

Fiscal Impact Analysis of Proposed Conforming Rule Changes to Oyster Sanctuary Rule

Rule Amendments: 15A NCAC 03R .0117

Name of Commission: N.C. Marine Fisheries Commission

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Impact Summary: State government: Yes
Local government: No
Federal government: No
Substantial impact: No

AUTHORITY

N.C. General Statutes

G.S. § 113-134.	Rules.
G.S. § 113-182.	Regulation of fishing and fisheries.
G.S. § 113-201.	Legislative findings and declaration of policy; authority of Marine Fisheries Commission.
G.S. § 113-204.	Propagation of shellfish
G.S. § 143B-289.52	Marine Fisheries Commission – powers and duties.

Necessity: Rule amendments are proposed to add the boundaries of the two newest oyster sanctuaries (Cedar Island and Gull Shoal) and update boundaries for three other sanctuaries (Pea Island, Raccoon Island, and Swan Island).

I. Summary

Marine protected areas (MPAs) are a management tool for restoration and conservation of marine species and ecosystems. Management strategies applied within MPA boundaries can vary widely, however, in most cases, management in these areas includes some degree of harvest restriction (e.g., gear type, seasonality, or total prohibition). In general, the abundance and size of individual fish within MPAs are often significantly greater and larger, respectively, than outside MPAs, which can also lead to a “spill-over effect” of larvae and individuals from inside to outside the MPA (Gell and Roberts 2002, Halpern 2003, Sobel and Dahlgren 2004). In other words, fish are generally larger and more abundant in MPAs than outside MPAs. In pursuit of

shellfish rehabilitation, the Division of Marine Fisheries (DMF) has applied the MPA model through its Oyster Sanctuary Program. This program is responsible for creating artificial reef habitat, designed to support healthy and abundant oyster populations throughout Pamlico Sound and its tributaries. Once built, a reef site is protected from harvest to preserve broodstock and is called an “oyster sanctuary.” With healthy and abundant broodstock populations inside sanctuary boundaries, these sites continue to serve their intended function by supplying oyster larvae to other reefs nearby.

It is important to distinguish that while all artificial reef habitat is considered “reef,” not all reefs are considered “sanctuary.” The term “oyster sanctuary” refers only to reefs protected from oyster harvest and some bottom disturbing gears through North Carolina Marine Fisheries Commission (MFC) rule 15A NCAC 03K .0209. It is also important to consider that the created habitat within sanctuary or artificial reef boundaries always exists as a collection of separate reef habitat patches. Therefore, sanctuaries and artificial reefs are sometimes referred to as reef sites. In most cases concerning reef sites managed by the Oyster Sanctuary Program, the entire reef site authorized by state and federal permits is protected from oyster harvest. Therefore, the terms “reef,” “sanctuary,” and “reef site” are often used interchangeably. When describing area, as seen in Tables 1 and 2 (see Section VI.), typically the boundary area is the total sanctuary area (acres) delineated in rule or by proclamation. Habitat footprint area refers to the cumulative total area of reef patches only, not to include unconsolidated soft bottom. For example, in Table 1, the Croatan Sound Oyster Sanctuary site has 3.10 acres of habitat within the overall boundary of 7.73 acres, meaning 4.63 acres of the site do not have habitat material present, but harvest is prohibited within the entire site.

The Blue-Ribbon Advisory Council on Oysters (BRACO) made the first recommendations concerning the establishment of oyster sanctuaries in North Carolina in 1995. The BRACO recommended the state provide selected areas where wild oyster stocks can adapt to present water quality and disease conditions without being subjected to the additional stress of habitat disturbance and oyster harvest. In addition to providing a sanctuary for oysters, these areas would also provide good nursery habitat for other finfish, shellfish, and crustacea species increasing their abundance for commercial and recreational fishing. The protected oysters would also provide increased water filtration, reducing turbidity and excess nutrients in the estuary. As part of the recommendation, oyster sanctuaries would be closed to the taking of shellfish (oysters, clams, mussels, and scallops) and to bottom disturbing activities such as trawling, long hauling, and dredging for an indefinite period (Frankenberg 1995)¹.

DMF initially developed 10 oyster sanctuaries in Pamlico Sound and its tributaries. These sanctuaries were originally designated as shellfish management areas by proclamation, as authorized by Rule 15A NCAC 03K .0103. For these reef sites to serve their intended function as oyster broodstock sanctuaries, harvest protections needed to be applied. As part of the 2008 Oyster Fishery Management Plan Amendment 2, the MFC moved the protection of oyster sanctuaries from proclamation into rules 15A NCAC 03K .0209 and 03R .0117, Oyster Sanctuaries. Since 2008, DMF has expanded the Oyster Sanctuary Program by constructing

¹ Frankenberg, D. 1995. North Carolina Blue Ribbon Advisory Council on Oysters. Final Report on Studies and Recommendations. North Carolina Department of Environment, Health and Natural Resources. Raleigh, NC.

seven additional sanctuaries, using funding from the North Carolina General Assembly, The Nature Conservancy, National Oceanic and Atmospheric Administration National Estuarine Counsel, Coastal Recreational Fishing Licenses, and other mitigation sources.

Further, the North Carolina General Assembly recognized the importance of oyster sanctuaries in the 2014 and 2015 legislative sessions. Session Law 2014-120, Section 44 as amended by Session Law 2015-241, Section 14.9 established the Senator Jean Preston Oyster Sanctuary Network (Figure 1). This was done “to enhance shellfish habitats within the Albemarle and Pamlico Sounds and their tributaries to benefit fisheries, water quality, and the economy... achieved through the establishment of a network of oyster sanctuaries, harvestable enhancement sites, and coordinated support for the development of shellfish aquaculture.”

Today DMF maintains and manages 15 oyster sanctuaries in the network, 13 of which are currently in Rule 15A NCAC 03R .0117. The sanctuaries encompass 566.22 acres total, with over 205,643 tons of material deployed for oyster habitat (Table 1). The two newest sanctuaries (Cedar Island and Gull Shoal), not in the oyster sanctuary rules, are described in proclamation SF-6-2022. That proclamation also suspends portions of the current rule to provide technical corrections on published coordinates for three sanctuaries (Pea Island, Raccoon Island, and Swan Island). All 15 oyster sanctuaries, whether protected by Rule or proclamation, are presently marked with corner buoys. Buoy marking is a United States Coast Guard permitting requirement, therefore DMF will continue to maintain buoys in perpetuity regardless of harvest or gear protections. Please see Appendix I for amendments proposed to 15A NCAC 03R .0117.

II. Introduction and Purpose of Rule Changes

Rule amendments are proposed to add the boundaries of the two newest oyster sanctuaries (Cedar Island and Gull Shoal) and update boundaries for three other oyster sanctuaries (Pea Island, Raccoon Island, and Swan Island).

Addition of Two Recently Developed Oyster Sanctuaries

There are presently 13 developed oyster sanctuaries protected by MFC rules (15A NCAC 03K .0209 and 03R .0117), the last of which were added effective May 1, 2021. Since then, two additional sanctuaries have been developed (Cedar Island and Gull Shoal; Figures 2 and 3). For these reef sites to serve their intended management function as oyster broodstock sanctuaries, harvest protections need to be applied. While these sites are currently protected by proclamation, it is proposed to add these two new sites to the existing Rule 15A NCAC 03R .0117, delineating the sanctuary boundaries in permanent rule.

Technical Corrections of Boundary Coordinates for Three Sites in Rule

Following publication of the rulebook supplement in September 2022, DMF discovered 3 of the 13 sanctuaries (Pea Island, Raccoon Island, and Swan Island) had incorrect coordinates. Technical corrections to the rule text are required in order to match the permitted and marked boundaries of the three sanctuary sites. These changes will delineate all reef site area intended for oyster sanctuary purposes so that protections provided by Rule 15A NCAC 03K .0209 may

be accurately applied. In addition, accurately delineated boundaries will help safeguard boaters navigating the area. Coordinates for three sanctuaries are proposed for consistency to standardize the cardinal directions; there are no changes to the overall sanctuary nor the coordinate pairs.

Summary and Implications

Historically, oyster sanctuary site selection leaned heavily on a limited understanding of oyster habitat suitability and was largely dependent upon where historic oyster reefs once existed. New strategies and techniques used for deployment, as well as new technology for physical and biological monitoring have substantially improved oyster reef enhancement success and have reduced errors. A more modern habitat suitability index (HSI) model rates areas based on salinity gradient, bottom type, tidal flow, larval transport, wave action, and prevailing wind data as well as historic oyster presence data and input from stakeholders and managers. This approach is proven to be a better method to select areas to develop as sanctuaries and accurately delineate their boundaries. A core tenet of DMF's current site selection approach is to find locations that meet the criteria of the HIS and that do not currently contain any existing shell resource. According to Rule 15A NCAC 07H .0208, the location and construction of all sanctuary reefs must not create any "significant adverse impacts upon the productivity and biologic integrity of coastal wetlands, shellfish beds, submerged aquatic vegetation...and spawning and nursery areas." In short, all bottom sited for sanctuary reef construction must not contain any existing shellfish habitat or habitat suited for marine resource spawning and nursing, meaning all sanctuary bottom is unproductive prior to construction.

DMF recommends amending Rule 15A NCAC 03R .0117 by adding boundaries for two additional oyster sanctuaries (Cedar Island and Gull Shoal) developed since the rule was last amended. DMF also proposes technical corrections to boundaries of three existing sanctuaries (Pea Island, Raccoon Island, and Swan Island). Corrections to these sanctuary coordinates are necessary to encompass existing reef material and match permitted and marked boundaries. The proposed modifications align the MFC rules with delineated boundaries in permits, which is essential for state and federal regulatory consistency as well as safe maritime navigation.

Rule 15A NCAC 03R .0117 (1)(f) and (1)(l) show proposed changes to incorporate the boundaries of the new sanctuaries, Cedar Island and Gull Shoal. The proposed changes in 15A NCAC 03R .0117 (1)(c), (1)(j), and (1)(k) update the boundaries of Pea Island, Swan Island, and Raccoon Island sanctuaries. Proposed changes result in a net total increase of 256 acres of protected oyster sanctuary area (Table 2). The proposed changes in 15A NCAC 03R .0117 (1)(d), (1)(h), and (2)(a) reorganize coordinates to standardize the cardinal directions and have no impact on the total acres of protected oyster sanctuary area.

VI. TABLES AND FIGURES

Table 1. Oyster sanctuary names, spatial extents (acres), and material deployed (tons).

OS#	Site Name	Boundary Size+ (Acres)	Habitat Footprint* (Acres)	Total Material Deployed* (Tons)
1	Croatan Sound	7.73	3.10	2,093
2	Deep Bay	17.20	4.15	1,749
3	West Bay	6.56	2.27	2,329
5	Crab Hole	30.52	13.26	36,489
7	Middle Bay	4.59	0.27	900
8	Neuse River	11.29	3.55	7,357
9	West Bluff	29.39	2.82	10,162
10	Gibbs Shoal	54.60	8.19	22,447
11	Long Shoal	10.01	1.13	2,173
12	Raccoon Island	9.97	1.61	1,824
13	Pea Island	46.37	2.62	3,420
14	Little Creek	20.59	6.14	5,700
15	Swan Island	80.32	10.93	55,000
16	Cedar Island	75.01	5.10	36,000
17	Gull Shoal	161.91	TBD	36,000
--	Total	566.22	65.14	223,643

- Sanctuaries (1-11, 14) are under authority of rules 15A NCAC 03K .0209 and 03R .0117.
 - Sanctuaries (12, 13, 15-17) are under authority of Rule 15A NCAC 03K .0103 via Proclamation SF-6-2022.
 - Sanctuaries (4, 6) were removed from Rule 15A NCAC 03R .0117 effective May 1, 2021, as the sites are no longer biologically productive and were not serving their management purpose as oyster sanctuaries.
- + Boundary sizes are calculated on areas bound by delineating coordinates in 15A NCAC 03R .0117.
- * Values for Habitat Footprint and Total Material Deployed are subject to increase over time, as reef enhancement and construction are ongoing.

Table 2. Current and proposed boundary acreages for oyster sanctuaries delineated in MFC Rule 15A NCAC 03R .0117.

OS #	Site Name	Current Boundary (Acres)	Proposed Boundary (Acres)	Difference (Acres)
12	Raccoon Island	9.97	9.97	0
13	Pea Island	46.37	46.37	0
15	Swan Island	60.31	80.32	20.01
16	Cedar Island	0	75.01	75.01
17	Gull Shoal	0	161.91	161.91
--	Total	116.90	373.58	256.21

Jean Preston Oyster Sanctuary Network

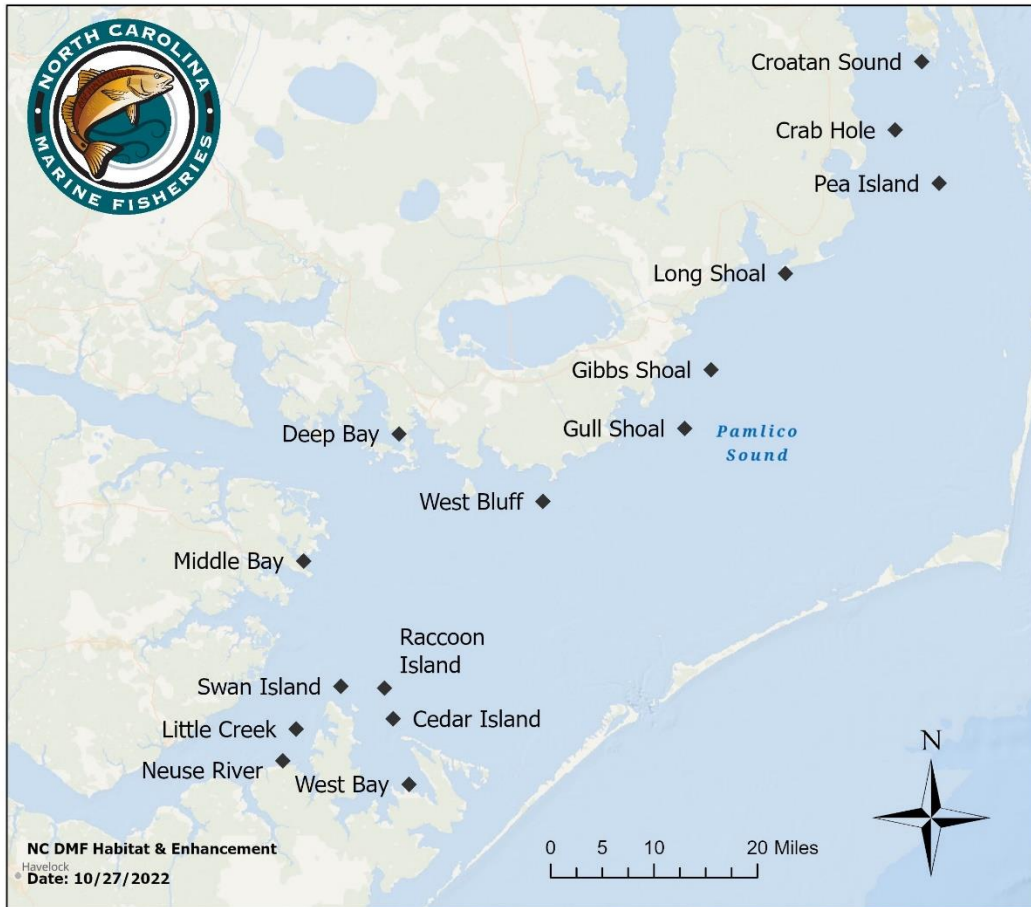


Figure 1. Oyster sanctuary locations.

OS-16 Cedar Island

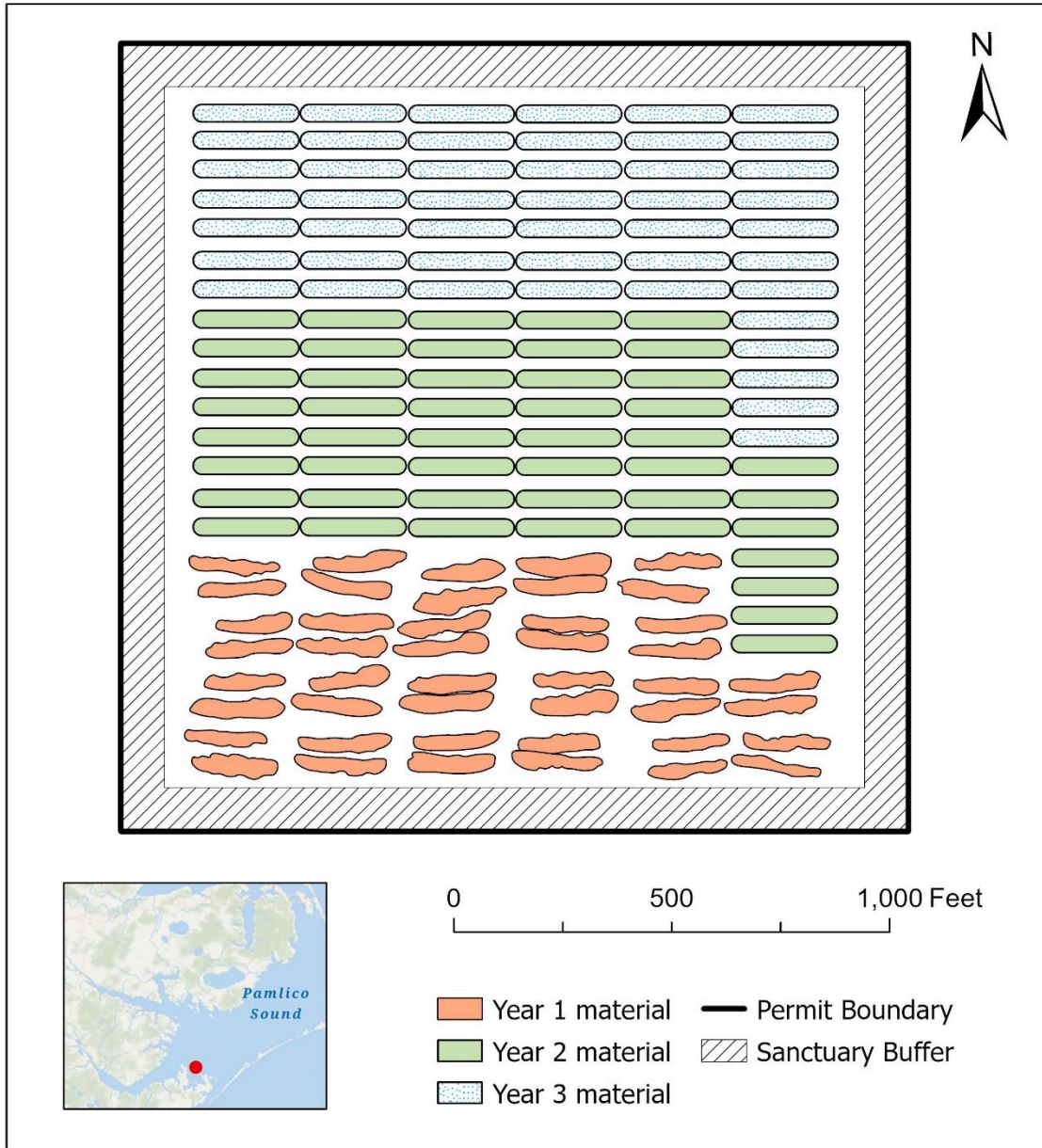


Figure 2. Cedar Island Oyster Sanctuary. With three years planned to fully develop the area, illustrated above is the footprint from the first 18,000 tons of material deployed and approximate distribution for future material (target completion summer 2023).

OS-17 Gull Shoal

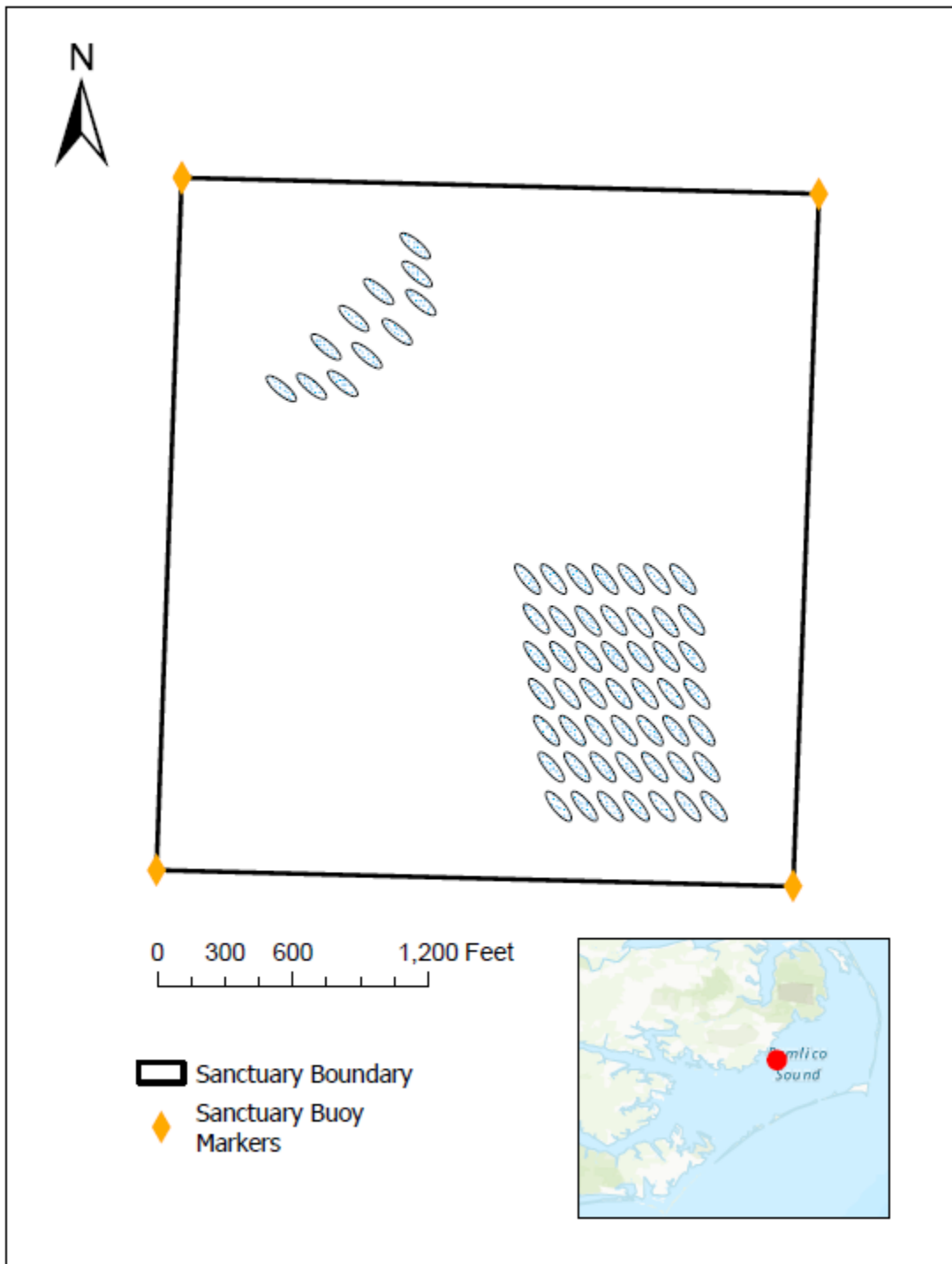


Figure 3. Gull Shoal Oyster Sanctuary. The development of the site is under the purview of the Division of Mitigation Services. Details on material footprint will be known after completion of this 162-acre site.

Fiscal Analysis

Proposed rule amendments will codify in rule two oyster sanctuaries totaling 236.92 acres. Additionally, there are corrections to three oyster sanctuary boundaries which will codify in rule an additional 20.01 acres of oyster sanctuary, for a total sanctuary addition of 256.21 acres. All of these proposed changes to rule reflect the boundaries which are currently enforced through Proclamation SF-6-2022 (effective October 14, 2022). The requirements in Proclamation SF-6-2022 make it unlawful to take, or possess after taking, shellfish from the oyster sanctuary areas. Additionally, the proclamation states that it is unlawful to use trawl nets, long haul seines, or swipe nets in the designated oyster sanctuaries. The intent of these requirements is to designate oyster sanctuaries after substrate is strategically deployed and monitored to protect areas from certain gears or activities to facilitate increased oyster larvae production and brood-stock development.

The proposed rule amendments codify existing proclamation practice into rule due to the lack of variable conditions. To aid in the clarity of regulations for the public, DMF has a policy of moving proclamations into rule once variable conditions have stabilized. As compared to the requirements in Proclamation SF-6-2022, there will be no changes to the oyster sanctuary boundaries as a result of the proposed rule amendments.

Costs

The proclamation resulted in 256.21 acres of oyster sanctuary being effectively removed from potential public access for shellfish harvesting, trawl-fishing, long-hauling and dredging activities. This removal of water bottom from public access did not directly impact the amount of shellfish habitat available for harvest, however, as it was not existing shellfish habitat before designation as a sanctuary and reef construction. Similarly, it did not have a significant effect on other types of public access as these areas were not functioning as fishing grounds before designation as a sanctuary. As stated above, all sites selected for sanctuary construction must be devoid of shellfish habitat, spawning, or nursery grounds. Due to this, there was no significant economic cost in terms of shellfish harvest or other types of public access as a result of the proclamation.

While not a result of the proposed rule amendments, the costs for constructing oyster sanctuary sites have been and are expected to continue to be covered by state appropriations. Callihan et al (2016)² estimated that the State had appropriated roughly \$9 million towards costs of constructing and operating oyster sanctuary sites. This \$9 million commitment covered both existing and future oyster sanctuary sites to date as of 2016. Funds spent on the construction of these two reefs had already been appropriated by the State. Because of this, there is no expectation of construction costs from this proposed rule amendment (or the associated proclamation).

² Callihan, R.,B. Depro, D. Lapidus, T. Sartwell, and C. Viator. 2016. Economic Analysis of the Costs and Benefits of Restoration and Enhancement of Shellfish Habitat and Oyster Propagation in North Carolina. RTI International, Research Triangle Park, NC.

In addition, there are costs to consider pertaining to enforcement. Signage and markings required by the designation as sanctuaries have already been updated. Any future costs associated with signage and enforcement are expected to be negligible. Lastly, given the existing presence of the shellfish sanctuaries and the mechanisms already in place to enforce them, there are no expected impacts to enforcement costs from the addition of these sanctuary areas.

Benefits

The proposed rule amendments will consolidate existing requirements for various oyster sanctuary boundaries from proclamation into a single rule. This should improve clarity and consistency which should result in small, unquantifiable benefits to DMF and stakeholders. The improved clarity and consistency should reduce the time burden to stakeholders for staying current with requirements of fisheries in which they participate. This should, in turn, provide an unquantifiable benefit to the State related to increased efficiency of program administration as well as incremental improvement to resource protection.

While not attributable to the proposed codification of the existing proclamation, the principal benefit of oyster reef construction is increased production of oysters and other shellfish in the area due to increased broodstock production from the net gain of 256.21 acres of sanctuary bottom. An increase in oyster densities in the sanctuary areas is expected to cause increased broodstock in surrounding waters as well. This effect will likely lead to improved adult oyster density in surrounding shellfish habitats, leading to increased landings of wild oysters in Pamlico Sound with no shifts in effort. However, the timing and magnitude of these increases are not known, and therefore the exact economic gain from these effects cannot be accurately quantified.

In addition to the direct benefits of increased shellfish broodstock, these are also the economic benefits from ecosystem services of oyster reefs. Artificial oyster reefs provide benefits related to water quality, shoreline protection, and increased habitat for other species. Callihan et al (2016) assert an average annual benefit per acre of \$4,178.38 (in 2011). Coupled with the net increase of 256.21 acres of oyster sanctuary, the addition of these reefs could result in an average annual benefit of \$1,070,542 (\$1,431,848 in 2023)³, ignoring any direct benefits from increased oyster production and cultivation. Again, this potential benefit is not attributable to the proposed rule amendments but is included here for informational purposes.

³ Average annual benefit inflated from 2011 dollars to 2023 dollars using U.S. Bureau of Labor Statistics [CPI Inflation Calculator](#).

1 **APPENDIX I.**

2

3 15A NCAC 03R .0117 is proposed for amendment as follows:

4

5 **15A NCAC 03R .0117 OYSTER SANCTUARIES**

6 The Oyster Sanctuaries referenced in 15A NCAC 03K .0209 are delineated in the following ~~coastal water~~
7 ~~areas:~~ Coastal Fishing Waters:

8 (1) Pamlico Sound area:

9 (a) Croatan Sound: within the area described by a line beginning at a point 35° 48.2842' N -
10 75° 38.3360' W; running southerly to a point 35° 48.1918' N - 75° 38.3360' W; running
11 westerly to a point 35° 48.1918' N - 75° 38.4575' W; running northerly to a point 35°
12 48.2842' N - 75° 38.4575' W; running easterly to the point of beginning.

13 (b) Crab Hole: within the area described by a line beginning at a point 35° 43.6833' N - 75°
14 40.5083' W; running southerly to a point 35° 43.5000' N - 75° 40.5083' W; running
15 westerly to a point 35° 43.5000' N - 75° 40.7500' W; running northerly to a point 35°
16 43.6833' N - 75° 40.7500' W; running easterly to the point of beginning.

17 (c) Pea Island: within the area described by a line beginning at a point ~~35° 05.4760' N - 76°~~
18 ~~23.5370' W~~ 35° 40.0800' N - 75° 36.7998' W; running southerly to a point ~~35° 05.4760' N -~~
19 ~~76° 23.4040' W~~ 35° 39.8400' N - 75° 36.7998' W; running westerly to a point ~~35°~~
20 ~~05.3680' N - 76° 23.4040' W~~ 35° 39.8400' N - 75° 37.0800' W; running northerly to a
21 point ~~35° 05.3680' N - 76° 23.5370' W~~ 35° 40.0800' N - 75° 37.0800' W; running easterly
22 to the point of beginning.

23 (d) Long Shoal: within the area described by a line beginning at a point ~~35° 33.8600' N - 75°~~
24 ~~49.9000' W~~ 35° 33.8600' N - 75° 49.7670' W; running southerly to a point ~~35° 33.8600' N -~~
25 ~~75° 49.7670' W~~ 35° 33.7510' N - 75° 49.7670' W; running westerly to a point ~~35°~~
26 ~~33.7510' N - 75° 49.7670' W~~ 35° 33.7510' N - 75° 49.9000' W; running northerly to a
27 point ~~35° 33.7510' N - 75° 49.9000' W~~ 35° 33.8600' N - 75° 49.9000' W; running easterly
28 to the point of beginning.

29 (e) Gibbs Shoal: within the area described by a line beginning at a point 35° 27.3550' N - 75°
30 55.9190' W; running southerly to a point 35° 27.1010' N - 75° 55.9190' W; running
31 westerly to a point 35° 27.1010' N - 75° 56.2300' W; running northerly to a point 35°
32 27.3550' N - 75° 56.2300' W; running easterly to the point of beginning.

33 (f) Gull Shoal: within the area described by a line beginning at a point 35° 23.4520' N - 75°
34 58.0533' W; running southerly to a point 35° 22.9481' N - 75° 58.0721' W; running
35 westerly to a point 35° 22.9596' N - 75° 58.5359' W; running northerly to a point 35°
36 23.4638' N - 75° 58.5173' W; running easterly to the point of beginning.

- 1 ~~(f)~~(g) Deep Bay: within the area described by a line beginning at a point 35° 22.9126' N - 76°
2 22.1612' W; running southerly to a point 35° 22.7717' N - 76° 22.1612' W; running
3 westerly to a point 35° 22.7717' N - 76° 22.3377' W; running northerly to a point 35°
4 22.9126' N - 76° 22.3377' W; running easterly to the point of beginning.
- 5 ~~(g)~~(h) West Bluff: within the area described by a line beginning at a point ~~35° 18.3160' N - 76°~~
6 ~~10.2960' W~~35° 18.3160' N - 76° 10.0690' W; running southerly to a point ~~35° 18.3160' N -~~
7 ~~76° 10.0690' W~~35° 18.1290' N - 76° 10.0690' W; running westerly to a point ~~35° 18.1290'~~
8 ~~N - 76° 10.0690' W~~35° 18.1290' N - 76° 10.2960' W; running northerly to a point ~~35°~~
9 ~~18.1290' N - 76° 10.2960' W~~35° 18.3160' N - 76° 10.2960' W; running easterly to the point
10 of beginning.
- 11 ~~(h)~~(i) Middle Bay: within the area described by a line beginning at a point 35° 14.1580' N - 76°
12 30.1780' W; running southerly to a point 35° 14.1150' N - 76° 30.1780' W; running
13 westerly to a point 35° 14.1150' N - 76° 30.3320' W; running northerly to a point 35°
14 14.1580' N - 76° 30.3320' W; running easterly to the point of beginning.
- 15 ~~(i)~~(j) Swan Island: within the area described by a line beginning at a point ~~35° 05.6170' N - 76°~~
16 ~~27.5040' W~~35° 05.6414' N - 76° 26.7651' W; running southerly to a point ~~35° 05.6020' N -~~
17 ~~76° 26.7650' W~~35° 05.4846' N - 76° 26.7638' W; running westerly to a point ~~35°~~
18 ~~05.4850' N - 76° 26.7640' W~~35° 05.4992' N - 76° 27.5033' W; running northerly to a point
19 ~~35° 05.4990' N - 76° 27.5030' W~~35° 05.6554' N - 76° 27.5041' W; running easterly to the
20 point of beginning.
- 21 ~~(j)~~(k) Raccoon Island: within the area described by a line beginning at a point ~~35° 05.4760' N -~~
22 ~~76° 23.5370' W~~35° 05.4760' N - 76° 23.4040' W; running southerly to a point ~~35°~~
23 ~~05.4760' N - 76° 23.4040' W~~35° 05.3680' N - 76° 23.4040' W; running westerly to a point
24 ~~35° 05.3860' N - 76° 23.4040' W~~35° 05.3680' N - 76° 23.5370' W; running northerly to a
25 point ~~35° 05.3680' N - 76° 23.5370' W~~35° 05.4760' N - 76° 23.5370' W; running easterly
26 to the point of beginning.
- 27 (l) Cedar Island: within the area described by a line beginning at a point 35° 03.4632' N - 76°
28 22.5603' W; running southerly to a point 35° 03.1653' N - 76° 22.5699' W; running
29 westerly to a point 35° 03.1731' N - 76° 22.9321' W; running northerly to a point 35°
30 03.4710' N - 76° 22.9226' W; running easterly to the point of beginning.
- 31 ~~(k)~~(m) West Bay: within the area described by a line beginning at a point 34° 58.8517' N - 76°
32 21.3632' W; running southerly to a point 34° 58.7661' N - 76° 21.3632' W; running
33 westerly to a point 34° 58.7661' N - 76° 21.4735' W; running northerly to a point 34°
34 58.8517' N - 76° 21.4735' W; running easterly to the point of beginning.
- 35 (2) Neuse River area:

1 (a) Little Creek: within the area described by a line beginning at a point ~~35° 02.6940' N - 76°~~
2 ~~30.9840' W~~35° 02.6940' N - 76° 30.7940' W; running southerly to a point ~~35° 02.6940' N -~~
3 ~~76° 30.7940' W~~35° 02.5380' N - 76° 30.7940' W; running westerly to a point ~~35° 02.5380'~~
4 ~~N - 76° 30.7940' W~~35° 02.5380' N - 76° 30.9840' W; running northerly to a point ~~35°~~
5 ~~02.5380' N - 76° 30.9840' W~~35° 02.6940' N - 76° 30.9840' W; running easterly to the point
6 of beginning.

7 (b) Neuse River: within the area described by a line beginning at a point 35° 00.4910' N - 76°
8 31.9350' W; running southerly to a point 35° 00.3750' N - 76° 31.9350' W; running
9 westerly to a point 35° 00.3750' N - 76° 32.0750' W; running northerly to a point 35°
10 00.4910' N - 76° 32.0750' W; running easterly to the point of beginning.

11
12 *History Note:* *Authority G.S. 113-134; 113-182; 113-201; 113-204; 143B-289.52;*
13 *Eff. October 1, 2008;*
14 *Amended Eff. April 1, 2011;*
15 *Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. January 9,*
16 *2018;*
17 *Amended Eff. May 1, ~~2021-2021~~; April 1, 2024.*