



Contact Information:

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1. INTRODUCTION

1.1 Purpose and regulatory authorities

This document provides guidance for developing a proposal for the collection, transportation, storage, and reuse of shells in Connecticut. It contains required state administrative policies as well as additional considerations for developing a viable and sustainable shell recovery program.

The Department of Agriculture Bureau of Aquaculture (DoAG) has statutory responsibility to support oyster shell recycling (recovery) programs and partnerships. A key action was the establishment of [Connecticut Public Act 21-24](#), which allows the state to accept and facilitate funding to support oyster shell recycling and restoration. State officials are encouraging the recovery or “recycling” of shells to help the state rebuild critical oyster habitat.

The DoAG reviews and provides comments on shell recovery proposals to facilitate the applicant in locating an appropriate site for their operation and successful project implementation. Local land use boards and/or regional/local health departments have a role in approving shell recovery as it pertains to local regulations.

The Department of Energy and Environmental Protection (DEEP) will be the permitting authority for and provide final approval of shell collection occurring at a transfer station, or a site approved to accept solid waste. Please note that shell recovery is not covered under the DEEP regulations for transfer stations; therefore, it is not currently a siting option. DEEP will develop a procedural outline for the process, and a separate guidance document will be written for the collection of shell at transfer stations if this becomes a possibility in the future.

1.2 Background

The oyster beds of Long Island Sound are unique in that they are among the few remaining sustainable oyster habitats in the world. These populations provide important ecosystem services that benefit the state’s environment, economy, and culture. Oyster shell recovery was identified as a priority action to support restoration of oyster habitats in the *Connecticut Shellfish Restoration Guide*. Using shells specifically for this one purpose is important because:

- Oysters improve water quality by filtration and nutrient mitigation, provide habitat for a myriad of marine organisms, serve as protection against coastal erosion, increase capture fisheries production, and the farming of oysters provides important maritime jobs and food.
- Oyster shell is the preferred substrate for oyster settlement.
- Oyster shell is in short supply due to years of discarding it or using it for other purposes.
- Shell recovery reduces waste and returns it to LIS to restore oyster populations.
- Oyster restoration results in improved ecosystem services for numerous organisms.

While recovering shells is critical to oyster bed sustainability, there are inherent risks as well as the potential for public nuisances. Some shell recovered from the public or food service industry might be sourced from locations outside Connecticut. Shells may carry organisms that are invasive, pests, predators, or vectors of disease. Collecting and replanting shell without proper treatment to eliminate these organisms presents a major threat to the marine environment.

2. Regulations and additional considerations

2.1. Submit draft proposal to DoAG for initial review

The applicant must develop and submit a written proposal for their planned shell recovery program to DoAG.

The DoAG will provide an initial review of the draft proposal, and if necessary, will provide suggestions to ensure the proposal will not create a significant nuisance and meets all local and state requirements. Each proposal will be evaluated on a case-by-case basis. The applicant's experience with the process, the complexity and location of the proposed activities, and other components will dictate the length and complexity of the review process.

Applicants are required to meet all of the following components in their shell recovery proposal:

- Identify the source of shell (section 2.1.1)
- Describe how shells will be reused and identify the end user, if it is not the applicant (section 2.1.2)
- Describe the standard operating protocol for shell collection that includes a schedule and detailed procedures for the sanitary operation of the program (section 2.1.3)
- Identify the primary means of transportation to be used, and describe the standard operating protocol for transporting shell (section 2.1.4)
- Identify the space where shells will be stored (shell cure pile) and a protocol for maintenance of the shell pile (section 2.1.5)
- Identify and describe the space for sanitation of equipment and any non-food contact surfaces, such as containers and vehicles, and develop a standard operating protocol for sanitation that includes a schedule (section 2.1.6)
- Prepare agreements with any partners and subcontractors (section 2.1.7)
- Designate an emergency contact who has knowledge of all aspects of the shell recovery program and can immediately access the project vehicle, equipment, and supplies to continue the program's responsibilities and resolve any issues that arise if the principal contact is unavailable (section 2.1.8)

2.1.1 Shell sources

- *The proposal should identify the source of shell.*
- Requirement: Shells must be sourced from shellfish harvested within the United States due to concerns about Oyster herpesvirus being introduced from shellfish imported from the European Union. Restaurants that sell imported shellfish are currently not allowed to participate in shell recovery programs.
- Additional considerations: While restaurants are the primary source of shell in Connecticut, there are also many other sources including travelling raw bars and caterers, shellfish festivals, retail seafood markets, farmers' markets, and institutional cafeterias. Applicants should start their shell recovery programs small, and reasonably scale up as their infrastructure and staff capacity allow.

2.1.2 Reuse of shells

- *The proposal should describe how shells will be reused and identify the end user if it is not the applicant. Shell can be donated to a local shellfish commission or the DoAG for restoration of the natural beds if the applicant does not have an initial end user.*
- Requirements:
 - No shell may be placed back into the waters of Long Island Sound without written authorization from the DoAG.
 - If the applicant is also an end user, they must get approval from DoAG to plant recovered shell within Long Island Sound and its tributaries.
 - **See 2.2 for additional information about the Shell Planting Application.**
 - If an end user is not identified, the applicant must consult with the DoAG to coordinate the transfer of the shell to a final user.

2.1.3 Shell collection

- *Proposals shall describe the standard operating protocol for all aspects of shell collection and include a preliminary schedule and detailed procedures for the sanitary operation of the program.*
- Requirements:
 - All equipment used to hold and transport shell (containers, vehicles, trailers, etc.) must be constructed with materials that can be easily cleaned, sanitized, maintained, or replaced.
 - All equipment used to hold and transport shell (containers, vehicles, trailers, etc.) must be washed and sanitized after each use and be air dried in a sanitary location and manner before storage or reuse.
 - Shell recovery containers must be labeled to indicate that the contents are recovered shell, and not a food item. The intent is to avoid the placement of collection containers in walk in coolers, or other inappropriate locations in the food service establishment.
 - All containers must have a fully sealable lid and remain sealed during transport.
 - Shell recovery containers must be stored away from any food in a designated recovery or garbage area. There can be no possibility of cross contamination.

- All areas and receptacles used for the storage or conveyance of waste should be operated and maintained to prevent attraction, harborage, or breeding places for insects and vermin.
- Pick up locations must have a dedicated area for the return of cleaned and sanitized containers that is separate from garbage and food storage areas.
- Additional considerations:
 - Determine the number of containers necessary for each of the participating restaurants, or collection sites, within the shell recovery program.
 - Ensure that this is a sufficient inventory of cleaned, sanitized and dried containers to provide clean containers to restaurants or collection sites when picking up filled containers.
 - Create a pick up schedule based on estimated volume of shell. NOTE: Shell volume may change with seasons, holidays, special events, etc. There must be a procedure in place to adequately cover the need for requested pickups and deliveries outside of the normal schedule.

2.1.4 Shell transportation

- *The proposal shall identify the primary means of transportation to be used to carry containers to and from shell collection and storage areas, and describe the standard operating protocol for transporting shell. If the proposal includes the transportation of loose shell, the trailer, or conveyance, must be water tight and composed of a sanitizable material.*
- Requirements:
 - The applicant must have unlimited access to the transportation vehicle(s).
 - Shell must be transported in sealed containers or within a trailer that does not allow leakage.
 - Identify what steps will be taken to ensure that no leakage of fluids occurs from the vehicle or trailer.
- Additional considerations: To prevent nuisances (e.g. odors, flies, vermin), shell transport times should be minimized from pick-up to placement on the shell cure pile. This includes holding shell in sealed containers after pick-up.

2.1.5 Shell storage and pile maintenance

- *The proposal shall identify the location where shells will be stored (shell cure pile) and a protocol for maintaining the shell cure pile to avoid a nuisance situation.*
- Requirements:
 - Applicant must provide a detailed plan for all aspects of the operations and maintenance of the shell pile.
 - Shells must be cured at the designated shell cure pile for a minimum of 6 months.
 - Runoff from shell cure piles must not enter Long Island Sound or its tributaries.
 - If located within close proximity to the water, barriers must be constructed to prevent runoff.
 - The shell recovery site must be large enough to maintain at least two separate,

labeled, and easily identified shell cure piles. This allows for the removal of fully cured shell (e.g. entire pile has been cured for six months) while continuing to collect and cure new shell.

- Applicant must provide the material safety data sheet for the use of any commercial product on the shell cure pile to the DoAG.
- Only shell material may be placed in the designated shell pile. The shell recovery site must include an area for a garbage can or dumpster to discard non-shell materials (e.g. napkins, gloves, utensils, etc.). These trash containers must be emptied regularly.
- Applicants must describe how the operation will control and prevent odor, flies, and vermin.
- Additional considerations:
 - Consider possible effects to adjacent property owners when designating a shell cure site. Situate your operation to avoid any negative impacts.
 - Consider the use of lime to manage odor and flies. If using, add lime to piles in layers as you add shell, rather than applying to the surface only.
 - Establish a contract with a waste management company for regularly scheduled trash removal, if applicable. Alternately, provide a detailed plan for waste removal, if the applicant is assuming this responsibility.

2.1.6 Sanitation station and maintenance

- *The proposal must identify and describe the location for equipment sanitation (containers and vehicles). The applicant shall develop a standard operating protocol for sanitation that includes a schedule.*
- Requirements:
 - There must be a designated sanitary location for the cleaning and drying of equipment and supplies.
 - The shell recovery program must have a supply of sanitation solution on hand at all times that is adequate to ensure that all containers can be sanitized in the case of unexpected increases in shell volume from your partners.
 - Runoff from the sanitation station must not enter Long Island Sound or its tributaries.
 - If located within close proximity to the water, barriers must be constructed to prevent runoff.
 - Cleaning activities for equipment used to hold and transport shell must be conducted following each use to prevent contamination of shellfish and food contact surfaces.

2.1.7 Agreements with partners and subcontractors

- *A written agreement must be developed by the applicant and EACH partner and subcontractor involved in shell collection, shell transportation, shell curing, and sanitation.*
- Requirement: Each agreement must identify the role of each partner, schedule of activities, and be signed by each party. The agreement shall name one individual who has authority over all aspects of the project and all project partners.

- Additional considerations: Consider creating a step-by-step manual for the shell recovery program that covers all aspects of the recovery program and is shared with all partners and volunteers.

2.1.8 Emergency contact

- *All proposals shall have a contingency plan, such that an emergency contact(s) is available to continue the responsibilities of the program.*
- Requirement: The emergency contact(s) must have knowledge of all aspects of the program, and unlimited access to all equipment and supplies, including transportation, necessary to maintain program operations in a timely manner. Not conducting routine maintenance activities at a shell pile for even a short period of time; leaving shell containers overflowing at restaurants; not promptly washing, sanitizing, and properly drying collection containers or conveyances; and/or not promptly handling nuisance insect or vermin issues could be catastrophic to the shell recovery program. All project proposals must include contingencies to accommodate for members having emergencies preventing them from completing their outlined responsibilities on schedule.

2.2. Submit final proposal to DoAG and seek authorization(s)

Upon completion of the review process, the DoAG will make any necessary recommendations for revisions to the proposal. In order to accomplish the objective of Public Act 21-24 to support development of shell recovery partners, once the proposal is finalized, the DoAG will coordinate with the applicant, the applicable local officials, and the Sea Grant Shell Recycling Coordinator to conduct a site visit to the location of the cure pile, and any other locations where activities associated with the proposal will occur. Should there be any concerns raised by local officials, the DoAG and the Shell Recycling Coordinator will work with the applicant to bring the proposal in line with local recommendations.

No shell can be planted in Long Island Sound or its tributaries without receiving a Shell Planting Aquaculture Certificate from the DoAG. The Shell Planting Application is available on the DoAG's website: <https://portal.ct.gov/-/media/DOAG/Aquaculture/Shell-Recovery/Shell-Planting-Application>.