project meets the following criteria.

. . .

E. The permit will not unreasonably interfere with navigation.

8 APPENDIX D: MASSACHUSETTS LAWS

MASS. GEN. LAWS ch. 102, § 17. Illegal deposit of substances or things injuring or obstructing navigation

Whoever wilfully and without lawful authority or license therefor, deposits in a harbor or other navigable tide waters stones, gravel, mud, ballast, cinders, ashes, dirt or any other substance, tending to injure the navigation or to shoal the depth thereof, or throws or drops into such waters any barrel, box, log, timber or other object, tending to obstruct the navigation thereof, shall be punished by a fine of not less than twenty nor more than one hundred dollars.

MASS. GEN. LAWS ch. 102, § 18. Passing warp or line across channel or dock

No warp or line shall be passed across a channel or dock so as to obstruct vessels passing along the same.

MASS. GEN. LAWS ch. 130, § 17. Powers of director

The director may . . .

(7) Occupy, use and control not exceeding ten ponds and estuaries, creeks or other arms of the sea, within the coastal waters, and the necessary land thereto adjoining, for the propagation and distribution of fish frequenting the coastal waters and for the scientific investigation of their habits, if such occupation and use do not impair the private rights of any person or materially obstruct any navigable waters. Notice of such occupation and use and the purpose thereof shall be conspicuously posted by the director at the nearest points to said ponds and estuaries, creeks or other arms of the sea, and shall be recorded in the registry of deeds in the county or district where they are situated.

MASS. GEN. LAWS ch. 130, § 29. Construction of weir, pound net or fish trap

The aldermen or city council of a city or the selectmen of a town lying upon coastal waters may, in writing, and upon blanks, supplied by the director, authorize any person to construct weirs, pound nets or fish traps in tidewater in locations where no harbor lines exist and also in locations beyond established harbor lines, within the limits of such city or town, for a term not exceeding five years, upon such conditions and subject to such regulations as the aldermen, city council or the selectmen may impose; but no authority so given shall be valid unless approved in writing as to location and construction by the department and the director, and subject to such conditions as it and he may impose; nor until such authorization, together with such approval, has been filed with the director.

Whoever constructs or maintains a weir, pound net or a fish trap in tidewater, without the authority mentioned in this section, shall be punished by a fine of ten dollars for each day or part thereof he maintains such weir, pound net or fish trap; and he may be enjoined therefrom.

MASS. GEN. LAWS ch. 130, § 57. Shellfish aquaculture licenses

Licenses under this section shall be granted or denied in writing within sixty days after receipt of the written application and shall be issued upon forms supplied by such cities and towns and upon such terms and conditions and subject to such terms, conditions or regulations as the city council or selectmen issuing the same shall deem proper, but not so as to impair the private rights of any person or to materially obstruct navigable waters, and said license shall describe by metes and bounds the waters, flats or creeks covered thereby.

9 APPENDIX E: NEW HAMPSHIRE LAWS

N.H. REV. STAT. ANN. § 211:19-a Rye Harbor, Prohibition.

I. The taking of lobsters and crabs in Rye Harbor by any person is forbidden. No lobster or crab trap buoys may be placed in the harbor or the approach channel to the harbor. A fisherman has 24 hours to remove his or her gear from restricted areas after an authorized enforcement officer makes a verbal request to the fisherman to remove said gear. An extension may be granted in the case of rough seas or thick fog.

II. State conservation officers and persons appointed by the Pease development authority, division of ports and harbors shall enforce the provisions of this section, and may remove gear from the restricted area if the verbal request authorized in paragraph I of this section is ignored.

III. Rye Harbor as used in this section means the area below high water mark inside the northeast and southwest breakwater on the seashore at Rye, and an area west of an imaginary line beginning 200 feet seaward from the day marker on the northeast jetty on the northeast boundary of the channel and running northeasterly at right angles to the northeast boundary of the channel to Ragged Neck point. The harbor master may designate and buoy at his discretion a channel, at least 100 feet wide, running from the jetties at the harbor entrance to a point in the vicinity of the whistling buoy. Said channel as designated shall be the approach channel to Rye Harbor.

IV. Any person who violates any provision of this section shall be guilty of a violation and his license to trap lobsters shall be suspended for a minimum of 30 days.

N.H. REV. STAT. ANN. § 270:1 Declaration of Policy.

. . . Said commissioner of safety shall . . . remove obstructions tending to impede navigation, and maintain all lights and buoys under its jurisdiction. . . .

N.H. REV. STAT. ANN. § 270:26 Injuring Buoys, Placing Obstructions.

. . . II. Any person who knowingly places an obstruction dangerous to navigation in any of the public waters of the state without reasonable precaution to protect the public from such obstruction shall be guilty of a misdemeanor. . . .

N.H. CODE ADMIN. R. ANN. Fis. 603.17 Sea Urchins.

. . .

(c) Sea urchins shall only be taken as follows:

. . .

(2) By a single sled from December 15 through March 15 as follows:

. . .

e. The sled shall not be used in the following waters:

1. The Great Bay estuarine system inland of the Memorial Bridge in Portsmouth;
2. Little Harbor and its tributaries inland of its most seaward jetty;
3. Rye Harbor and its tributaries inland of its most seaward jetty; and
4. Inland of the Hampton Harbor Bridge; and

. . .

N.H. CODE ADMIN. R. ANN. Fis. 602.06 Gill Netting Restriction.

. . . (e) Gill nets used for the taking of finfish from the waters of the Great Bay estuarine system inland of the Memorial Bridge in Portsmouth, Little Harbor and its tributaries inland of its most seaward jetty, Rye Harbor and its tributaries inland of its most seaward jetty, and inland of the Hampton Harbor Bridge shall be subject to the following:

(1) Gill nets shall have a mesh size no larger than 3 inches;

(2) Gill nets shall be no longer than 100 feet in length and no wider than 7 feet in width;

(3) Gill netting shall only be permitted from April 16 through October 31;

(4) Gill netting shall only be permitted between 2 hours before sunrise until 2 hours after sunset, except as provided in RSA 211:48-b; and

(5) Any person using a gill net to take finfish shall be within unaided eyesight of the net. Unaided eyesight means unaided by devices such as binoculars or spotting scope.

N.H. CODE ADMIN. R. ANN. Fis. 807.07 Application Procedures for a Marine Aquaculture License.

. . . (e) The site assessment shall include but not limited to:

. . .

(5) Location of channel, navigational aids, moorings;

. . .

10 APPENDIX F: RHODE ISLAND LAWS

R.I. CONST. Art. 1, § 17. Fishery rights--Shore privileges--Preservation of natural resources

The people shall continue to enjoy and freely exercise all the rights of fishery, and the privileges of the shore, to which they have been heretofore entitled under the charter and usages of this state . . .

46 R.I. GEN. LAWS § 46-4-2. City and town control of harbors--Harbormasters--Extension of Providence jurisdiction

. . .

b) The council of the town of Little Compton is hereby authorized and empowered to enact ordinances to regulate or ban the setting of lobster pots, fish nets, or cribs, within the harbor at Little Compton to prevent interference with the use of moorings or navigation therein

46 R.I. GEN. LAWS § 46-4-6.7. Town of Little Compton--Powers conferred

(a) The provisions of § 46-22-14, or any other provisions of the general laws notwithstanding, and in addition to any authority and powers conferred upon the town council of the town of Little Compton, authority shall also be granted to the town council of the town of Little Compton to enact ordinances as the town council may deem necessary or desirable for the enforcement of any rules and regulations established by the town council governing the public waters within its jurisdiction, and to regulate by ordinance the speed, management, and control of all vessels and objects and the size, type, location, and use of all anchorages and moorages within the public waters within the confines of the town, including, without limiting the generality of the foregoing, the authority and power . . . to regulate the location and placement of lobster pots, fish traps, and other fishing gear; . . . .

46 R.I. GEN. LAWS § 46-6-4. Protection of Blackstone and Seekonk Rivers

No person shall put any substance in the Blackstone River or in the Seekonk River, or do any act or shall permit anything within his or her control to be done or shall do or permit anything within his or her control to be continued to be done, that shall cause any substance to be put or conveyed into those rivers in such way that the navigable waters of the Seekonk River shall be injured for the purposes of navigation or in such way that the navigable channel of the river shall be diminished either in width or depth. Every person violating the provisions of this section shall be fined twenty dollars ($20.00) for each offense.

46 R.I. GEN. LAWS § 46-6-6. Protection of upper Narragansett Bay

No person shall deposit any mud, earth, sand, gravel, ashes, cinders, or other substances in the main channel of Providence River leading to the city of Providence, or in any part of the river or of Warren River or of Narragansett Bay lying east of the main channel and north of a line drawn east and west across the channel, and from the easterly line thereof to the eastern shore of the bay in the range of the lower buoy off Rumstick Point, or in the waters of Narragansett Bay within one mile of the shores of Bristol County or Hog Island; but this section shall not be so construed as to prevent the planting of oysters within the lines, or waters, or the property fitting the grounds under the waters for planting oysters thereon, or the construction of any wharf from the shores of the bay which may have been authorized by the general assembly. Every person violating any provision of this section shall be fined one hundred dollars ($100).

46 R.I. GEN. LAWS § 46-6-7. Protection of waters off Goat Island

No person shall set any post, drive any spile, or erect or continue any obstruction into or upon the public waters adjoining to and on the westerly side of Goat Island in the harbor of Newport, between the island and the main channel which separates the island from the island of Conanicut, or interfere with or injure any wire, torpedo, or other implement or contrivance in the waters, placed there under the authority of the United States, for use in connection with the experiments in torpedo practice carried on from Goat Island; but nothing herein contained shall be so construed as to give to the United States jurisdiction over any of the public waters to an extent which they do not already have, and this section may be modified or repealed at the pleasure of the general assembly. Every person violating any provision of this section shall be fined one hundred dollars ($100).

46 R.I. GEN. LAWS § 46-6-8. Duty of department to remove obstructions

Whenever a wrecked, sunken or abandoned vessel, an abandoned hulk, hull, barge or pilings, or any unlawful or unauthorized structure or thing is deposited or suffered to be or remain in the tidewaters of this state, and in the judgment of the director of the department of environmental management is, or is liable to cause or become an obstruction to the safe and convenient use of the waters for navigation and other lawful purposes, it shall be the duty of the department of environmental management, and, the department shall have power, to remove the obstruction, or cause the obstruction to be removed, in accordance with the provisions of this chapter.

46 R.I. GEN. LAWS § 46-6-9. Notice to owner to remove obstruction--Penalty

(a) If any person resident or being in the United States is known to the director as the owner of a vessel, or any interest therein, or as having or exercising any control over the

vessel as master, agent, insurer, or otherwise, or, in case of any other unlawful or unauthorized obstruction, as having alone or with others built, deposited, or caused the obstruction, or as owning, maintaining, or using the obstruction in whole or in part, the director shall give notice in writing to the owner or other person to remove the vessel or other obstruction within thirty (30) days of the date of the notice, or such extension of time as may be granted by the director.

. . .

46 R.I. GEN. LAWS § 46-6-10. Removal of obstruction by director--Payment of cost

(a) If the vessel or other obstruction is: (1) Not removed at or within the time specified in the notice, and in a manner and to a place satisfactory to the director, or (2) If the vessel or other obstruction is in immediate danger of sinking or has sunk, is breaking up or has broken up, or is posing a hazard to navigation; or (3) If the vessel or other obstruction poses an imminent threat to human health or safety, including a threat of environmental contamination; and (4) If no owner or other person is known to the director upon whom the notice can be served, the director or other authorized public entity may proceed to remove the vessel or other obstruction, or to complete the removal thereof, or to cause the removal to be done, in such manner and to such place as the director or other authorized public entity shall deem best; and the necessary cost and expense of the removal, if not paid by some owner or other person liable therefor, shall, when certified by the director, be paid out of the derelict and abandoned vessel and obstruction removal account or out of the treasury of the state out of any money appropriated therefor.

20 R.I. GEN. LAWS § 20-10-9. Marking of areas subject to permit--Restrictions on public use

(a) The CRMC shall require all permittees to mark off the areas under permit by appropriate ranges, monuments, stakes, buoys, or fences, so placed as not to interfere unnecessarily with navigation and other traditional uses of the surface. . . .