



State of Rhode Island and Providence Plantations  
**Coastal Resources Management Council**  
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## **PUBLIC NOTICE**

File Number: 2020-04-074

Date: May 1, 2020

This office has under consideration the application of:

Department of Environmental Management  
Division of Marine Fisheries  
3 Fort Wetherill Road  
Jamestown, RI 02835

for a State of Rhode Island Assent to create and maintain: a 2.88 acre oyster reef restoration area within the DEM Shellfish Management Area in Town Pond, Portsmouth.

Project Location:	Town Pond
City/Town:	Portsmouth
Plat/Lot:	/
Waterway:	Town Pond

Plans of the proposed work may be seen at the CRMC office in Wakefield.

In accordance with the Administrative Procedures Act (Chapter 42-35 of the Rhode Island General Laws) you may request a hearing on this matter.

You are advised that if you have good reason to enter protests against the proposed work it is your privilege to do so. It is expected that objectors will review the application and plans thoroughly, visit site of proposed work if necessary, to familiarize themselves with the conditions and cite what law or laws, if any, would in their opinion be violated by the work proposed.

If you desire to protest, you must attend the scheduled hearing and give sworn testimony. A notice of the time and place of such hearing will be furnished you as soon as possible after receipt of your request for hearing. If you desire to request a hearing, to receive consideration, it should be in writing (**with your correct mailing address, e-mail address and valid contact number**) and be received at this office on or before June 1, 2020.

2020-04-074

## PERMIT APPLICATION REQUEST 2020

**Proposed Work:** Oyster Restoration – Oyster Reef Creation and Monitoring

**Water Body Name:** Town Pond

**City/State:** Portsmouth, Rhode Island

**Zip Code:** 02871

**Site Location:** Oyster restoration work will be conducted within 0.1-acre plots in the Oyster Restoration Area (ORA) located within the Rhode Island Department of Environmental Management Town Pond Shellfish Management Area, in Portsmouth, RI. The latitude and longitude of the ORA corner points are presented in Table 1.

**Applicant(s):** Rhode Island Department of Environmental Management  
Division of Marine Fisheries  
Fort Wetherill Marine Laboratory, 3 Fort Wetherill Road  
Jamestown, Rhode Island 02835



Principal Investigators:

Conor McManus, Ph.D. (Deputy Chief) and *CM*  
Eric Schneider (Principal Marine Biologist) *EGS*  
Contact: Eric.Schneider@dem.ri.gov | Phone: 401-423-1933



## PERMIT APPLICATION REQUEST 2020

### Project Overview

The Rhode Island (RI) Department of Environmental Management (DEM) Division of Marine Fisheries (DMF) in collaboration with the USDA Natural Resources Conservation Service (NRCS) plans to create Eastern oyster (*Crassostrea virginica*) reefs in the Oyster Restoration Area (ORA) sited in the RI DEM Town Pond Shellfish Management Area (SMA) in Portsmouth, RI (Table 1, Figures 1 & 2). This work is funded by the Oyster Reef Restoration Initiative, which is a subcomponent of the NRCS Environmental Quality Incentives Program (EQIP) focused on the restoration and management of declining habitats. This program is administered by NRCS and implemented via a partnership between NRCS and DEM, and in collaboration with aquaculturists and the RI Coastal Resource Management Council (CRMC).

The NRCS EQIP Oyster Reef Restoration Initiative is a voluntary conservation program that provides financial assistance to agriculture producers (e.g., aquaculturists) to help implement conservation practices that create oyster reefs to restore oyster populations and the ecosystem services and functions provided by oyster reefs (Peterson et al. 2003, Grabowski et al., 2005, Coen et al. 2007, Grabowski and Peterson, 2007). The goal of the NRCS EQIP Oyster Restoration Program is to create sustainable oyster habitats and oyster reefs in sanctuary areas (i.e., areas closed to oyster harvest to protect restored oyster reefs) in RI waters. There are two types of restoration work applicable under this program. The first involves placing only cultch, or weathered oyster or surf clam shell, to enhance the substrate for oyster survival and recruitment. The second combines clutching and then seeding that cultch with juvenile oysters (i.e., oyster seed-on-shell). The work proposed in this application combines clutching and then seeding with juvenile oysters (i.e., oyster seed-on-shell). This builds upon previous restoration work in Town Pond, led by Roger Williams University (RWU) between 2008-2014, as well as ongoing oyster restoration and research in other areas of RI waters.

Consistent with our typical EQIP oyster restoration practices, we plan to create oyster reefs by placing cultch and seeding with juvenile oysters over 4-years (5 y<sup>3</sup> of cultch and 250,000



juvenile oysters on shell per year) resulting in ~720 square feet (ft<sup>2</sup>) of oyster reef in selected 0.1-acre restoration plots in the ORA sited in the RI DEM Town Pond SMA, in Portsmouth, RI (Table 1, Figures 1 & 2). Oyster reefs will only cover a small portion of each plot, and dependent upon funding and restoration results, we expect a total reef footprint equal to ~ 0.083 to 0.12 acres of the 2.88 acre ORA over the next 10 years.

Specially in this application, we are requesting a CRMC Letter of Authorization to place cultch in tidal waters. As proposed, this work is eligible under the "Self-verification" provision in the US Army Corps of Engineer (USACE) Rhode Island General Permit (RI GP) No. 10, entitled "Aquatic habitat restoration, establishment and enhancement activities". Therefore, a permit application to USACE is not required. Similarly, a RI DEM Water Quality Certification (WQC) is not required for this work; however, we will forward a copy of this application to the USACE and RI DEM Office of Water Resources to ensure they are aware of the proposed work. We highlight that we are only returning shell to marine waters and seeding this shell with live oysters. We emphasize that this work is proposed within a duly promulgated RI DEM SMA (RI General Law § 20-3-4) in Town Pond (RI DEM Marine Fisheries Regulations, Part IV, Shellfish, 4.12.2(U)). The prohibition of oyster harvest in this area will protect the oyster reefs and the ecosystem services they provide.

We also emphasize that this restoration is conducted by a public entity and serves a compelling public purpose by providing benefits to public trust resources (e.g. the Town Pond ecosystem). Since this work consists of only returning clam and oyster shell to waters of the state and placing oysters in areas that have previously supported or will support oyster reproduction and survival, we expect the impacts will be beneficial, with no negative effects. Furthermore, RI DEM and CRMC facilitate and support oyster restoration practices conducted as part of the NRCS EQIP Program according to a Memorandum of Understanding (MOU) signed April 1, 2013. This application is consistent with the conditions of that MOU.

### **Restoration Site Characteristics**

Town Pond, also locally known as the Salt Pond, was a natural, tidally influenced coastal lagoon located in Portsmouth, RI. In the early 1950's the USACE filled the subtidal, intertidal, and



marsh habitats in Town Pond with dredged material from the Fall River Harbor Navigation Project (USACE 2013). As noted in USACE 2013 report, the filling of Town Pond largely eliminated tidal flooding resulting in a loss of estuarine species and habitat, and the conversion from saltmarsh to brackish marsh dominated by *Phragmites australis* (an invasive plant species).

Beginning in the late 1990's through 2008 the Narragansett Bay Estuary Program, RI DEM, and USACE worked with other federal, state, and local partners to develop and implement a restoration plan aimed at restoring a tidal connection to Narragansett Bay and the ecological functions of the subtidal habitat and salt marsh system (USACE 2002, 2013). From 2005 through 2008 subtidal and intertidal elevations were reestablished, with tidal flushing resuming in 2007, allowing salt marsh vegetation and associated fish and wildlife communities to recolonize the site, as well as the reestablishment of fringe coastal wetlands, grass lands, and public access (USACE 2002, 2013). Results from monitoring conducted from 2010-2012 to assess restoration success is summarized in USACE (2013).

In addition to restoration work targeted at salt marsh and coastal wetlands, subtidal oyster restoration work, led by Roger Williams University (RWU), was conducted in Town Pond between 2008-2014 (Griffin 2016). Griffin 2016 showed that Town Pond was one two systems (the other being Bissel Cove in North Kingstown) that consistently showed higher rates of growth, survival, and recruitment compared to other restoration sites. A rapid assessment conducted in 2019 by DMF and partners verified that oysters are still present in Town Pond and identified targeted areas for continuation of oyster restoration work based on depth, subaqueous soil composition, and results of previous oyster restoration (sites shown in Figure 1 & 2).

The 2.88-acre ORA begins at from at Mean Low Water (MLW) and extends to the middle of the basin, which is ~ 3.5' below MLW. Depths at the northern and southern restoration sites extend from MLW to -3.0' and -2.0 to -3.5', respectively. Northern sites contain mostly coarse unconsolidated substrate with oyster shell and live oysters extending to soft mud, whereas the southern sites contain mostly soft mud and fluid silt. Additional shellfish survey work will be conducted by DMF prior to construction and any live shellfish will be removed and placed in

suitable habitat outside of the reef footprint. Eelgrass has not been mapped in this area and was not observed during previous site survey work.

### **Oyster Reef Construction Methods**

Working closely with NRCS and the aquaculturists participating in the EQIP program, oyster reefs will be created in specific locations (determined by DMF) within selected 0.1-acre restoration plots by placing cultch and seeding the with juvenile oysters over 4-years (5 y<sup>3</sup> of cultch and 250,000 juvenile oysters on shell per year) resulting in ~720 square feet (ft<sup>2</sup>) of oyster reef in selected 0.1-acre restoration plots in the ORA (Table 1, Figures 1 & 2). ). Oyster reefs will only cover a small portion of each plot, and dependent upon funding and restoration results, we expect to work in five to seven restoration plots over the next 10 years, resulting in a total reef footprint of 3,600 - 5,400 ft<sup>2</sup> (~ 0.083 - 0.12 acres) of the 2.88-acre ORA.

Reefs will be constructed using only disarticulated oyster, surf clam, or ocean quahog shell. All shell will have been either steamed shucked or seasoned for six months following methods described in Busheck et al. (2004). Shell will be inspected for residual tissue prior to use by CRMC staff. Shell to construct these reefs will be deployed by a contracted EQIP participant using methods specified by RI DMF. In short, shell will be loaded into fish totes and transported to the restoration site. Totes containing the shell will be deposited by hand along transects established by RI DMF. Each transect will mark the exact locations where shell will be deposited, and the reef will be created. The amount of cultch placed in a given location will depend on the desired reef height after subsidence.

Research has shown that that reef height, or vertical relief from the bottom, significantly affects oyster larval survival and after one growing season, larval densities can be an order of a magnitude greater on high versus low vertical relief reefs (Brown, DS. 2013, Fodrie et al. 2014). Thus, in areas of mud or soft bottoms we aim to achieve a targeted height to reduce impacts from predators, macro algae, and/or low dissolved oxygen. Reefs in areas with soft bottom or mud will have a final height of 6 to 24 inches, depending on water depth, after subsidence. Work in other systems with similar subaqueous soil composition (e.g., Bissel Cove) have shown significant subsidence (~6 to 18 inches in some locations). To compensate for subsidence of reef





material into the mud and soft bottom, initial reef heights may be greater during construction. We note that the volume of shell at a given site will be a function of desired final reef height and water depth at the site. Therefore, some locations will require less shell. We anticipate the top of each reef will be at minimum 12 inches below the surface of the water and typically 18-30 inches below MLW in the deeper locations. This approach is consistent with the other reefs created by DEM-NRCS via the EQIP program. Construction will occur between over the course of a few days annually between October and December. Aquaculturists will work closely with DMF to ensure that live oyster seed-on-shell are relocated according to RI DMF requirements.

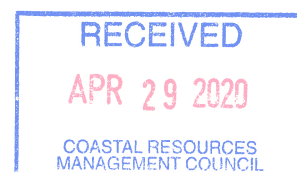
### **Research and Monitoring**

After reef construction, site characteristics including the post-construction footprint and height of the created reef will be assessed. To determine the health of the oyster reefs and evaluate the success of reef creation techniques, each reef will be monitored using techniques consistent with those outlined in the “Essential Monitoring” requirements established by the Rhode Island Shellfish Technical Working Group and documented in the Monitoring Outline (pg 22) of the RI Oyster Restoration Minimum Monitoring Metric and Assessment Protocols (Griffin et al. 2012).

### **Potential Impacts**

We do not anticipate any negative impacts from the proposed restoration work. Based on previous survey work and the proposed pre-construction work, the construction of these reefs will not cause negative impacts to eelgrass beds or shellfish populations. In addition, there are no potential impacts to commercial or recreational shellfish fisheries given that that all sites are located in an area where harvest of shellfish is prohibited. We note that any shellfish located within the reef footprint will be relocated prior to reef construction, thus there will be no impacts to current shellfish stocks located within the ORA.

We also emphasize that this research is conducted by a public entity and serves a compelling public purpose by providing benefits to public trust resources (e.g. the Town Pond ecosystem). Since this work consists of only returning substrate (shell) to waters of the state and placing



oyster seed in areas that historically supported oysters we expect the impacts will be beneficial, with no negative effects. Furthermore, RI DEM and CRMC facilitate and support oyster restoration practices conducted as part of the NRCS EQIP Program according to a Memorandum of Understanding (MOU) signed April 1, 2013. This application is consistent with the conditions of that MOU.

### **Potential Limitations on Success**

The success of this restoration project, as with many others in RI, will depend on both the supply of oyster larva from the surrounding system and the level of recruitment, which in addition to larval supply can be influenced by direct mortality from ice scour, disease, physical disturbance (i.e., sediment burial, removals from illegal harvest), and predation.

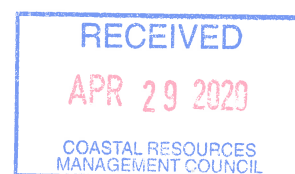
### **References**

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- Brown, DS. 2013. Substrate enhancement – taking eastern oyster (*Crassostrea virginica*) restoration to the next scalable, low-cost, community-driven approach. National Oceanographic Atmospheric Administration Community Restoration Program. Award # NA10NMF4630081.
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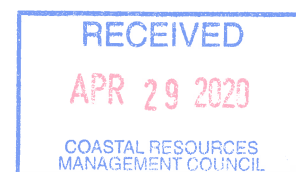


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- Griffin, M., B DeAngelis, M. Chintala, B. Hancock, D. Leavitt, T. Scott, D. S. Brown, and R. Hudson. 2012. Rhode Island Oyster Restoration Minimum Monitoring Metrics and Assessment Protocols. Prepared for the Rhode Island Shellfish Technical Working Group. April 2012.
- Griffin, M. 2016. Fifteen Years of Rhode Island Oyster Restoration: A Performance Evaluation and Cost-Benefit Analysis. *Open Access Master's Theses*. Paper 1044. <https://digitalcommons.uri.edu/theses/1044>.
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- Peterson, C. H., Grabowski, J. H., and Powers S.P. 2003. Estimated enhancement of fish production resulting from restoring oyster reef habitat: Quantitative valuation. *Marine Ecology Progress Series* 264: 249–264.

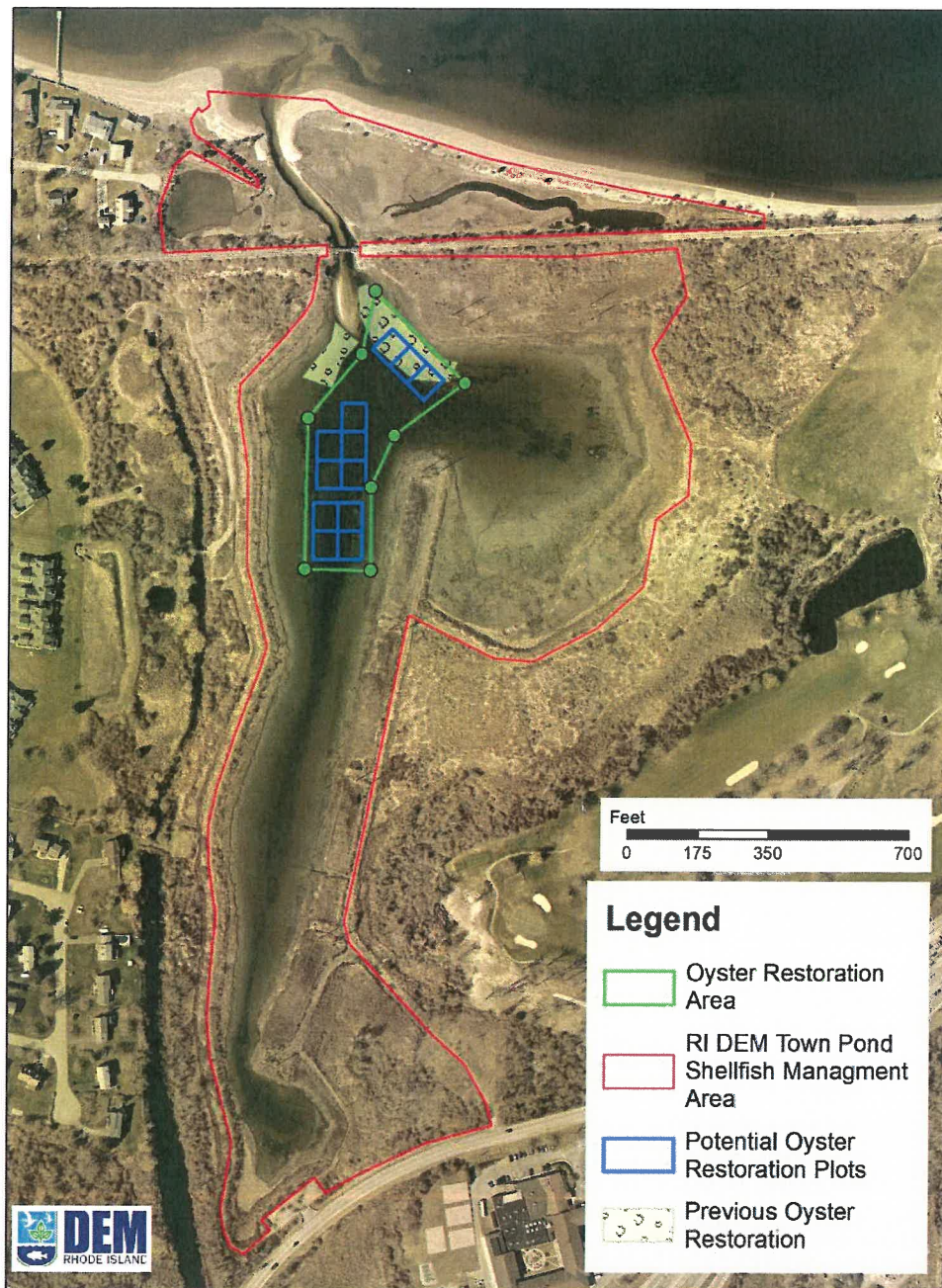


**Table 1.** Latitude and longitude of corner points (see Figure 2 for corner point reference numbers) for the Oyster Restoration Area (ORA) in the RI DEM Town Pond Shellfish Management Area, Town Pond, Portsmouth, RI.

Corner Point	Latitude	Longitude
1	41.637591	-71.24426
2	41.637164	-71.244378
3	41.636731	-71.244864
4	41.635708	-71.244887
5	41.635699	-71.244292
6	41.636262	-71.244289
7	41.636613	-71.244079
8	41.636966	-71.243439

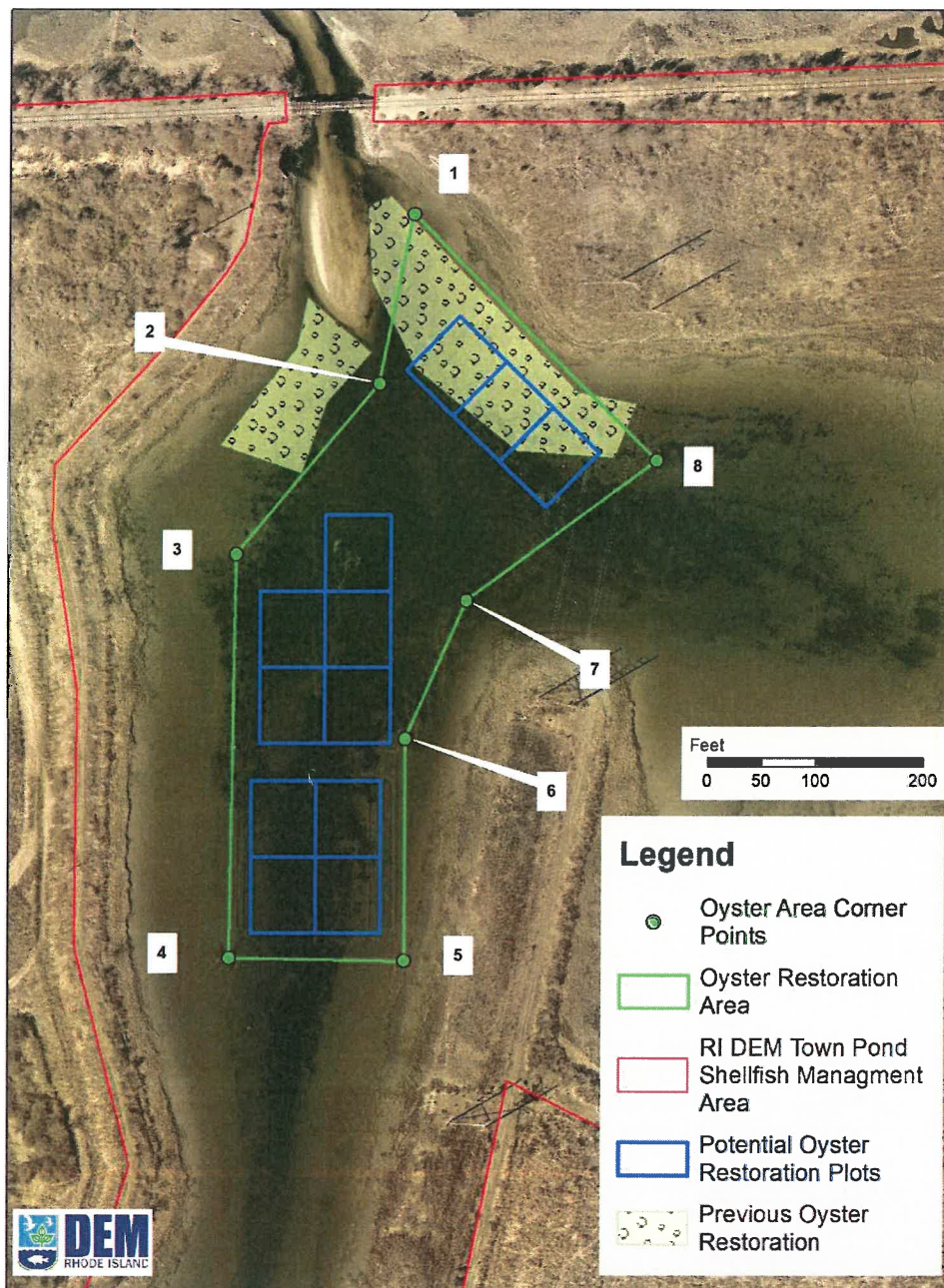


**Figure 1.** Map showing potential 0.1-acre restoration plots located in the Oyster Restoration Area within the RI DEM Town Pond Shellfish Management Area, Town Pond, Portsmouth, RI.





**Figure 2.** Map showing potential 0.1-acre restoration plots located in Oyster Restoration Area (ORA), as well as ORA corner points referenced in Table 1. The ORA is located within the RI DEM Town Pond Shellfish Management Area, Town Pond, Portsmouth, RI.



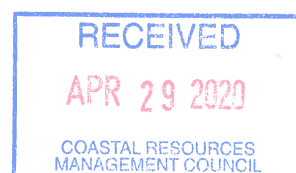
**Data and Information for CRMC Section 1.3.1(A) for the RI DEM DMF Application: Oyster Restoration in the RI DEM Town Pond Shellfish Management Area, Portsmouth, RI**

The requirements herein for a Category B Assent are necessary data and information for the purposes of federal consistency reviews. In accordance with Rhode Island Coastal Resources Management Program application requirements defined by Section 1.3.1(A) (formerly § 300.1) for a Category B Permit we are providing the following information.

**a. Demonstrate the need for the proposed activity or alteration:**

- In Rhode Island, complex shellfish reefs formed by oysters (*Crassostrea virginica*) are found in intertidal and shallow subtidal waters of coastal lagoons and bays. Recent decades have witnessed declines in this habitat. For example, Beck *et al.* (2011) estimated that shellfish reefs are at less than 10% of their prior abundance and that ~85% of reefs have been lost globally. The decrease in oyster reef extent and condition has coincided with decreases in water quality and clarity, and loss of important nursery habitat for finfish and crustaceans (zu Ermgassen et al., 2013). Numerous studies completed in the mid-Atlantic had identified shellfish reefs as essential fish habitat (EFH) for resident and transient finfish (Breitburg, 1999; Coen et al., 1999).
- The NRCS EQIP Oyster Reef Restoration Initiative is a voluntary conservation program that provides financial assistance to agriculture producers (e.g., aquaculturists) to help implement conservation practices that create oyster reefs to help restore oyster populations and the ecosystem services and functions provided by oyster reefs (Peterson et al. 2003, Grabowski et al., 2005, Coen et al. 2007, Grabowski and Peterson, 2007). The goal of the NRCS EQIP Oyster Restoration Program is to create sustainable oyster habitats and oyster reefs in sanctuary areas (i.e., areas closed to oyster harvest to protect restored oyster reefs) in RI waters. The Rhode Island (RI) Department of Environmental Management (DEM) Division of Marine Fisheries (DMF) in collaboration with the USDA Natural Resources Conservation Service (NRCS) plans to create Eastern oyster (*Crassostrea virginica*) reefs in the Oyster Restoration Area (ORA) sited in the RI DEM Town Pond Shellfish Management Area (SMA) in Portsmouth, RI (Tables 1, Figures 1 & 2). This work is funded by the Oyster Reef Restoration Initiative, which is a subcomponent of the NRCS Environmental Quality Incentives Program (EQIP) focused on the restoration and management of declining habitats.

**b. Demonstrate that all applicable local zoning ordinances, building codes, flood hazard standards, and all safety codes, fire codes, and environmental requirements have or will be met; local approvals are required for activities as specifically prescribed for nontidal portions of a project in §§ 1.3.1(B), (C), (F), (H), (I), (K), (M), (O) and (Q) of this Part; for projects on state land, the state building official, for the purposes of this section, is the building official:**



**Data and Information for CRMC Section 1.3.1(A) for the RI DEM DMF Application: Oyster Restoration in the RI DEM Town Pond Shellfish Management Area, Portsmouth, RI**

CRMC staff. Shell to construct these reefs will be deployed by a contracted EQIP participant using methods specified by RI DMF. In short, shell will be loaded into fish totes and transported to the restoration site. Totes containing the shell will be deposited by hand along transects established by RI DMF. Each transect will mark the exact locations where shell will be deposited and the reef will be created. The amount of cultch placed in a given location will depend on the desired reef height after subsidence.

- The 2.88-acre ORA begins at from at Mean Low Water (MLW) and extends to the middle of the basin, which is ~ 3.5' below MLW. Depths at the northern and southern restoration sites extend from MLW to -3.0' and -2.0 to -3.5', respectively. Northern sites contain mostly coarse unconsolidated substrate with oyster shell and live oysters extending to soft mud, whereas the southern sites contain mostly soft mud and fluid silt. Additional shellfish survey work will be conducted by DMF prior to construction and any live shellfish will be removed and placed in suitable habitat outside of the reef footprint. Eelgrass has not been mapped in this area and was not observed during previous site survey work.

**d. Demonstrate that the alteration or activity will not result in significant impacts on erosion and/or deposition processes along the shore and in tidal waters:**

- This work is proposed in subtidal waters and will not result in any significant impacts on erosion and/or deposition processes along the shore and in tidal waters. We anticipate some reef some subsidence. Reefs in areas with soft bottom or mud will have a final height of 6 to 24 inches, depending on water depth, after subsidence. Work in other systems with similar subaqueous soil composition (e.g., Bissel Cove) have shown significant subsidence (~6 to 18 inches in some locations), further reducing the chances of this work to impact the deposition processes along the shore and in tidal waters.

**e. Demonstrate that the alteration or activity will not result in significant impacts on the abundance and diversity of plant and animal life:**

- We do not anticipate any negative impacts from the proposed restoration work. We are returning oyster shell, and oyster seed on shell to the water to enhance oyster reef habitat that is known to foster a diverse benthic community and enhance ecosystem function.
- Harding and Mann (2001) suggested that oyster reefs may provide a higher diversity and availability of food or a greater amount of higher quality food compared to other marine habitats.





**Data and Information for CRMC Section 1.3.1(A) for the RI DEM DMF Application: Oyster Restoration in the RI DEM Town Pond Shellfish Management Area, Portsmouth, RI**

Grabowski et al. (2005) found that oyster reefs constructed in soft sediments increased the growth and survival of juvenile fishes such as the black sea bass *Centropristis striata*. The growing recognition of the ecological and economic importance of complex benthic habitat has caused an increase in the efforts to construct oyster reefs (Coen and Luckenback, 2000; Brumbaugh et al., 2006).

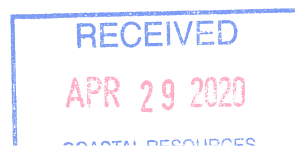
- The reefs will also be monitored following construction to ensure no significant impacts have occurred. After reef construction, site characteristics including the post-construction footprint and height of the created reef will be assessed. To determine the health of the oyster reefs and evaluate the success of reef creation techniques, each reef will be monitored using techniques consistent with those outlined in the “Essential Monitoring” requirements established by the Rhode Island Shellfish Technical Working Group and documented in the Monitoring Outline (pg 22) of the RI Oyster Restoration Minimum Monitoring Metric and Assessment Protocols (Griffin et al. 2012).
- We also emphasize that this research is conducted by a public entity and serves a compelling public purpose by providing benefits to public trust resources (e.g. the Providence River ecosystem and local fish stocks). Since this work consists of small footprint and we are enhancing the substrate to promote benefits to the aforementioned public trust resources, we expect the impacts will be beneficial, with no negative effects.

**f. Demonstrate that the alteration will not unreasonably interfere with, impair, or significantly impact existing public access to, or use of, tidal waters and/or the shore:**

- We do not anticipate any negative impacts from the proposed restoration work. The proposed reefs are subtidal and will not impede access to the shore or tidal waters. Also, there are no potential impacts to commercial or recreational shellfish fisheries given that that all sites are located in an area where harvest of shellfish is prohibited (i.e. Town Pond ORA).

**g. Demonstrate that the alteration will not result in significant impacts to water circulation, flushing, turbidity, and sedimentation:**

- We highlight that we are only returning shell to marine waters and seeding this shell with live oysters. The proposed work is far below a theoretical threshold that could result in impacts to water circulation or flushing. Oyster reef creation does not cause turbidity or sedimentation. In fact, oysters only result in positive effects on water quality.



**Data and Information for CRMC Section 1.3.1(A) for the RI DEM DMF Application: Oyster Restoration in the RI DEM Town Pond Shellfish Management Area, Portsmouth, RI**

**h. Demonstrate that there will be no significant deterioration in the quality of the water in the immediate vicinity as defined by DEM:**

- Oysters and ecological community supported by oyster reefs are known to improve water quality on local scales by removing nitrogen, enhancing water clarity, and in some cases accelerating denitrification. We do not anticipate any negative impacts from the proposed restoration work.

**i. Demonstrate that the alteration or activity will not result in significant impacts to areas of historic and archaeological significance:**

- Town Pond, also locally known as the Salt Pond, was a natural, tidally influenced coastal lagoon located east of Common Fence Point in Portsmouth, RI. In the early 1950's the US Army Corps of Engineers (USACE) filled the subtidal, intertidal, and marsh habitats in Town Pond with dredged material from the Fall River Harbor Navigation Project (USACE 2013). As noted in USACE 2013 report, the filling of Town Pond largely eliminated tidal flooding resulting in a loss of estuarine species and habitat, and the conversion from saltmarsh to brackish marsh dominated by *Phragmites australis* (an invasive plant species).
- Beginning in the late 1990's through 2008 the Narragansett Bay Estuary Program, RI DEM, and USACE worked with other federal, state, and local partners to develop and implement a restoration plan aimed at restoring a tidal connection to Narragansett Bay and the ecological functions of the subtidal habitat and salt marsh system (USACE 2002, 2013). From 2005 through 2008 subtidal and intertidal elevations were reestablished, with tidal flushing resuming in 2007, allowing salt marsh vegetation and associated fish and wildlife communities to recolonize the site, as well as the reestablishment of fringe coastal wetlands, grass lands, and public access (USACE 2002, 2013). Results from monitoring conducted from 2010-2012 to assess restoration success is summarized in USACE (2013).
- In addition to restoration work targeted at salt marsh and coastal wetlands, subtidal oyster restoration work, led by Roger Williams University (RWU), was conducted in Town Pond between 2008-2014 (Griffin 2016). In short, Griffin 2016 showed that Town Pond was one two systems (the other being Bissel Cove in North Kingstown) that consistently showed higher rates of growth, survival, and recruitment compared to other restoration sites.
- This work will continue to improve the oyster habitat in Town pond and provide increased resources



**Data and Information for CRMC Section 1.3.1(A) for the RI DEM DMF Application: Cyster Restoration in the RI DEM Town Pond Shellfish Management Area, Portsmouth, RI**

for the fish and crustacean community that now inhabitant this once filled in water body.

**j. Demonstrate that the alteration or activity will not result in significant conflicts with water dependent uses and activities such as recreational boating, fishing, swimming, navigation, and commerce:**

- Due to the shallow, narrow tidal connection between Town Pond and Mt. Hope Bay, the ability to enter Town Pond with a motorized boat is challenging and rarely occurs. That said, we anticipate the top of each reef will be at minimum 12 inches below the surface of the water and typically 18-30 inches below MLW in the deeper locations. This approach is consistent with the other reefs created by DEM-NRCS via the EQIP program and should not conflict with the boating activities that could occur in Town Pond (e.g., kayaks).
- The construction of oyster reefs does negatively affect fishing and previous work (e.g., Grabowski et al. 2005) found that oyster reefs constructed in soft sediments increased the growth and survival of juvenile fishes such as the black sea bass.
- We note that we are only returning shell to marine waters and seeding this shell with live oysters. There is no dredging or removal of marine sediments associated with this project.
- We emphasize that this work is conducted by a public entity and serves a compelling public purpose by providing benefits to public trust resources (e.g. the Town Pond ecosystem). We expect no negative effects of the proposed work. Furthermore, RI DEM and CRMC facilitate and support oyster restoration practices conducted as part of the NRCS EQIP Program according to a Memorandum of Understanding (MOU) signed April 1, 2013. This application is consistent with the conditions of that MOU.

**k. Demonstrate that measures have been taken to minimize any adverse scenic impact (see § 1.3.5 of this Part):**

- The proposed work will result in no adverse scenic impacts given that these reefs will not be exposed above the surface of the water. More specifically, we anticipate the top of each reef will be at minimum 12 inches below the surface of the water at mean low water.



## REFERENCES

### References

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