



**Massachusetts Division of Marine Fisheries
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Shellfish Planting Guidelines**

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July 2011

Introduction

Shellfish planting is conducted to enhance natural shellfish resources to maintain commercial and recreational fisheries, restore historic populations no longer present, mitigate for adversely impacted stock, commercially produce shellfish by private aquaculture, or for ecological services. In Massachusetts there is a long history of protecting public access to marine resources (Colony Ordinances of 1640 – 1647), so planting activities have been performed primarily to benefit commercial and recreational harvesters by municipal shellfish departments with assistance from the Division of Marine Fisheries (*Marine Fisheries*). Private aquaculture has been in existence since the mid 1800's growing tremendously in the last 20 years. Mitigation for resource and habitat loss associated with marine construction projects has become common in the last decade or so. More recently, there is increased interest in shellfish planting for restoration purposes.

Massachusetts ranked first in the nation in the value of fisheries landings in 2009 (NOAA 2009). Given the size and importance of the shellfisheries and associated shore based industry, it is an economic necessity to protect the wholesome reputation of the Commonwealth's shellfish industry.

Shellfish are prolific in coastal waters accessible by small boat and by wading. Shellfishing in Massachusetts is both a lucrative commercial industry and a popular recreational pastime. Due to their proximity to the coast, shellfish grow in waters susceptible to pollution from sewer systems, combined sewer overflows, and other sources of human waste. These waste streams can contain pathogens that cause a variety of human illnesses. Shellfish are filter feeders and when exposed to pathogens they have a high risk of becoming contaminated and unsafe for human consumption. Some water bodies are contaminated all of the time and other waters are only contaminated as a result of run-off from rain storms. Other water bodies that have no sewage pollution or are very well-mixed and do not retain the pathogens are not contaminated. Because of the potential severity of human illness as a result of eating contaminated shellfish, many statutes and regulations are in place to protect public health by preventing harvesting from areas contaminated with human pathogens. The National Shellfish Sanitation Program (NSSP) has established a rigorous classification, monitoring and closure system that states with shellfish in interstate commerce are required to follow. In addition to routine monitoring for fecal coliform contamination, the program specifies closure conditions and requires that states adequately patrol areas closed for public health reasons or take measures to remove shellfish from those areas. The Massachusetts Office of Environmental Law Enforcement (OLE) is responsible for enforcement of the 1.7 million acres of shellfish growing waters of which 190,000 acres are closed to shellfishing due to contamination. The Commonwealth's compliance with the NSSP is evaluated annually by the U.S. Food and Drug Administration (FDA). State evaluations are reported to the Interstate Shellfish Sanitation Conference (ISSC) for potential sanctions up to and including removal of a state's shellfish from interstate commerce.

On the east coast of the U.S., most states have sole authority to manage shellfish. In contrast, the Commonwealth of Massachusetts shares management and control with municipalities. Under various sections of Massachusetts General Laws (MGL) Chapter 130, municipalities control shellfisheries management in clean (Approved) waters while the state controls shellfisheries management in contaminated waters (all classifications other than Approved). The Commonwealth also has control of the shellfish resources in certain areas outside of municipal boundaries but within the jurisdiction of the Commonwealth. Such areas include but are not limited to the center of Cape Cod Bay, an area off of Boston Harbor, and an area in Nantucket Sound west of Monomoy Island. Additionally, the Commonwealth has jurisdiction over fisheries management in the federal waters of Nantucket Sound.

This document represents the *Marine Fisheries*' definitions and policy framework relative to all types of shellfish planting, including shellfish propagation and enhancement, restoration, mitigation, and aquaculture in state managed waters. The intent is to clarify and enumerate considerations for review of shellfish planting projects to benefit project applicants, as well as local, state and federal resource and permitting agencies. The guidance outlined is intended as a supplement to regular reviews and consultations with resource and permitting agencies. **In all cases, the shellfish planting must be deemed appropriate by both the municipality and *Marine Fisheries*.** Further, if any structures are created or anchoring systems used, additional permits may be required by the U.S. ACE, MA DEP, the local conservation commission, and possibly other permitting agencies. The guidelines within this document are based on current state and federal statutes and regulations governing shellfish management and aquaculture.

Definitions

Marine Fisheries' uses the following definitions throughout this document and in practice to describe various shellfish planting activities. Since the closure status is an important part of how shellfish planting activities are managed, the closure definitions are provided first.

Shellfish Growing Area Classifications

The state is divided into 303 Shellfish Growing Areas (SGAs) which are broken up into classification areas and assigned a status based on routine sampling conducted by *Marine Fisheries* according to NSSP guidelines (Figure 1). SGA maps are available on the *Marine Fisheries* website (<http://www.mass.gov/dfwele/dmf/programsandprojects/dsga.htm>).

Massachusetts Division of Marine Fisheries - Designated Shellfish Growing Area

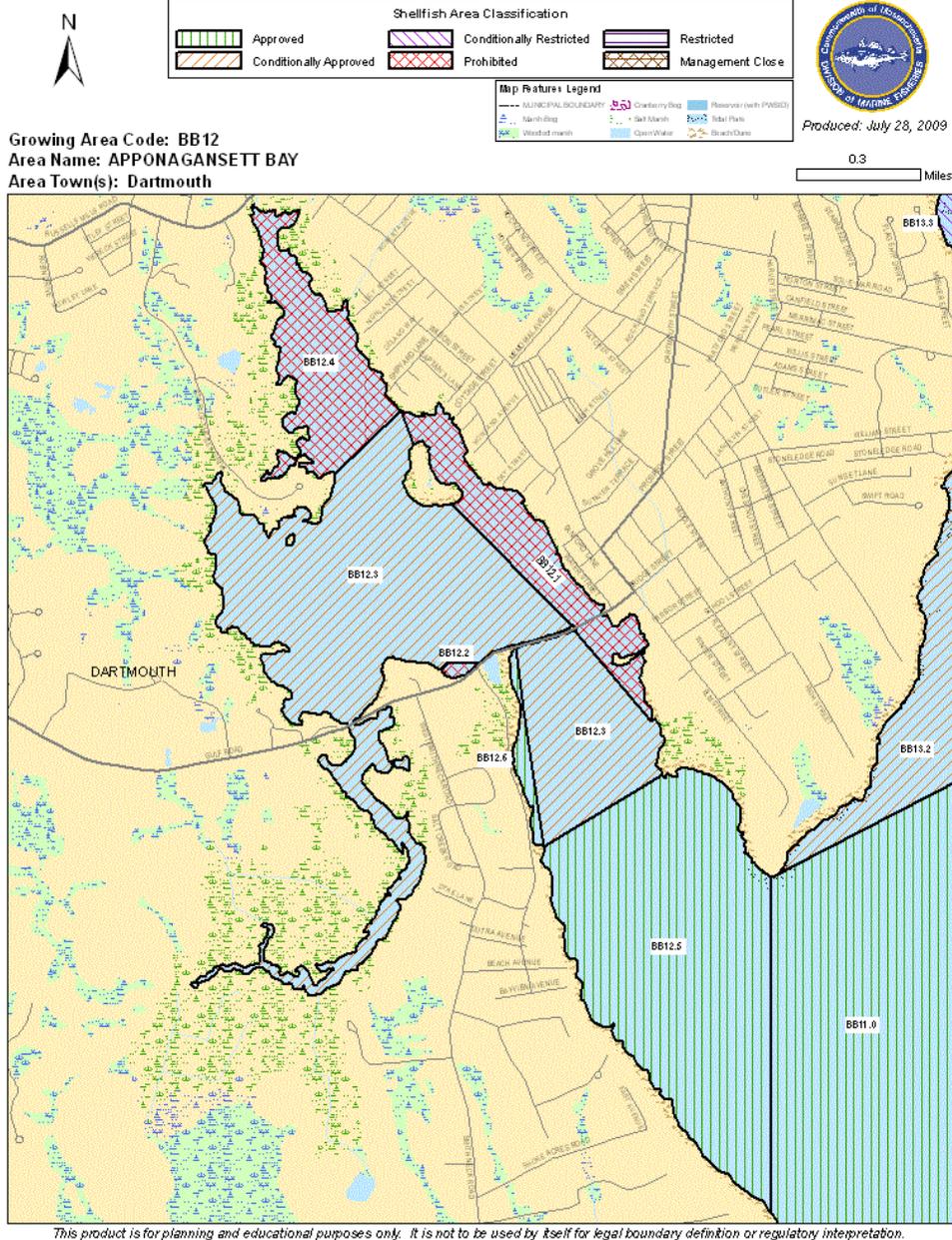


Figure 1. Apponagansett Bay, Dartmouth is SGA BB12. It is broken up into six classification areas. Each classification area is assigned a classification and a status based on NSSP guidelines.

The NSSP provides five area classification definitions:

1. **Approved:** Open to the harvest of shellfish for direct human consumption subject to local rules and regulations and only closed during major coast wide events (e.g. an oil spill or red tide event).

2. **Conditionally Approved:** Closed some of the time to rainfall or seasonally poor water quality or other predictable events. When open, it is treated as an Approved area.
3. **Restricted:** Contains a limited degree of contamination at all times. Used for the relay of shellfish to a less contaminated area or harvest for depuration.
4. **Conditionally Restricted:** Contains a limited degree of contamination at all times, subject to intermittent pollution events and may be closed some of the time to rainfall or seasonally poor water quality. In Massachusetts, when open, only softshell clams may be harvested by Master/Subordinate Diggers for depuration at the *Marine Fisheries* Shellfish Purification Plant.
5. **Prohibited:** Area closed to the harvest of shellfish under all conditions.

Massachusetts utilizes all five classifications. Any SGA not in the Approved classification is considered contaminated. Formal classification definitions can be found in Section 2, Chapter 4.03 of the NSSP Guide for the Control of Molluscan Shellfish (U.S. FDA 2010).

Each shellfish classification area within an SGA is also assigned a status. The status of an SGA or classification area is separate and distinct from its classification and may be opened, closed or inactive for the harvesting of shellstock.

Massachusetts utilizes two NSSP status designations:

1. **Open Status:** Except for an area in the prohibited classification, any correctly classified growing area is normally open for the purposes of harvesting shellstock subject to the limitations of its classification.
2. **Closed Status:** Any classified growing area may be closed for a limited or temporary period because of an emergency situation, biotoxins, conditions stipulated in a management plan of a conditionally classified area or failure of the state to complete NSSP classification and monitoring requirements.

Any area in the closed status is considered contaminated.

Shellfish Planting Definitions

Planting means any type of human induced or assisted method of increasing or creating shellfish resources regardless of the purpose.

Propagation means any planting activity conducted by municipalities or the state to increase the supply of shellfish available to the public fisheries.

Short term Relays means the transfer of shellstock by municipalities from growing areas classified as Restricted or Conditionally Restricted to growing areas classified as Approved or Conditionally Approved to reduce pathogens. Shellfish may be harvested after 90 days and usually one spawning season, so shellfish are typically relocated (relayed) in late spring and opened to harvest in the fall. Areas used as a source of shellfish for relays must have a current sanitary survey and shellfish must meet

NSSP and MA DPH guidelines for suitability. Testing must demonstrate that the shellfish are free of shellfish diseases prior to relaying.

Long term Transplants means the transfer of shellstock by municipalities from growing areas classified as Prohibited to growing areas classified as Approved or Conditionally Approved to reduce pathogens. Transplants require one or more spawning seasons and a minimum of one year of natural depuration before harvest. Areas used as a source of shellfish for transplants must have a current sanitary survey. Shellfish are also analyzed for metal and organic contaminants and are required meet NSSP and MA DPH guidelines. Testing must demonstrate that the shellfish are free of shellfish diseases prior to transplanting.

Restoration means propagation to recreate a shellfish resource that is historically known to have occurred in a water body but no longer exists as a naturally sustaining population. This term generally includes any propagation effort done for ecosystem service benefits

Mitigation means propagation done as compensation for alterations resulting in losses or damage to existing shellfish resources or habitat.

Aquaculture means the planting of shellfish at a specific privately licensed location resulting in the commercial production of shellfish.

Research Project means any planting activity designed for hypothesis testing, experimentation, scientific research or education, permitted annually by *Marine Fisheries*. These permits include a monitoring and reporting component.

Principles

- *Marine Fisheries* encourages the development of shellfish resources while minimizing conflict between user groups.
- *Marine Fisheries* supports and participates in propagation and enhancement efforts, actively seeks compensatory mitigation, cooperates with researchers, and encourages private aquaculture while protecting the right of access to a public shellfishery.
- *Marine Fisheries* supports and participates in these activities when they do not disrupt traditional fishing practices, do not adversely effect existing shellfish populations or habitat and do not create enforcement or potential public health problems.
- All planting activities regardless of purpose or proponent require a permit from *Marine Fisheries*. Permits may be conditioned concerning species to be planted, source of shellfish, possession of seed, introduction, movement or transplanting of seed or adult shellfish, use of shellfish, size and season at harvest, and may be further conditioned as deemed necessary to protect the shellfish resources of the Commonwealth and ensure public health protection.

Allowable Shellfish Planting Practices

Based on these principles, the following is a list of allowable activities consistent with state statutes, regulations and the NSSP:

1. All forms of planting may be conducted in marine waters with an NSSP classification of Approved or Conditionally Approved. Planted areas cannot be closed in excess of three years. In the case of Aquaculture, license of sites in Conditionally Approved areas is not generally encouraged due to enforcement and public health concerns while these areas are in a closed status. In some instances, this may be the only alternative and in these situations it is allowed with appropriate conditions to ensure public health protection.
2. Shellfish planting is not allowed in areas classified as Prohibited or Restricted except as follows:
 - a. Mitigation overseen or conducted by *Marine Fisheries* for losses to existing shellfish resources.
 - b. Propagation conducted by *Marine Fisheries* and/or municipalities, in Restricted or Conditionally Restricted areas to support depuration fisheries¹.
 - c. Municipalities may utilize contaminated waters as nursery areas to raise seed shellfish for eventual transplant to Approved or Conditionally Approved waters under a management plan approved by the director of *Marine Fisheries*. Nursery products would then be transplanted or relayed under provisions of the management plan and an NSSP required *Marine Fisheries* Contaminated Transplant Permit.
3. Research Projects permitted by *Marine Fisheries* may be conducted in all waters regardless of NSSP classification by qualified local, state or federal agencies, research institutions and private non-governmental agencies. These projects are of limited duration, not to exceed three years, and cannot establish new shellfish populations in contaminated waters². Research Projects in municipal controlled waters are conducted with local approval but permitted separately in the name of the researcher.
4. In waters under municipal control, except for Research Projects and Aquaculture, all planting activities involving private entities are conducted in partnership with

¹ *Marine Fisheries* does not support planting activities that create new, self-sustaining populations in Prohibited or Restricted waters due to the risk of attractive nuisance and other enforcement and public health concerns. Without a municipal contaminated area management plan in place, these activities are not allowed.

² These types of projects should not be designed to create a new, self-sustaining population of shellfish in contaminated waters. If they do, the population may be removed following the completion of the project. Exceptions will be considered if projects are conducted with municipal approval and under a municipal propagation permit. If in contaminated waters, they may require cooperation of a municipality under a contaminated area management plan. These permits include a monitoring and reporting component.

the city or town and authorized by *Marine Fisheries* in the municipal propagation permit.

5. Shellfish planting by private citizens or private property owners (i.e. shellfish or oyster gardening) may be conducted under the auspices of the local shellfish department in common areas of Approved waters set aside by the municipality under their shellfish management authority³. A municipality may allow this activity in contaminated waters per item 2.c. under a management plan approved by *Marine Fisheries*. This activity is conditioned by *Marine Fisheries* on the municipal propagation permit. Shellfish produced are used to augment the public fishery.
6. Construction of artificial reefs to increase shellfish habitat and resource may be conducted under the auspices of the local shellfish department in common areas of Approved waters set aside by the municipality under their shellfish management authority. A municipality may allow this activity in contaminated waters per item 2.c. under a management plan approved by *Marine Fisheries*. This activity is conditioned by *Marine Fisheries* on the municipal propagation permit. Shellfish produced are used to augment the public fishery. All reefs should not adversely affect other fisheries and shall conform to the *Marine Fisheries* Artificial Reef Policy (Rousseau 2008).

General Permit Requirements

All shellfish planting activities regardless of purpose or proponent require or must conform to the following general requirements at a minimum:

1. Proponent must have a Special Project permit from *Marine Fisheries*. Depending on the purpose and methods of the planting activity, various conditions may be required.
2. Proponent must have permission from the municipality⁴. A municipal site license is required for Aquaculture activities (e.g. an aquaculture grant).
3. Planting projects must conform to the Allowable Shellfish Practices and Principles listed above.

³ Typically, shellfish gardens are proposed by individuals interested in growing shellfish attached to a dock, float, mooring or on tidal lands they own. However, in Massachusetts, the licensing mechanism for aquaculture is for commercial purposes and there is no riparian ownership of shellfish. Therefore, all gardening activities can only produce a publicly available resource. Further, a permit is required to possess seed shellfish and culture sites need to be licensed. Because enforcement to prevent illegal use is exacerbated by multiple scattered sites, there are significant water quality and shellfish safety concerns related to growing shellfish from docks and in marinas, and other areas classified as other than Approved, and the persons involved are often unfamiliar with shellfish sanitation, these activities must be coordinated by the municipality.

⁴ Once *Marine Fisheries* receives a Special Project permit application, the local shellfish constable is contacted for feedback.

4. All planting activities shall conform to applicable provisions of 322 CMR 15.0: Management of Marine Aquaculture.
5. Introduction of non-indigenous and invasive species is strictly prohibited pursuant to 322 CMR 15.10.
6. Source and species of shellfish for planting must be approved by *Marine Fisheries*.
7. All shellfish being planted must be tested by a pathologist recognized by *Marine Fisheries* and be found free of known shellfish diseases or come from sources currently approved by *Marine Fisheries*.
8. Planting sites in Approved and Conditionally Approved areas or in Restricted or Conditionally Restricted areas designated for depuration may be closed for not more than three years and then opened to harvest by the public or by specially permitted commercial diggers engaged in the harvest of clams for depuration pursuant to MGL Chapter 130, section 54.
9. If the culture technique used as part of the planting project involves rafts, racks, floats, bags, moorings, placement of cultch or protective netting, then additional permits may be required by U.S. ACE, MA DEP and the local conservation commission and harbormaster.
10. Shell used as cultch shall be aged on land for a minimum of one year and have no attached meats. Shell cultch must be approved by *Marine Fisheries* prior to placement into coastal waters.
11. If shellfish will be harvested and sold, additional *Marine Fisheries*' and local permits are required.

Further Information

This section contains more detail concerning the permitting mechanisms and specific jurisdictions for the permitting and management of planting activities.

Waters under Municipal Control

Coastal cities and towns have authority under MGL Chapter 130, section 52 to manage, regulate, and permit shellfishing in their waters provided that these areas have not been declared contaminated under MGL Chapter 130, sections 74 and 74 A.

Municipalities may extend their authority under section 52 to contaminated areas in accordance with a management plan developed with assistance and approval of the director of *Marine Fisheries*. Traditionally, municipalities and towns have not opted to use this provision of the statute. Instead, coastal communities with softshell clam depuration fisheries have developed conservation and management plans as provided in

MGL Chapter 130, section 75, which gives municipalities' specific authority to manage this fishery, require permits and collect fees subject to *Marine Fisheries* approval.

Under any contaminated area management plan, the municipality is responsible for resource management and enforcement including patrol to prevent illegal harvesting and diversion of shellfish into commerce. Most municipalities do not assume the added responsibility in areas that cannot be harvested for direct shellfish consumption. Most activities such as relaying or transplanting of shellfish from contaminated waters to Approved waters are routinely accomplished under *Marine Fisheries* permits as required by the NSSP.

If a municipality wants to grow shellfish to improve water quality and eventually transplant or relay shellfish to remove the nitrogen from contaminated waters, the municipality may assume control of a specific contaminated water body or portion of the contaminated waters within its municipal boundaries under a management plan (Section 52). Ultimately, the shellfish must be utilized in the public shellfisheries. *Marine Fisheries* approval of a management plan authorizing such activity would be contingent on the ability and commitment of the town to prevent illegal harvest and diversion of contaminated shellfish into commerce.

Municipal Propagation Authority

Municipalities may plant, propagate, and protect shellfish in waters and flats within their jurisdiction under provisions of MGL Chapter 130, section 54, provided that the area is not subject to a private grant and private rights are not impaired. Areas closed to protect shellfish being cultivated in approved waters must be reopened in not less than three years. The purpose of the restriction on the length of closure is to protect public access to shellfish harvest areas.

Municipalities may rely on various strategies to propagate shellfish ranging from passive natural propagation to intensive shellfish culture techniques. In the former, management openings and closures of harvest areas are rotated consistent with the three year closure restriction and propagation depends on natural spawning and setting. Additionally, towns may plant seed and legal size shellfish from state approved sources utilizing various culture techniques and predator exclusion methods to enhance growth and survival by protecting vulnerable seed and intermediate size shellfish. Any planting method other than natural setting requires a *Marine Fisheries* propagation permit. If the culture technique involves rafts, racks, floats, bags, moorings, placement of cultch or protective netting, then additional permits may be required by the U.S.ACE, MA DEP, and the local conservation commission and harbor master.

Municipalities may conduct propagation efforts with city or town personnel, volunteers other organizations or institutions as deemed appropriate by the selectmen. Non-municipal entities would be covered by the municipal propagation permit as local agents.

Private Shellfish Aquaculture Site License (Shellfish Grants)

Coastal cities and towns may under MGL Chapter 130, section 57 grant to any person a shellfish aquaculture license. The license shall authorize the licensee at all times of year, in, upon, or from a specific portion of coastal waters, tidal flats, or land under coastal waters in the municipality: (1) to plant and grow shellfish both on and off the bottom, (2) to place shellfish in or under protective devices affixed to directly to the tidal flats or land under coastal waters, (3) to harvest and take legal shellfish, (4) to plant cultch for the purpose of catching shellfish seed, and (5) to grow shellfish by means of racks, rafts, or floats.

Notwithstanding the activities authorized by an aquaculture license, any use of structures or gear to accomplish off bottom growth and protect shellfish from predators as described above in (1), (2), (4) and (5), may require additional permits from U.S. ACE, MA DEP, the local conservation commission and harbor master.

The licensee has exclusive rights to a specified site to grow shellfish subject to rules and regulations governing aquaculture promulgated by the local authority and *Marine Fisheries* (322 CMR 15.00) and all terms and conditions made part of the license by both.

The purpose of the license is to grow shellfish to be marketed and the local city council or selectmen may specify a reasonable yearly market value to be produced by each shellfish project licensed (MGL Chapter 130, section 65). Any other use of a private shellfish grant license is considered inconsistent with the intent of the statute.

The director of *Marine Fisheries* has no authority to issue private shellfish grants (private shellfish aquaculture site licenses) as provided in MGL Chapter 130, section 57 even in situations where the director exercises temporary control of shellfish in a coastal city or town as provided in Chapter 130, section 52. *Marine Fisheries* has no authority to license private aquaculture in contaminated waters nor do the coastal cities and towns.

Special Project Permits

Marine Fisheries has authority under MGL Chapter 130, section 83 to issue various permits including permits for special projects. Special Project permits (322 CMR 7.01 (4) (d)) authorize an individual to engage in a specified marine fishery project including but not limited to aquaculture, mariculture, scientific, environmental or biological collection and study, assessments or experimentation, collection and possession for educational purposes, shellfish relay and shellfish propagation. Authority specifically for aquaculture activities is provided in MGL Chapter 130, sections 17B, 69, 83 which specifies that the director of *Marine Fisheries* can issue permits with terms and conditions authorizing the possession and taking of fish, including shellfish, at any season and of any size for purposes of propagation, rearing, harvesting or sale in connection with an aquacultural enterprise in which the fish being propagated, reared and harvested are kept separate from natural stocks of the same species. Under authority of MGL Chapter 130, sections 17, 69, 75, 80 and 83, municipalities may take, possess and relay/transplant contaminated

shellfish for propagation and natural purification as conditioned by *Marine Fisheries* and in compliance with the NSSP.

A Special Project Permit is required for all shellfish planting activities. Depending on the type of Special Project being proposed, specific information is required in the application. The following permits are the main types of Special Project Permits *Marine Fisheries* issues relevant to shellfish planting.

- Aquaculture Permit, for private growers
- Contaminated Transplant/Relay Permit, for municipalities
- Propagation Permit, for municipalities or private growers
- Research Project Permit

Pursuant to MGL Chapter 130, sections 57 and 69 and in 322 CMR 15.00 Aquaculture Regulations at 15.03 (seed) and 15.07 (source), *Marine Fisheries* regulates the source and the species of shellfish to be introduced into the marine waters of the Commonwealth. All Special Project permit applications must identify the species to be propagated, source and movement of seed shellfish. Shellfish must be from a source approved by *Marine Fisheries*. Approval is based on the disease history of the source and actual testing of brood stock and seed for known shellfish diseases and parasites. Approved sources are listed annually on the *Marine Fisheries* website (<http://www.mass.gov/dfwele/dmf/programsandprojects/shellhatch.htm>).

The purpose of these restrictions is to prevent the introduction of shellfish diseases, parasites, pests and competitors that may threaten the diversity or abundance of native species or the ecological stability and/or uses of infested waters that could have adverse impacts on or decimate natural shellfish populations, public shellfish propagation efforts and private shellfish aquaculture.

If a planting activity involves multiple components, a single Special Project Permit is conditioned to allow the entire activity and is all that is required. If harvest or sale of shellfish is anticipated, additional permits are required.

References

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