NEWPORT RIVER WATERSHED

PROTECTION & RESTORATION PLAN

September 30, 2024

NORTH CAROLINA
COASTAL FEDERATION

With Contributing Partners:

Carteret County | Town of Newport | Town of Morehead City | Town of Beaufort | Bolton & Menk, Inc.

Funded By: N.C. Land and Water Fund

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North Carolina Coastal Federation
Working Together for a Healthy Coast

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SECTION 1

Purpose and Need for Watershed Plan

In collaboration with a diverse group of stakeholders, the North Carolina Coastal Federation developed the Newport River Watershed Protection and Restoration Plan.

This plan identifies strategic actions to address declining water quality and flooding in the river and its estuary. It serves as a roadmap for local communities and government agencies, outlining voluntary actions to mitigate existing and potential pollution threats to the river. The plan provides an overview of past, present, and projected water quality conditions and outlines strategies to reduce polluted stormwater runoff, improve water quality, and mitigate flooding. These strategies include mimicking or restoring natural drainage functions and implementing cost-effective measures such as land protection, restoration, and stormwater management retrofits. Community engagement initiatives are also emphasized to address the impacts of land use on water quality and flooding.

The Newport River Watershed Plan aligns with federal and state requirements, following the U.S. Environmental Protection Agency's (EPA) Nine Minimum Elements for Watershed Plans and the N.C. Department of Environmental Quality (DEQ) Section 319 Program. It includes all necessary elements for eligibility for Federal 319 grant funding. This plan is the culmination of a nearly two-year planning and public engagement process involving input from four local governments, state and federal agencies, fishers, landowners, scientists, business owners, and residents. Preparation of the plan was funded by the N.C. Land and Water Fund and the North Carolina General Assembly.

This restoration plan has initiated a multi-year process to implement, maintain, and manage efforts to mitigate stormwater pollution and flooding. It identifies multiple areas of concern and outlines actions to significantly reduce stormwater runoff and flooding. Additionally, the plan provides information enabling the Federation and its partners to apply for state and national grants to fund these actions.

During the plan's development, significant conservation actions identified in the planning process have already begun to be carried out. These include: (1) the creation and phased acquisition of the Newport River Watershed Preserve, which will protect and restore hydrology on over 3,500 acres along six miles of the river's shoreline; and (2) the implementation of a pilot stormwater retrofit program, funded by the N.C. General Assembly, to upgrade out-of-compliance stormwater systems previously permitted under the state's coastal stormwater permit program.

SECTION 2

Characterization of the Newport River and its Watersheds

The Newport River estuary is one of the most commercially important and ecologically endangered coastal waters in North Carolina, according to the N.C. Oyster Restoration Blueprint.

The transformation of natural forests and wetlands into subdivisions, shopping centers, crop land, and pine tree farms has increased rates and volumes of polluted stormwater runoff. These changes have caused damaging variations in salinity levels, frequent disruptions of shellfish harvests, and dramatically increased sediment loads that smother oyster beds. Research by UNC scientist Dr. Antonio Rodriguez shows that nearly as much sediment and silt accumulated in the Newport River over the past half-century as in the previous 200 years.[1] Additionally, tropical storms and northeasters cause severe and persistent flooding that exceeds drainage capabilities, impacting roads and homes. Extreme weather events can disrupt daily life for weeks, including for the thousands of people employed at the nearby Marine Corps Air Station Cherry Point.

The river is flushed by tides every four to ten days and drains a 120-square-mile watershed that includes urban and industrial development, farms, roads, national and industrial forests, and wetlands. The river's estuary is 12 miles long and between two to four miles wide, with an average depth of about three feet. The volume and rate of runoff into the river have increased dramatically in recent decades as rapid population growth intensified land uses that altered the landscape's hydrology.

The river runs southeast through the Town of Newport and opens into the Bogue Sound between the Towns of Beaufort and Morehead City. The river has supported local fishermen for generations, whether they caught wild shellfish or farmed their own oysters. In the mid-to-late 1980s, concerns about water quality degradation in North Carolina coastal waters prompted the North Carolina Environmental Management Commission to adopt coastal stormwater regulations. Despite these additional safeguards, water quality continues to decline as more nearby land is altered and the rate and volume of stormwater runoff increases. Commercial shellfish operations are frequently disrupted by temporary harvest closures that now occur whenever there is 1 to 1.5 inches of rainfall.

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1 Dr. Rodriguez confirmed in person that this is a valid conclusion from research studies he has completed within the Newport River watershed as reported in peer reviewed published studies he has published.

Watersheds

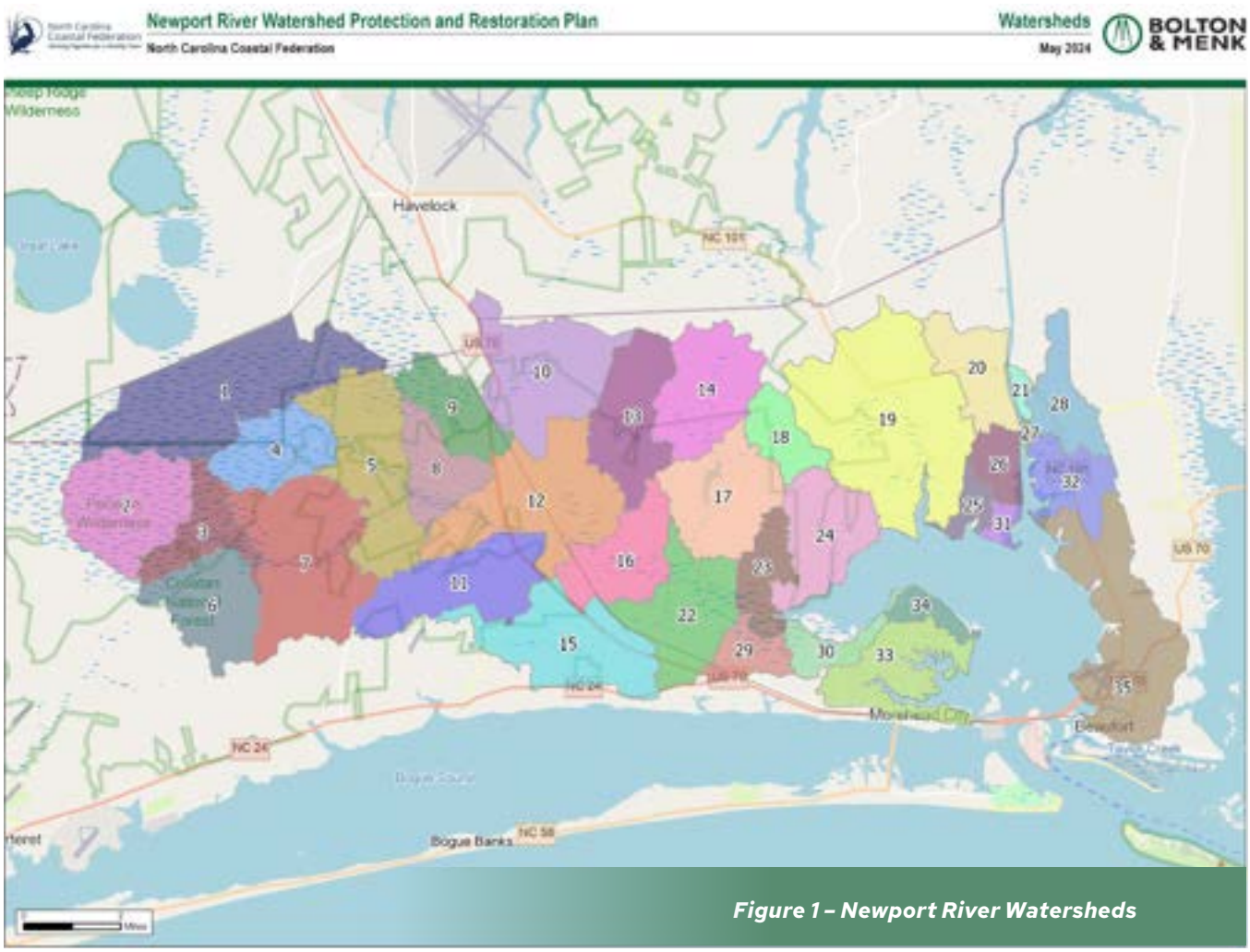


Figure 1 – Newport River Watersheds

The Newport River is characterized by six watersheds at the HUC-12 level. To better visualize and analyze water quantity and quality concerns, the watersheds were further delineated into 35 sub-watersheds.

Natural Features

The Newport River watershed includes various wetland areas, creeks, and streams, including 37,237 acres of wetlands. The river area is also surrounded by forested areas, agriculture, and high density and low intensity residential areas. The Newport River watershed possesses qualities that make the sound ideal for growing shellfish and as a fish nursery. The river offers an ideal mix of fresh and salt waters for producing oysters. The Newport River waters are also ideal for nursery habitats for many local aquatic species.

The soils within the watersheds are primarily class A/D and class B/D. These soil groups are characterized by high to moderate infiltration rates that may decrease as the soil becomes saturated. It is important to understand the soil types at potential project locations to determine feasibility of different project types. Overall, there appears to be a number of soils within the river's watersheds that will allow for stormwater management systems that infiltrate into the landscape rather than runoff into nearby surface waters.

Land Use Trends

Development within the Newport River watersheds is highly concentrated in sub-watersheds 12, 15, 22, 29, 30, 33, 34, and 35. These sub-watersheds correspond to the Towns of Newport, Morehead City, and Beaufort. Apart from sub-watershed 12, there was a large increase in development post-1985 for these identified sub-watersheds. Sub-watersheds 30 and 33, associated with Morehead City, both saw an increase in developed areas of over 10% from 1985 to 2020. This is relevant when considering the amount of impervious surface coverage due to parking lots, roof coverage, connected impervious surfaces, and often reduced vegetated coverage.

The land uses within the watersheds falls primarily in groups 6 – Wetland, 4 – Tree Cover, and 1 – Developed. These categories represent the current designated land uses as classified by USGS and are not representative of altered or developed land. Understanding the current land uses of the watershed is important for determining the most effective stormwater reduction strategies and community education and outreach approaches. For example, if a watershed is predominately residential, it may be more effective to develop strategies that focus on lot-level stormwater reduction or homeowner education.

Future land use projections were compiled from slated conservation lands from the CAMA Land Use Plans for each jurisdiction and zoning information. Development is expected to increase surrounding the towns of Beaufort, Morehead City, and Newport. This development includes the addition of both residential and commercial areas. Certain land parcels are slated as conservation land, including a portion of the Croatan National Forest which accounts for most sub-watersheds one, two, three, and four. Future land use may change from projections due to changes in population, ability of agencies and jurisdictions to acquire land for conservation, and among other factors. Projections are based solely on information known at the time of this plan development.

For more information regarding the characteristics of the Newport River watersheds, refer to Appendix B: Area Characteristics.

Water Quality

North Carolina has various methods to protect and measure water quality. This plan uses the state's water quality classification system and swimming usage tier scale systems (refer to Appendix C: Water Quality for detailed guide of Water Quality Classification and Standards).

While Newport River has both SA (shellfish) and SC (waters where treated sewage can be discharged) waters, the watersheds that are the primary focus of this plan are Class SA which are classified as legally "impaired" on the 303(d) list. These waters should be able to support direct contact recreation and commercial shellfish uses. In addition, the Newport River carries a Primary Nursery Area (PNA) classification based on the quality of these waters to provide a good habitat for juvenile species. A PNA is any area of an estuarine system that supports the initial stages of post-larval development. The Marine Fisheries Commission is responsible for protecting land and waters deemed necessary to support and maintain productivity of estuarine and marine fisheries. Waters designated as PNA by the Marine Fisheries Commission, or the Wildlife Resources Commission are often classified as High Quality Waters (HQW) and are subject to the requirements of such waters.

Waters in the river are also monitored for their suitability for swimming. The tier scale assigned by the State affects the prioritization of sampling and the minimum water quality standards for swimming waters being tested. Tier I classified waters are the highest priority and are locations that are used daily, Tier II are not used as heavily for swimming and see the most use on weekends, and Tier III sites are used less frequently. These Tiers coincide with sampling requirements and maximum observation of bacteria. There are two swimming water quality monitoring stations within the boundaries of the watershed. Land use change has impacted the condition of the Newport River watersheds over the past five decades. Factors such as increased volumes and rates of stormwater runoff, pollution, drainage infrastructure, and dockage have affected the water quality within the watersheds. Water quality concerns have been noted in assessments completed by NC Shellfish Sanitation, NC Recreational Water Quality, and other regulatory agencies.

Trends Observed by DMF Shellfish Sanitation

Over the course of the last two decades, the area's surface waters have become increasingly more polluted by bacterial contamination. Areas within the Newport River watershed have been closed for shellfish harvest since 1926 following the first Sanitary Survey conducted by the Division of Marine Fisheries. Persistently high bacterial counts have resulted in the designated uses of these waters not being met, which has led to waters within the multiple Newport River sub-watersheds being placed on the state's 303(d) list for impairment, according to the 2022 Integrated Report. High bacteria counts have also led to the expansion of restricted and prohibited areas for shellfish harvest in the last five decades. In addition to the restricted and prohibited areas, temporary closures are issued by the Division of Marine Fisheries because of rain events and resultant runoff. The closure is temporary and makes it unlawful for any person to take any oysters, clams, or mussels from the area for sale or consumption. Temporary closures are often lifted following satisfactory sampling events. Within the Newport River watersheds, a rainfall event of 1 to 1.5 inches can result in a temporary closure. The rainfall depth inciting temporary closures has decreased through the years, as more intense land uses have increased the amount of runoff generated per storm. Due to the decrease in rainfall depth needed to temporarily close waters, in combination with increased intensity and frequency of severe weather events, the Newport River shellfish areas have seen an increase in the number and duration of annual closures.

History of Recreational Water Advisories

Recreational water advisories warn people about potentially hazardous water conditions due to increased bacteria levels caused by stormwater runoff. Only sub-watershed 35 has a recreational water sampling station. Two sampling sites are located within this watershed, C55A and C55B. Site C55A has had 20 advisories and alerts since 2006; Site C55B has had no advisories or alerts since 2006.

History of Impaired Listings on 303(d) List

Many sections of the Newport River, along with its major tributaries, are listed on the 303(d) EPA impaired waters list due to their polluted shellfish growing area status. Additionally, some parts of the river have been identified as exceeding criteria for dissolved oxygen levels. The Clean Water Act (CWA) mandates that impairments on 303(d) listed waterways be addressed (see Appendix C: Water Quality for more details on assessment categories). When surface waters fail to meet federal water quality standards, the CWA requires measures to be taken to mitigate the impairment and restore water quality. This often involves conducting a Total Maximum Daily Load (TMDL) study to determine the necessary reduction of contaminants to meet standards. TMDL studies can be time-consuming and costly, and limited resources often hinder their development for smaller waterbodies impacted by nonpoint source pollution. Currently, there are no TMDL reports for the impaired waters of the Newport River Watersheds. Partners agree that reducing stormwater volume is the most beneficial and cost-effective strategy to decrease contamination and avoid the need for TMDL development.

Potential Pollution Sources

Due to rapid alteration of the natural hydrology within the watershed, bacterial contaminants have been identified as the primary issue of concern as reported in water quality assessments and Shellfish Sanitation reports. The difficulty in preventing violations of bacteria standards for coastal waters caused by stormwater runoff is compounded by the unique challenges related to coastal hydrology and bacteria pollution.

These are: The two bacteria used as indicators of water quality, fecal coliform and enterococcus, naturally occur across the terrestrial landscape. These bacteria originate in the feces of warm-blooded animals, such as birds, deer, raccoons, domestic pets and people. Although prudent measures should be taken to reduce the sources of bacteria, these efforts alone will not result in satisfactory improvements in coastal water quality due to unnatural levels of stormwater being discharged.

Treating stormwater runoff to remove bacteria pollution before it flows into shellfish and swimming waters is impractical. Although some technology exists for decreasing bacteria levels in runoff, these generally will not lower levels to the extent that they comply with the numerical fecal coliform standards for these waters. In addition, the current stormwater control measure permitting system does not reliably hold permittees accountable. Installed practices may not function as intended and can become a source of bacteria.

Treated runoff can easily be re-contaminated. Due to the ubiquitous nature of bacteria on the landscape, treated runoff, once discharged back on the landscape, will simply pick up more bacteria. The result is ineffective costly treatment.

For more information about water quality within the Newport River watersheds, see Appendix C: Water Quality.

A more effective approach is to reduce the rate and amount of stormwater entering the river by promoting infiltration within the landscape adjacent to the watershed. Stormwater runoff can convey a variety of nonpoint source contaminants from a variety of sources. Potential nonpoint sources range from wildlife and human sources, including lack of proper maintenance and operation of permitting stormwater control measures, sewer systems, septic systems, highways, and land application areas.

The key strategy is to keep the landscape functional for storing and infiltrating polluted rainwater and disconnecting surface waters from stormwater conveyance systems.

SECTION 3

Runoff Volume

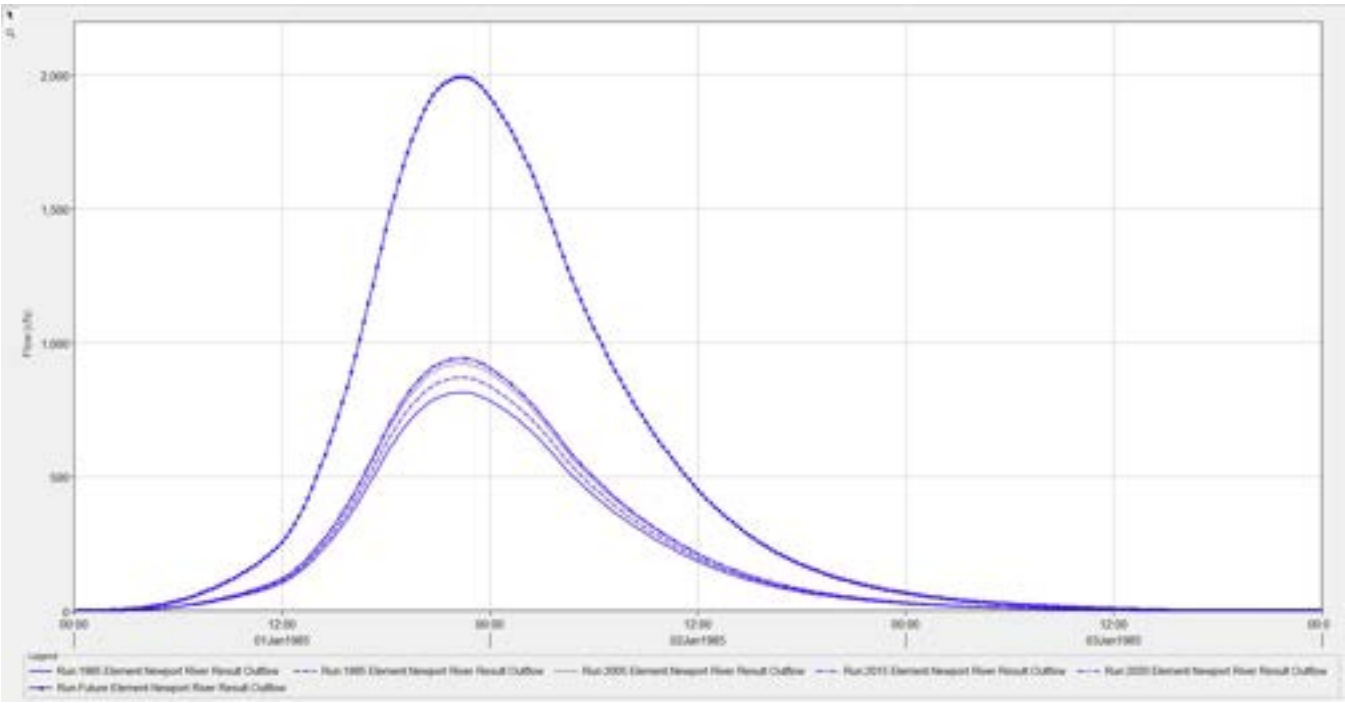
Runoff volumes and flow rates were calculated for a one-year, 24-hour storm event across the Newport River watershed and its 35 sub-watersheds.

These calculations consider land use changes from 1985 through 2020, with future projections assuming full development of available land according to current zoning or development regulations. Notable increases in runoff volumes were observed, with the total estimated runoff volume for the entire river basin increasing from 125,788,832 cubic feet in 1985 to 138,649,760 cubic feet in 2020—an increase of more than 10%. If current land use trends continue, the future projected runoff volume could increase by over 77% from 1985 levels.

Table 3-1: Cubic feet of runoff volume created by the 1-year, 24-hour storm event

Watershed	1985 Runoff Volume	1995 Runoff Volume	2005 Runoff Volume	2015 Runoff Volume	2020 Runoff Volume	Future Conditions (2050) Runoff Volume
Newport River	125,788,832	128,572,404	131,236,200	133,184,749	138,649,760	157,236,040

Figure 3-1: Hydrograph of runoff volume increases from 1985 to 2020, with future projection



The hydrograph in Figure 3-1 illustrates an overall increase in runoff rates and volumes of approximate 815.0 to 944.8, respectively from 1985 to 2020. Watershed studies nationwide suggest that such an increase may mark the threshold where increases in surface runoff from land use change causes significant water quality degradation.[1] Analysis of 35 sub-watersheds within the river basin shows considerable variation in hydrologic alterations over the past 35-year period. Sub-watersheds closer to shellfish growing areas experienced the largest increases in runoff rates and volumes. Based on data from Table 3-2, the average increase in runoff volume across all sub-watersheds was 14.25%, with a substantial standard deviation of 15.15%, indicating significant variability among these drainage areas. The average increase in runoff volume per sub-watershed was 367,455 cubic feet. This analysis reveals trends crucial for understanding changes in runoff rates and volumes over time and their potential impacts, particularly regarding shellfish growing waters.

1 https://www.epa.gov/sites/default/files/2014-03/documents/protect_water_higher_density1.pdf

Key Trends and Implications:

01 Overall Increase in Runoff Volumes

General Trend:

The data shows a consistent increase in runoff volumes across most sub-watersheds from 1985 to 2020. This increase is due to changes in land uses, ditching and drainage, urbanization, and weather patterns, which could lead to more intense rainfall events and reduced water infiltration.

Implications:

Increased runoff typically carries more pollutants, particularly fecal coliform bacteria and sediment, leading to both permanent and temporary harvest closures in shellfish growing areas.

02 Larger Increases in Runoff in Sub-watersheds Near Shellfish Growing Areas

Proximity Impact:

Sub-watersheds nearest to shellfish growing areas, classified as having a relative distance of '1,' exhibit the most significant increases in runoff volume. This is particularly concerning because these regions are critical for shellfish harvest, which are highly sensitive to water quality changes. The short distance allows limited natural treatment of surface runoff, leading to higher fecal coliform levels in drainage reaching the shellfish waters, resulting in harvest closures.

Possible Causes:

These increases likely result from more intensive land uses resulting in hydrologic modifications, such as increased ditching and impervious surfaces.

03 Runoff Decreases in Certain Watersheds

Anomalies:

A few watersheds, such as Watersheds 25, 6, and 10, showed a decrease in runoff volume, possibly due to reforestation, which enhances water absorption and retention.

Importance of Investigation:

Understanding these decreases provide valuable insights into effective runoff management strategies.

04 High Variability in Percent Increase

Variability:

The percentage increase in runoff varies significantly, from nearly 50% in some watersheds to no increase or even a decrease in others, indicating the influence of localized land use factors.

Local Factors:

Factors like land use changes, particularly reforestation and urbanization, may explain the variability. Watersheds with higher increases need more aggressive management actions to mitigate runoff impacts.

05 Runoff Volume Not Directly Correlated with Watershed Size

Non-Correlation:

The data doesn't show a direct correlation between watershed size and percentage increase or decrease in runoff volume, suggesting that land use changes are more critical determinants.

06 Potential Impact on Shellfish Growing Waters

Water Quality Concerns:

Watersheds closer to shellfish growing areas that experienced significant runoff increases are likely to contribute more to bacterial loading and other types of pollution, affecting shellfish harvest and health.

Need for Focused Management:

High-impact watersheds require targeted management strategies, such as nature-based stormwater reduction strategies, stricter land-use controls, or hydrologic restoration projects, to reduce runoff and its adverse effects.

Table 3-2: Average percent increase and quantity of increase in runoff from sub-watersheds by relative distance from shellfish growing waters

Relative Distance from Shellfish Growing Waters (1 = closest, 5 = farthest)	Average Percent Increase	Average Quantity of Increase (cubic feet)
1	18.11%	492,676
2	13.74%	323,171
3	7.25%	322,853
4	4.44%	328,157
5	-0.92%	-13,240

Table 3-2 provides the following insights:

- **Closer Proximity Impact:** Watersheds closest to shellfish growing waters (Relative Distance = 1) have the highest average percent increase (18.11%) and the highest average quantity of increase in runoff (492,676 cubic feet).
- **Decreasing Trend:** A general decreasing trend in both percent increase and quantity of increase is observed as the relative distance from shellfish growing waters increases.
- **Negative Growth:** Watersheds farthest from shellfish growing waters (Relative Distance = 5) show a slight average decrease in runoff volume, with a negative percent increase and a small negative quantity of increase.

These findings point to eight sub-watersheds that are closest to shellfish growing waters and experiencing significant runoff increases, which should be the priority for implementing actions recommended in this plan to reduce the rate and volume of runoff.
These watersheds are listed in Table 3-3.

Table 3-3: Highest Priority Watersheds for Runoff Reduction Actions

Sub-Watershed	Quantity of Increase (1985 to 2020) (cubic feet)	Percent Increase from 1985 to 2020
33	1,854,378	20.26%
22	1,214,126	27.90%
35	1,017,148	7.70%
30	706,992	46.29%
19	650,156	3.77%
17	603,978	49.33%
20	541,692	13.49%
16	541,663	22.65%

In addition to the eight sub-watersheds identified in Table 3-3 above, research from Dr. Antonio Rodriguez's lab at the UNC Institute of Marine Sciences in Morehead City provides data supporting the inclusion of sub-watershed 23 as a priority for focused management actions (see Table 3-3). The study found that silviculture operations within this and adjacent high-priority sub-watersheds (17 and 22) occupy approximately 20% of the river's total watershed and are located near the shellfish growing waters in the estuary.[1] Researchers documented significant ditching and land clearing that led to hydrological modifications in sub-watersheds 23, 17, and 22, beginning around 1958.

These silviculture activities triggered a sudden increase in the rate of delta-shoreline advance in areas of the river just upstream of and around Cross Rocks. The character of the sediment associated with this increased runoff shifted from sand to clay dominance between 1964 and 1967. The study also found that while erosion typically increases during periods of deforestation, sediments from the silviculture operations did not enter the river until a high-energy discharge event, such as heavy rainfall, occurred. This research highlights that the land use changes and hydrological modifications prior to 1985 were significant in these three sub-watersheds. Therefore, sub-watersheds 23, 17, and 22 should be the focus of management actions aimed at reducing runoff volume and rate during large storm events.

Summary

- **High Runoff Increases:** Watersheds 33, 22, and 35 have the highest runoff increases, each exceeding 1 million cubic feet.
- **Significant Percentage Increases:** Watersheds 30 and 17 show substantial percentage increases (46.29% and 49.33%, respectively) with moderate quantity increases.
- **Critical Targets:** Watersheds 19, 20, and 16 also contribute significantly to runoff increases, making them key targets for runoff reduction efforts.
- **Sub-Watershed (23) Added as a Priority Area for Action:** Sub-Watersheds 17, 22, and 23 underwent significant ditching and forestry clearing between 1958 and 1967 to facilitate a large commercial silviculture operation. Recent scientific research indicates that these modifications continue to contribute to significant runoff and sedimentation in the upper portions of the estuary during big rain events, and these pre-1985 land use modifications should also be addressed by efforts to reduce runoff.

Additional details on this overall runoff change analysis for each sub-watershed are provided in Table 3-4 on the next page.

1 MATTHEUS, Christopher R., *IMS, UNC at Chapel Hill, 3431 Arendell Street, Morehead City, NC 28557, RODRIGUEZ, Antonio B., Institute of Marine Sciences, University of North Carolina, 3431 Arendell St, Morehead City, NC 28557 and MCKEE, Brent, Department of Marine Sciences, UNC at Chapel Hill, 3202 Venable Hall, CB 3300, Chapel Hill, NC 27599, mattheus@email.unc.edu*

Table 3-4: Changes in rates and volumes of runoff by sub-watersheds sorted by relative distance to the water and quantity increase (in cubic feet)

Watershed	1985 Runoff Volume	2020 Runoff Volume	Percent increase from 1984 to 2020	Relative Distance from Shellfish Growing Waters	Quantity of Increase
33	9,152,399	11,006,777	20.26%	1	1,854,378
22	4,351,698	5,565,824	27.90%	1	1,214,126
35	13,204,853	14,222,001	7.70%	1	1,017,148
30	1,527,187	2,234,179	46.29%	1	706,992
19	17,250,485	17,900,641	3.77%	1	650,156
17	1,224,286	1,828,264	49.33%	1	603,978
20	4,014,613	4,556,305	13.49%	1	541,692
16	2,390,967	2,932,630	22.65%	1	541,663
29	1,872,110	2,295,247	22.60%	1	423,137
32	3,868,698	4,167,699	7.73%	1	299,001
23	715,477	898,179	25.54%	1	182,702
26	1,674,317	1,785,013	6.61%	1	110,696
24	771,254	878,470	13.90%	1	107,216
27	293,852	359,925	22.49%	1	66,073
21	658,491	706,900	7.35%	1	48,409
31	336,149	379,892	13.01%	1	43,743
25	1,283,436	1,247,816	-2.78%	1	-35,620
15	3,091,652	3,903,473	26.26%	2	811,821
28	4,059,702	4,552,378	12.14%	2	492,676
5	4,929,264	5,351,530	8.57%	2	422,266
13	1,292,430	1,527,902	18.22%	2	235,472
9	1,716,736	1,922,143	11.96%	2	205,407
34	1,688,624	1,848,825	9.49%	2	160,201
14	1,267,648	1,414,719	11.60%	2	147,071
11	944,554	1,055,007	11.69%	2	110,453
12	7,736,417	8,259,749	6.76%	3	523,332
4	3,832,264	4,125,076	7.64%	3	292,812
8	2,075,686	2,228,102	7.34%	3	152,416
1	11,918,276	12,568,190	5.45%	4	649,914
2	5,262,275	5,469,045	3.93%	4	206,770
7	3,248,147	3,375,935	3.93%	4	127,788
3	2,581,440	2,609,988	1.11%	5	28,548
18	163,754	164,123	0.23%	5	369
6	802,046	770,714	-3.91%	5	-31,332
10	4,587,645	4,537,100	-1.10%	5	-50,545
Total	125,788,832	138,649,761	10.22%		12,860,929

For more information regarding runoff calculations and volumes, see Appendix D: Runoff Calculations.

SECTION 4

Goals and Objectives

The overarching goal of the Newport River Watershed Protection and Restoration Plan is to protect and restore water quality so that shellfish and swimming uses of the river can be maintained and enhanced, and the natural infrastructure can sustain and adapt to changes such as sea level rise, increased flooding, and shoreline erosion.

Bacteria closes the river to shellfish harvest and results in swimming advisors. The elevated rates and volumes of stormwater runoff also have other negative impacts on the productivity of the river, causing unpredictable and unnatural shifts in salinity levels as well as rapid sedimentation that is smothering oyster beds and causing widespread shoaling. The comprehensive goal of this plan requires several strategies and efforts from many partners, including municipal, town and county leaders, residents, local businesses, users such as fishermen and shellfish growers, NGO's and other stakeholders from Carteret County, the Town of Beaufort, the Town of Morehead City, and the Town of Newport.

Secondary goals of this plan include preventing further degradation of water quality, restoring impaired water quality, pursuing projects that increase community resilience, reducing nuisance flooding, and maintaining the varied recreational uses of the river. Primary and secondary goals are summarized in Table 1 - Goals, below.

Table 4-1: Goals

Primary Goal

PG.1	This plan seeks to address water quality and quantity degradation within the Newport River watershed so that shellfish, swimming, and other uses of the Newport River can be maintained and enhanced, chronic and acute flooding is reduced, and the productivity of the river remains high supporting the local economy and communities.

Secondary Goals

SG.1	Prevent further degradation of water quality.
SG.2	Restore impaired water quality consistent with the water quality classifications and standards that are assigned to the Newport River.
SG.3	Achieve these benefits by pursuing projects that increase community resilience to extreme weather conditions, especially flooding and erosion.
SG.4	Reduce nuisance and acute flooding.
SG.5	Maintain the varied recreational and commercial uses of the river.

This plan outlines ways that the North Carolina Coastal Federation collaborates with the four local governments (Carteret County, Beaufort, Morehead City, and Newport) that have jurisdiction within the Newport River, private landowners, oyster farm operators, and state and federal agencies to work toward accomplishing these goals, objectives, and actions. Some of these actions are low-cost and others will require substantial investments.

State appropriations and federal, state, local and private funding are necessary to acquire key properties and to retrofit land uses to reduce existing and future sources of stormwater pollution. As a fundamental strategy, the recommended actions in this plan aim to protect, restore, or replicate through nature-based strategies as well as engineering practices the natural hydrology of the river's watersheds to reduce the rate and volume of stormwater runoff.

These goals will be accomplished over the coming 25 years by achieving objectives and management actions identified below. This plan uses innovative approaches to reduce and prevent increased rates and volumes of stormwater runoff within the Newport River watersheds to improve and protect water quality and reduce flooding. This plan emphasizes eight restoration objectives to accomplish its goals (Table 4-2 - Objectives).

Table 4-2: Objectives

O.1	Design and implement actions plan based upon the most current and accepted scientific and technical knowledge.
O.2	Restore and perpetually conserve working lands and undeveloped properties that either already contribute increased rates and volumes of polluted runoff, or which are anticipated to be developed in ways that will result in further degradation of water quality and increased flooding.
O.3	Retrofit private residential, commercial and industrial land uses to reduce the rate and volume of stormwater runoff.
O.4	Retrofit public land uses to reduce the rate and volume of stormwater runoff.
O.5	Install living shorelines and restore degraded salt marshes to enhance and restore riparian water quality buffers and reduce impacts from flooding and storm surges.
O.6	Monitor and adapt management strategies in this five-year plan to ensure the goal and objectives of the plan are being met.
O.7	Inform and engage the residents, visitors and other stakeholders to enlist their help and support to accomplish plan objectives.
O.8	Update plan every five years.

SECTION 5

Implementation Actions and Timelines

During the next five years, the following actions will be pursued and accomplished to achieve reductions in the rate and volume of polluted stormwater runoff and to protect and restore uses of the river.

Objective 01

This objective seeks to use and promote research and monitoring to inform the design and implementation of actions recommended by this plan.

Table 5-1

Actions and Timeline for Objective 1		Timeline
A1.1	Continue to work closely with the N.C. Division of Marine Fisheries, Shellfish Sanitation and Recreational Water Quality Section, to use its water quality monitoring and Sanitary Shoreline Survey results to identify acute and chronic water quality issues and problems to guide the location of management actions, and to determine if the implementation of plan actions is having a measurable result on the frequency and geographic extent of shellfish closures and swimming advisories.	Years 1-5
A1.2	Continue ongoing work by the Department of Biological and Agricultural Engineering at N.C. State University that is funded by the Kenan Institute to conduct expanded water quality monitoring to help identify hotspots of pollution during dry and wet weather conditions, and to measure the impact of implementation actions taken because of this plan.	Years 1-5
A1.3	Continue efforts to obtain funding for Dr. Antonio Rodriguez at the UNC Institute of Marine Sciences to establish baseline conditions to be able to monitor changes in the rates of sedimentation within the upper reaches of the river's estuary because of thousands of acres of hydrologic restoration work that is currently being undertaken.	Years 1-5
A1.4	In 2025, organize an advisory committee to include scientific experts to help design and guide hydrologic restoration on properties acquired for conservation in the watershed.	Years 1-3
A1.5	Produce an annual list of research priorities that will aid in the implementation and adaptation of plan actions. To prepare this list, convene all researchers and other stakeholders that are engaged in the use, research and management of the river.	Years 1-5

Objective 02

Restore and perpetually conserve working lands and undeveloped properties that either already contribute increased rates and volumes of polluted runoff due to past hydrologic modifications, or which are anticipated to be developed in ways that will result in further degradation of water quality and increased flooding.

This objective involves prioritization of working and undeveloped lands to preserve and/or restore natural hydrology within the watershed. Due to rapidly increasing populations and associated intense development pressures within the watersheds, protection of the Newport River depends heavily on preservation and/or restoration of working and natural lands where natural hydrology can be maintained or restored.

This can only occur by the acquisition of properties either by fee-simple conservation purchases or through conservation easements that protect natural hydrology and vegetated riparian buffers

This objective focuses on identifying, prioritizing, acquiring (in fee-simple or through conservation easements) working and natural properties that can be managed to provide for enhancements and protection of water quality and reductions in flooding. All these management actions are focused within Sub-watersheds 17, 22 and 23 that are identified as priority areas for management actions to achieve the greatest benefits for water quality within the shellfish waters that are in close proximity.

Table 5-2

Actions and Timeline for Objective 2		Timeline
A2.1	Create the Newport River Watershed Preserve Master Plan to prioritize the restoration of hydrology and protection of approximately 7,728.44 acres of riparian waterfront areas (See Figure 5.2.1). (Phases 1, 2, 3, 4, 5 and saltmarsh parcel).	Years 1-5
A2.2	Obtain ownership of Phase 1 in 2024 (Completed)	Complete
A2.3	Use existing N.C. Land and Water Fund grant to develop a final restoration plan for Phase 1 parcel (1,436.90 acres) by 2025.	Years 1-2
A2.3	Acquire Phase 3 (593.27 acres) from N.C. Coastal Land Trust in 2024.	Year 1
A2.4	Use existing funding from EPA to develop a restoration concept plan for Phases 2 and 3 (1,490.27 acres) in 2024-25.	Years 1-2
A2.5	Obtain and then use pending grants to develop final restoration plan for Phases 2 and 3 in 2025 and 2026.	Years 1-3
A2.6	Acquire Phase 2 (897 acres) from N.C. Coastal Land Trust in 2025. Acquire ownership of 462.83-acre saltmarsh parcel on southside of the river from N.C. Land Trust at the same time as the closing occurs on Phase 2.	Year 1-2
A2.7	Apply for and obtain a Phase 1 grant from the National Fish and Wildlife Foundation to model the water quality impact of the mosquito drainage ditches in the 462.83 acres salt marsh that the Federation is acquiring, and based upon those results, examine options to restore natural sheet flow across the marshes by modifying the existing ditches.	Year 1-2
A2.8	Restore Hydrology on Phases 1, 2, and 3 in 2026 and 2027 achieving an estimated 4,224,735 cubic feet reduction in stormwater runoff.	Years 2-5
A2.9	Work with N.C. Coastal Land Trust to Acquire for Restoration remaining parcels to complete the Newport River Watershed Preserve on the north side of river (totaling 4,122.47 acres) in 2024 through 2029. This acquisition could achieve an estimated 8,613,199 cubic feet reduction in runoff.	Years 1-5
A2.10	Acquire Ownership in 2025 from N.C. Coastal Land Trust of the 462.83-acres of salt marsh parcel on south side of river and add that to the Newport River Watershed Preserve. In 2025, begin investigations of restoration alternatives to repair damaged caused by extensive mosquito ditching that occurred decades ago. Based upon this investigation, seek funding to carry out appropriate runoff reduction mitigation projects. This work could achieve approximately 1,867,000cubic feet reduction in runoff.	Year 1-5
A2.11	Work with the Croatan National Forest and USDA on its on-going hydrology study to determine if there are opportunities to reduce the rate and volume of unnatural runoff entering the river from the federal properties.	Years 1-2
A2.12	Partners (Federation, N.C. Coastal Land Trust, DoD, and others) continue work to expand the Newport River Watershed Preserve Master Plan to include additional properties that drain to the Newport River as part of a larger, landscape initiative to create a network of properties that would establish a 46,000-acre conservation reserve in Carteret and Craven counties. This would add approximately 7,000 acres of property that drain to the river as part of the watershed preserve and result in an estimated reduction in volume of 16,081,102 cubic feet.	Years 3-20

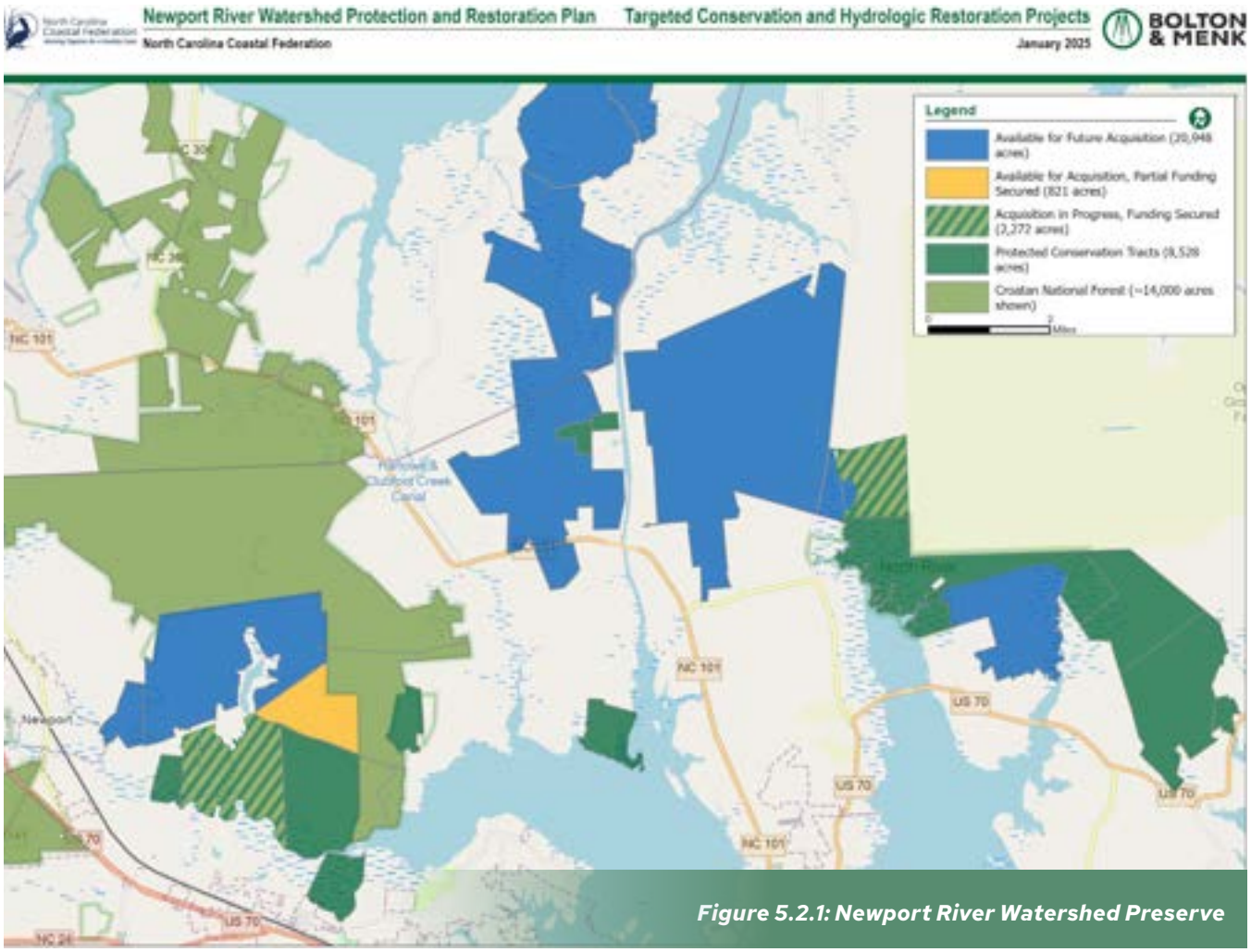


Figure 5.2.1: Newport River Watershed Preserve

Objective 03

Retrofit stormwater management systems on private residential, commercial and industrial land uses to reduce the rate and volume of stormwater runoff.

Stormwater system retrofits for existing development will reduce the overall rate and volume of polluted stormwater runoff into coastal waters. There are a wide variety of nature-based solutions to reduce the rate and volume of runoff that can be designed and installed to achieve this objective. The primary strategy is to maximize the ability of the natural landscape to hold, infiltrate and slow the runoff of surface runoff. These retrofits are needed on properties that were built prior to the adoption of coastal stormwater runoff regulations, and on those with state issued coastal stormwater permits that no longer have state-of-the-art designs or which have not been properly built, operated and maintained.

Potential project opportunities were identified based upon a compliance evaluation conducted by the state, as well as based upon discussions and meetings with project partners from the towns of Beaufort, Morehead City, and Newport as well as Carteret County. The project locations were determined based upon the "hot spots" of water quality and quantity concerns identified during these meetings. A high-level feasibility analysis was conducted at the locations of highest concern to determine the most appropriate project for each location.

Table 5-3

Actions and Timeline for Objective 3		Timeline
A3.1	Continuously investigate the availability of stormwater grants and potentially state appropriations and other funding sources to install lot-level, lower-cost retrofits that disconnect impervious surfaces and enhance stormwater infiltration.	Years 1-5
A3.2	Continuously explore opportunities to secure funds from the Community Conservation Assistance Program (CCAP) to help pay for private landowner stormwater retrofits.	Years 1-5
A3.3	Use a portion of the existing $5 million appropriation from the N.C. General Assembly to develop and begin to implement a cost-share program that will help landowners within the watershed that have state issued coastal stormwater permits comply with regulations and upgrade their stormwater systems. Focus evaluation on the 349 permits issued in the watershed, with priority given to the 30 permits that DEQ has found to be out of compliance, 30 permits that are expired, and 149 permits that DEQ has not evaluated for compliance. See next three tables for list of these permits. Estimated volume reduction from 25 retrofits in the first 5 years would be 1 million cubic feet. This work would accelerate once the retrofit program is up and running.	Years 1-5
A3.4	Further evaluate and rank for funding the retrofits sites that were visited in the field or identified by local government officials (see list). Prioritize any sites that have DEQ stormwater permits that are out of compliance.	Years 1-2

Table 5-3.1: Existing State issued permits on private properties that are out of compliance

Permit Number	Facility Name	Facility Address	City	DEQ Compliant?	Density	Status	Regulated Activity
SW8030302	Country Club Run Phase 1	Country Club Rd Sr 1177	Morehead City	No	Low	Active	Low Density
SW8030106	Eastman Creek Landing	Tuttles Grove Rd	Beaufort	No	Low	Active	Low Density
SW8041006	Gracelyn Park	Chatham St	Newport	No	Low	Active	Curb and Gutter
SW8050445	Eastman Creek Landing Phases 2 & 4	Carteret	Beaufort	No	Low	Active	Low Density
SW8051039	Country Club Run Phase 2	Off Country Club Run	Morehead City	No	Low	Active	Curb and Gutter
SW8040502	Morehead City Beaufort Elks Lodge No.1710	400 Miller Farm Rd	Morehead City	No	Low	Active	Low Density
SW8050108	Palmetto Plantation @ Olde Beaufort Village	Professional Park Dr	Beaufort	No	Low	Active	Curb and Gutter
SW8061113	North River Club Section Two	169 Taylor Farm Rd	Beaufort	No	High	Active	Other, Curb and Gutter
SW8060505	Murta Commercial Building (Modification to Lot 7H)	Lot 7h Jarret Bay Industrial Park S	Beaufort	No	Low	Active	Low Density
SW8101218	Gallants Point (formerly Aqua 10 Marina)	End of Aqua 10 Rd	Beaufort	No	Low	Active	Redevelopment
SW8090334	Newport Park	100 McQueen Ave	Newport	No	High	Active	Detention Pond
SW8090203	A & M Mini Storage	US Highway 70	Newport	No	High	Active	Detention Pond
SW8140210	S&W Ready Mix Concrete Morehead City	5161 Business Dr	Morehead City	No	Low	Active	Low Density
SW8200301	Pinnacle Storage - Wildwood	5475 US 70 W	Morehead City	No	High		
SW8200302	The Vinings at Wildwood II	5475 US 70 W	Morehead City	No	N/A	Active	Off-site
SW8900501	Martin Creek Subdivision	Sr 1318	Morehead City	No	Low		
SW8880205	Somerset Plantation Subdivision	Hwy 24	Morehead City	No	Low	Active	Low Density
SW8880401	Town Creek Marina	232 W Beaufort Rd	Beaufort	No	High		
SW8940112	Cypress Bay Shopping Center Expansion	NC 24 At US 70	Morehead City	No	High	Active	Detention Pond
SW8921004	Down East Trading Post	1901 Live Oak St	Beaufort	No	High		

Table 5-3.1: Existing State issued permits on private properties that are out of compliance

Permit Number	Facility Name	Facility Address	City	DEQ Compliant?	Density	Status	Regulated Activity
SW8931006	Sand Ridge Subdivision	Lincoln Foxhall Bayberry Graystone Roads	Newport	No	High	Expired	Detention Pond
SW8980429	Lowe's at Morehead Crossing	5219 Hwy 70	Morehead City	No	High		
SW8971034	Morehead Professional Park	Penny Lane John Platt Dr	Morehead City	No	High	Expired	Detention Pond
SW8971234	Crab Point Bay Subdivision	E Oglesby Rd	Morehead City	No	Low		
SW8970925	Courtyard West Aka Pollard Property	1800 Courtyard W	Newport	No	High	Expired	Detention Pond
SW8980926	Whitewater Subdivision Master Plan (Jarrett Bay)	530 Sensation Weigh	Beaufort	No	Low		
SWA000003	Morehead City Country Club Golf Course and Club Facilities Improvements	2900 Country Club Rd	Morehead City	No	High	Expired	High & Low Desnity Combo
SW8991033	Lot 5 Whitewater Subdivision at Jarrett Bay	Sensation Weigh Rd	Beaufort	No	Low		
SW8991110	Newport Middle School	Corner of US 70 Hibbs Rd	Newport	No	High	Expired	Detention Pond
SW8990638	Buena Vista Subdivision	Buena Vista Dr	Morehead City	No	Low		

Based on DEQ information as of January 2024: https://www.deq.nc.gov

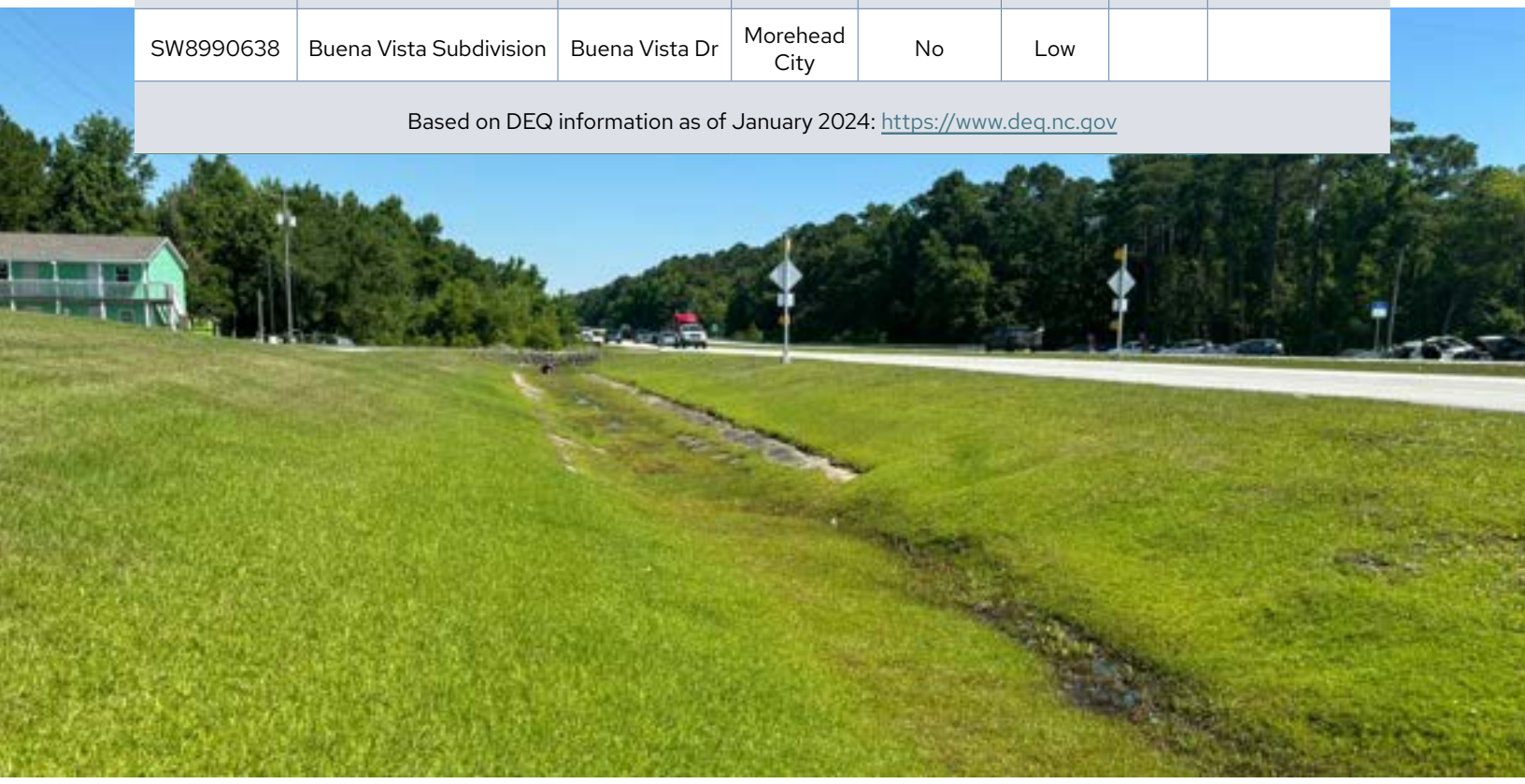


Table 5-3.2: Expired state issued stormwater permits on private properties that have not been evaluated by DEQ for compliance

Permit Number	Facility Name	Facility Address	City	DEQ Compliant?	Density	Status	Regulated Activity
SW8000527	Oakwood Mobile Homes	5526 US 70	Morehead City	Not Evaluated	High	Expired	Detention Pond
SW8001125	Pier 1 Imports Site	5218 Hwy70	Morehead City	Not Evaluated	High	Expired	Detention Pond
SW8010535	NC Hwy 24 Property Lot 3 Commercial Deve	Cypress Bay Shopping Ctr Food Lion	Morehead City	Not Evaluated	High	Expired	Detention Pond
SW8021203	East Carolina Bank-Morehead City	NC Hwy 24	Morehead City	Not Evaluated	High	Expired	Detention Pond
SW8050115	Storage Ideas, LLC	Ashley Pl Hwy 70	Newport	Not Evaluated	High	Expired	Detention Pond
SW8050116	GATCO II, LLC	Hwy 70	Morehead City	Not Evaluated	High	Expired	Detention Pond
SW8050508	Park Villas formerly Building Partners	Old Murdoch Rd Sr 1151	Morehead City	Not Evaluated	High	Expired	Detention Pond
SW8050809	Lot 7A - Jarrett Bay Industrial Park	1401 Sensation Weigh-Lot 7a Jarret Bay Industrial Park	Beaufort	Not Evaluated	High	Expired	Infiltration
SW8060112	Lot 10 Jarrett Bay - True World Marine	1401 Sensation Weigh-Lot 10 Jarrett Bay Industrial Park	Beaufort	Not Evaluated	High	Expired	Sand Filters
SW8070534	Phillips Property	5437 Hwy 70	Morehead City	Not Evaluated	High	Expired	Detention Pond
SW8070820	Mainsail of Beaufort	Jct of Turner St and Jill St	Beaufort	Not Evaluated	High	Expired	Detention Pond
SW8080109	Parker Honda	5327 Hwy 70 W	Morehead City	Not Evaluated	High	Expired	Detention Pond
SW8080125	Pirates Landing	Professional Park Dr	Beaufort	Not Evaluated	High	Expired	Detention Pond
SW8080212	Walgreen Store No 11895 Morehead City	5053 Hwy 70	Morehead City	Not Evaluated	High	Expired	Infiltration
SW8080224	Crystal Coast Boat and RV Storage	471 Tom Mann Rd	Newport	Not Evaluated	High	Expired	Detention Pond
SW8080512	Waterway Marina and Club at Beaufort	346 Steel Tank Rd	Beaufort	Not Evaluated	High	Expired	Hybrid Infiltration, Sand Filters
SW8080606	Beaufort Corporate Park	Between Family Lane And Copeland Rd	Beaufort	Not Evaluated	High	Expired	Detention Pond
SW8100508	The Cottages at Palmetto Plantation	Professional Park Dr	Beaufort	Not Evaluated	High	Expired	Detention Pond

Table 5-3.2: Expired state issued stormwater permits on private properties that have not been evaluated by DEQ for compliance

Permit Number	Facility Name	Facility Address	City	DEQ Compliant?	Density	Status	Regulated Activity
SW8100606	CVS Store 7381 Beaufort	1701 Live Oak St	Beaufort	Not Evaluated	High	Expired	Wetlands
SW8131205	Walmart Neighborhood Market Store #7098-00	415 Roberts Rd	Newport	Not Evaluated	High	Expired	Detention Pond
SW8930405	Somerset Court of Newport	3020 Market St	Newport	Not Evaluated	High	Expired	Detention Pond
SW8960108	Thompson Apartments	Off Symi Cir	Morehead City	Not Evaluated	High	Expired	Detention Pond
SW8970432	The Professional Center	3302 Bridges St	Morehead City	Not Evaluated	High	Expired	Detention Pond
SW8970855	Boulia Enterprises	Hwy 70	Newport	Not Evaluated	High	Expired	Detention Pond
SW8990120	CRSWMA Newport Convenience Center	Hibbs Rd Sr 1141	Newport	Not Evaluated	High	Expired	Low Density, Infiltration
SW8991109	Troon Apartments	300 Troon Way	Beaufort	Not Evaluated	High	Expired	Detention Pond
SW8880712	Eagles Bay Elderly Apartments	100 Eagles Bay Ct	Beaufort	Not Evaluated	N/A	N/A	Permit Data Not Available
SW8880907	Westwood Square Apartments	Brook St	Morehead City	Not Evaluated	High	N/A	Permit Data Not Available
SW8890611	Adams Harbor	NC 1122	Morehead City	Not Evaluated	N/A	N/A	Permit Data Not Available
SW8910508	Wards Landing Subdivision	NCSR 1149 And US 70	Newport	Not Evaluated		N/A	Permit Data Not Available

Based on DEQ information as of January 2024: https://www.deq.nc.gov

Table 5-3.3: Active state issued stormwater permits on private properties that have not been evaluated by DEQ for compliance

Permit Number	Facility Name	Facility Address	City	DEQ Compliant?	Density	Status	Regulated Activity
SW8000324	Gregory Poole Power Systems Lot 11A Jarrett Bay	1500 Sensation Weigh Rd	Beaufort	Not Evaluated	Low	Active	Low Density
SW8000520	Gloryfields Subdivision	Country Club Rd	Morehead City	Not Evaluated	Low	Active	Low Density
SW8000523	House of Silk Flowers	2660 NC Hwy 101	Beaufort	Not Evaluated	Low	Active	Low Density
SW8000533	Courtesy Village Aka Sand Ridge Apartmen	Lincoln Rd	Newport	Not Evaluated	N/A	Active	Off-site
SW8000640	Lot 14 Jarrett Bay Marine Industrial Park	1150 Sensation Weigh	Beaufort	Not Evaluated	Low	Active	Low Density
SW8000933	First Citizens Bank Newport	7045 Highway 70 E	Newport	Not Evaluated	High	Active	Detention Pond
SW8000935	The Reserve Phase II			Not Evaluated	Low	Active	Low Density
SW8001205	Lot 15 Jarrett Bay Marine Industrial Park	Sensation Weigh	Beaufort	Not Evaluated	Low	Active	Low Density
SW8001208	Ruby Tuesday Restaurant	5227 Hwy 70 W	Morehead City	Not Evaluated	High	Active	Detention Pond
SW8010209	Newport Hotel at Fort Benjamin Commons	Joyce Ave	Newport	Not Evaluated	High	Active	Detention Pond
SW8010302	Larry Styron Property Smith - Herring Fa	Smith Herring Farm Rd	Newport	Not Evaluated	Low	Active	Low Density
SW8010530	The Reserve	Brandywine Blvd	Morehead City	Not Evaluated	Low	Active	Low Density
SW8010702	Lot 6 Jarrett Bay Marine Industrial Park	1001 Sensation Weigh	Beaufort	Not Evaluated	Low	Active	Low Density
SW8011103	Kings Mill	New Bern St	Newport	Not Evaluated	N/A	Active	Off-site
SW8011110	The Reserve Green	Brandywine Blvd	Morehead City	Not Evaluated	Low	Active	Curb and Gutter
SW8020127	God's Property	Off Carl Garner Rd	Newport	Not Evaluated	Low	Active	Low Density
SW8020314	Boys and Girls Club of Carteret County	331 Arendell St	Morehead City	Not Evaluated	High	Active	Infiltration
SW8020322	Lot 18 Jarrett Bay Ma-rine Industrial Park North	1501 Sensation Weigh Rd	Beaufort	Not Evaluated	Low	Active	Low Density
SW8020902	Joan's Haven Subdivision Section 2	Sr 1154 Mill Creek Rd	Morehead City	Not Evaluated	Low	Active	Low Density
SW8020933	Ronnie Perry- Lot 11 Webbs Park SD	Lois Ln	Morehead City	Not Evaluated	Low	Active	Low Density

Table 5-3.3: Active state issued stormwater permits on private properties that have not been evaluated by DEQ for compliance

Permit Number	Facility Name	Facility Address	City	DEQ Compliant?	Density	Status	Regulated Activity
SW8021037	Bridge Mill Professional Park	Bridges St	Morehead City	Not Evaluated	High	Active	Detention Pond
SW8021206	Blair Point Park	Intersection Sr 1176 Sr 1179	Morehead City	Not Evaluated	Low	Active	Low Density
SW8030204	Beaufort Child Development Facility, Permitted under Beaufort Professional Park	Professional Park Dr	Beaufort	Not Evaluated	N/A	Active	Off-site
SW8030501	Lowes Food Store at Morehead Plaza	Morehead City	Morehead City	Not Evaluated	Low	Active	Infiltration, Redevelop-ment
SW8030822	Plantation on the Bay Subdivision	Fowler Dr	Newport	Not Evaluated	Low	Active	Low Density
SW8031053	Sea Gate Subdivision Block C, Sec. III Lots 1-10	Old Stanton Rd	Morehead City	Not Evaluated	Low	Active	Low Density
SW8031109	Blue Point Bay	Murdoch Rd	Morehead City	Not Evaluated	Low	Active	Low Density
SW8040244	E Linwood Parker Residence	Russell Creek Rd	Beaufort	Not Evaluated	Low	Active	Low Density
SW8040419	Hestron Corp. 13-41 AC-Tract	Hwy 70 W	Morehead City	Not Evaluated	Low	Active	Low Density
SW8050412	South Park Subdivision	Howard Blvd	Newport	Not Evaluated	Low	Active	Curb and Gutter
SW8050428	Quail Crossing	SR 1124 Nine Foot Rd	Newport	Not Evaluated	Low	Active	Low Density
SW8050503	J & S Carolina Proper-ties, LLC Site Plan	US Hwy 70	Newport	Not Evaluated	Low	Active	Low Density
SW8050553	Taylor Clearing-Harkers Island Road	Carteret	Beaufort	Not Evaluated	Low	Active	Low Density
SW8050601	United Pentecostal Church	8125 Hwy 70 E	Newport	Not Evaluated	Low	Active	Curb and Gutter
SW8050605	Bridgewater at Ware Creek	Russell Creek Rd off Hwy 101	Morehead City	Not Evaluated	Low	Active	Low Density
SW8050619	Lot 7J Jarrett Bay Industrial Park	1101 Spartina Dr	Beaufort	Not Evaluated	Low	Active	Low Density
SW8051027	The Coves at Newport	US Hwy 70	Morehead City	Not Evaluated	High	Active	Detention Pond
SW8051138	Eden Bridge Subdivision	Brooks St	Morehead City	Not Evaluated	High	Active	Detention Pond
SW8060421	Park Meadows Subdivision	Lakewood Ct	Newport	Not Evaluated	Low	Active	Low Density
SW8060709	Lana Gardens Subdivision	Roberts Rd	Newport	Not Evaluated	Low	Active	Curb and Gutter

Table 5-3.3: Active state issued stormwater permits on private properties that have not been evaluated by DEQ for compliance

Permit Number	Facility Name	Facility Address	City	DEQ Compliant?	Density	Status	Regulated Activity
SW8061006	All Saints Church Amia Inc	290 McCabe Rd	Newport	Not Evaluated	High	Active	Hybrid Sand Filters, Low Density
SW8061111	Castle Glen Apartments	Bern St	Newport	Not Evaluated	N/A	Active	Off-site
SW8070227	Blair Farms Section VIII	Blair Farms Pkwy	Morehead City	Not Evaluated	Low	Active	Curb and Gutter
SW8070321	Rams Run	Sr 1124 Quinn Hill Loop Rd	Newport	Not Evaluated	Low	Active	Low Density
SW8070428	Laughton Landing	Sr 1177 Country Club Rd	Morehead City	Not Evaluated	Low	Active	Curb and Gutter
SW8070507	Pinnacle Pointe	1454 Oglesby Rd	Morehead City	Not Evaluated	Low	Active	Curb and Gutter
SW8070642	Waste Industries Roberts Road	427 Roberts Rd	Newport	Not Evaluated	High	Active	Detention Pond
SW8070733	Cape Point Bait Company	1465 Hwy 101	Beaufort	Not Evaluated	Low	Active	Low Density
SW8070741	Newport Shopping Center Phase 2	Hwy 70	Newport	Not Evaluated	High	Active	Detention Pond
SW8070827	Commerce Avenue Condominiums	3302 Bridges St	Morehead City	Not Evaluated	N/A	Active	Off-site
SW8070851	Noland Company	300 Greenfield Dr	Morehead City	Not Evaluated	Low	Active	Low Density
SW8070934	Chic-fil-A Restaurant at Crystal Coast Plaza	5156 Hwy 70	Morehead City	Not Evaluated	N/A	Active	Off-site
SW8071106	Wards Creek Point	End of Channel Rock Rd	Beaufort	Not Evaluated	Low	Active	Low Density
SW8071113	Coastal Yacht Hangar Lot 9 Jarrett Bay	1301 Sensation Weigh Rd	Beaufort	Not Evaluated	High	Active	Infiltration, Other, Low Density
SW8071222	West Beaufort Boating Access Area	W Beaufort Rd at Town Creek	Beaufort	Not Evaluated	Low	Active	Low Density
SW8080110	Morehead Enterprises LLC Highway 70 Morehead City	5208 Hwy 70	Morehead City	Not Evaluated	High	Active	Detention Pond
SW8080326	Narron Business Park	Arthur Farm Rd	Morehead City	Not Evaluated	Low	Active	Curb and Gutter
SW8080421	Chadwick Shores Plantation	NCSR 1155	Newport	Not Evaluated	Low	Active	Low Density
SW8090302	Cypress Village Subdivision	300 Masontown Rd	Newport	Not Evaluated	Low	Active	Low Density

Table 5-3.3: Active state issued stormwater permits on private properties that have not been evaluated by DEQ for compliance

Permit Number	Facility Name	Facility Address	City	DEQ Compliant?	Density	Status	Regulated Activity
SW8090338	Little Nine Development	Little Nine Dr	Morehead City	Not Evaluated	Low	Active	Redevelop-ment
SW8090402	Ashley Place Subdivision 3	Between Fox Hall Rd and Can-non Blvd	Newport	Not Evaluated	Low	Active	Low Density
SW8090620	Jones Pond	Hwy 70 Carteret Dr	Beaufort	Not Evaluated	High	Active	Detention Pond
SW8090624	Lot 2 Jones Brothers Business Park	401 Miller Farm Rd	Morehead City	Not Evaluated	N/A	Active	Off-site
SW8090637	McDonalds Beaufort	Hwy 70 Carteret Dr	Beaufort	Not Evaluated	N/A	Active	Off-site
SW8090908	Bayview Homes	1300 Bay St	Morehead City	Not Evaluated	Low	Active	Redevelop-ment
SW8091014	Bur Oaks Section Four	Bur Oaks Blvd	Newport	Not Evaluated	Low	Active	Low Density
SW8091016	Core Creek Marina & Beaufort Waterway RV Park formerly Adams Creek Marina	329 Core Creek Rd	Beaufort	Not Evaluated	Low	Active	Redevelop-ment
SW8091205	Olive Garden Restaurant Morehead City	US Highway 70	Morehead City	Not Evaluated	N/A	Active	Off-site
SW8091221	Beaufort Harbor Marina and Yacht Club	101 Cedar St	Beaufort	Not Evaluated	Low	Active	Redevelop-ment
SW8100203	Gracelyn Park Phase IV	Edgewood Ave	Newport	Not Evaluated	Low	Active	Curb and Gutter
SW8100302	Aarons Furniture	7075 Hwy 70	Newport	Not Evaluated	N/A	Active	Off-site
SW8100601	The Vinings at Wildwood	133 Wildwood Rd	Newport	Not Evaluated	High	Active	Detention Pond, Wetlands
SW8101117	Compass Landing Apartment Homes	Access Old Fashion Way	Newport	Not Evaluated	High	Active	Detention Pond
SW8110112	Dollar General More-head City	3017 Bridges St	Morehead City	Not Evaluated	Low	Active	Redevelop-ment
SW8110203	Morehead Professional Park Lot 6	Sw Int of John Platt Drive and Penny Ln	Morehead City	Not Evaluated	N/A	Active	Off-site
SW8110402	Oneals Drug Store	129 Nine Foot Rd	Newport	Not Evaluated	High	Active	Wetlands
SW8110419	Hibbs Road American Tower Site 273437	5899 Hwy 70	Newport	Not Evaluated	Low	Active	Low Density
SW8110510	Morehead City Sales Yard	5101 Business Dr	Morehead City	Not Evaluated	High	Active	Detention Pond

Table 5-3.3: Active state issued stormwater permits on private properties that have not been evaluated by DEQ for compliance

Permit Number	Facility Name	Facility Address	City	DEQ Compliant?	Density	Status	Regulated Activity
SW8110612	Little Nine Road Extension	Little Nine Dr	Morehead City	Not Evaluated	Low	Active	Other
SW8111203	State Employees Credit Union Beaufort Office	Pinners Point Rd	Beaufort	Not Evaluated	High	Active	Detention Pond
SW8120115	Pearl G West Property	231 Pinners Point Rd	Morehead City	Not Evaluated	Low	Active	Low Density
SW8120402	Crystal Coast Hospice House	E Chatham St	Newport	Not Evaluated	N/A	Active	Off-site
SW8120503	Eitner Jayne Commercial Center	4913 Bridges St Extension	Morehead City	Not Evaluated	High	Active	Detention Pond
SW8120611	Longhorn Steakhouse Lot A East Gate Plaza	Int Hwy 70 and Flowers Ln	Morehead City	Not Evaluated	Low	Active	Redevelop-ment
SW8121010	Shipps Storage	457 Tom Mann Rd	Newport	Not Evaluated	Low	Active	Low Density
SW8130305	Old Town Creek Harbor Homes	501 Turner St	Beaufort	Not Evaluated	Low	Active	Low Density
SW8140505	Fences Unlimited	203 Jacob Dr	Morehead City	Not Evaluated	N/A	Active	Off-site
SW8140602	Duke Energy Progress Morehead City Operations Facility	270 Arthur Farm Rd	Newport	Not Evaluated	High	Active	Detention Pond
SW8140803	Lot 10A Morehead Professional Park	Penny Ave	Morehead City	Not Evaluated	N/A	Active	Off-site
SW8150206	Lot 16 Wayne See Business Park	204 Jacob Dr	Morehead City	Not Evaluated	N/A	Active	Off-site
SW8150313	Palmetto Plantation and Olde Beaufort Village Phase 2	Professional Park Dr	Beaufort	Not Evaluated	High	Active	Detention Pond
SW8150511	Lot 19 at Wayne See Industrial Park	5035 Mattie St	Morehead City	Not Evaluated	N/A	Active	Off-site
SW8150720	Storage Solutions Business Drive	Lot 30 Wayne See Industrial Park	Morehead City	Not Evaluated	N/A	Active	Off-site
SW8160618	West End Pump Station and Force Main	261 Arthur Farm Rd	Newport	Not Evaluated	Low	Active	Low Density
SW8160720	General Services Operations Building	Off Business Dr	Newport	Not Evaluated	N/A	Active	Off-site
SW8160805	Lot 20 Wayne See Industrial Park	5031 Mattie St	Morehead City	Not Evaluated	N/A	Active	Off-site
SW8160902	Wayne See Subdivision Lot 14	Lot 14 Wayne See Industrial Park	Morehead City	Not Evaluated	N/A	Active	Off-site

Table 5-3.3: Active state issued stormwater permits on private properties that have not been evaluated by DEQ for compliance

Permit Number	Facility Name	Facility Address	City	DEQ Compliant?	Density	Status	Regulated Activity
SW8161010	Lidl Grocery Store Morehead City	US Hwy 70 W	Morehead City	Not Evaluated	Low	Active	Redevelop-ment
SW8170511	Heritage Pointe Phase One	Off Mason Town Rd	Newport	Not Evaluated	Low	Active	Curb and Gutter
SW8170613	Beaufort Storage	1795 Live Oak St	Beaufort	Not Evaluated	N/A	Active	Off-site
SW8171005	McDonalds Morehead City	5173 5179 Hwy 70 W	Morehead City	Not Evaluated	N/A	Active	Off-site
SW8171114	Lucas Kidney Research Center	623 35th St	Morehead City	Not Evaluated	Low	Active	Redevelop-ment
SW8180219	Harlowe 230 kV Substation	4417 Hwy 101	Newport	Not Evaluated	Low	Active	Low Density
SW8180505	Salvation Army	2800 Bridges St	Morehead City	Not Evaluated	High	Active	Detention Pond
SW8180509	Pelican Point Properties US HWY 70E Pond	5133 Hwy 70 E	Morehead City	Not Evaluated	High	Active	Detention Pond
SW8180510	The Wash Factory	5129 Hwy 70 E	Morehead City	Not Evaluated	N/A	Active	Off-site
SW8180706	Hannula Storage	215 Jacob Dr	Morehead City	Not Evaluated	N/A	Active	Off-site
SW8180902	Dollar General - Carteret County	2440 Hwy 101	Beaufort	Not Evaluated	High	Active	Infiltration
SW8181007	Shearline Boatworks	301 Facility Dr	Morehead City	Not Evaluated	Low	Active	Low Density
SW8190206	Carl Garner Laydown Yard	209 Carl Garner Rd	Newport	Not Evaluated	Low	Active	Low Density
SW8190313	Taco Bell	1798 Live Oak St	Beaufort	Not Evaluated	High	Active	Other
SW8190515	Randolph Johnson Park	1017 Pine St	Beaufort	Not Evaluated	Low	Active	Low Density
SW8190603	Waste Removal Contractors Plant and Storage Yard	167 Little Nine Rd	Morehead City	Not Evaluated	Low	Active	Low Density
SW8190702	Green Recycling Solutions	812 926 Hibbs Rd	Newport	Not Evaluated	Low	Active	Low Density
SW8190705	North Carolina State Employee's Credit Union - Newport Branch	102 Joyce Ave	Newport	Not Evaluated	High	Active	Other
SW8190904	Compass Margaritaville Hotels & Resorts	115 Cedar St	Beaufort	Not Evaluated	High	Active	Infiltration, Redevelop-ment
SW8200303	Stroud Engineering Office	422 Hwy 24	Morehead City	Not Evaluated	High	Active	Detention Pond

Table 5-3.3: Active state issued stormwater permits on private properties that have not been evaluated by DEQ for compliance

Permit Number	Facility Name	Facility Address	City	DEQ Compliant?	Density	Status	Regulated Activity
SW8200405	Line 243 Retrofit Receiver	US Hwy 70	Newport	Not Evaluated	Low	Active	Low Density
SW8200610	Coastal Gym	5301 Hwy 70	Morehead City	Not Evaluated	N/A	Active	Off-site
SW8201102	Elijah's Landing Apartments	3200 Bridges St	Morehead City	Not Evaluated	High	Active	Detention Pond
SW8201215	Carteret Health Care Laydown Area	Bridges Street and Penny Ln	Morehead City	Not Evaluated	Low	Active	Redevelop-ment
SW8210504	Duke Energy Progress - Morehead 115kV Substation	510 Maple Ln	Morehead City	Not Evaluated	Low	Active	Low Density
SW8210508	Heritage Pointe - Phase Four	At Approx 156 Howard Rd	Newport	Not Evaluated	Low	Active	Low Density
SW8210514	East Port II Apartments	619 Professional Park Dr	Beaufort	Not Evaluated	High	Active	Detention Pond
SW8211005	Kimeplex Park	788 NC-24	Newport	Not Evaluated	High	Active	Detention Pond
SW8211206	Brandywine Bay WWTP Replacement	104 Sleepy Ct	Morehead City	Not Evaluated	Low	Active	Low Density
SW8220207	AA Storage Beaufort	2176 Live Oak St	Newport	Not Evaluated	High	Active	Detention Pond
SW8880210	Hardesty Farms	Hardesty Ln	Newport	Not Evaluated	Low	Active	Low Density
SW8880511	Silver Lakes	Silver Lake Subdivision	Morehead City	Not Evaluated	Low	Active	Low Density
SW8880713	Riverwoods Phase 5	Sr 1149	Newport	Not Evaluated	Low	Active	Low Density
SW8881117	Market Place II	Hwy 70 W	Morehead City	Not Evaluated	High	Active	Detention Pond
SW8891005	Eagles Nest Mobile Home Park	Off NCSR 1124	Morehead City	Not Evaluated	Low	Active	Low Density
SW8900221	Waste Industries Roberts Road	427 Roberts Rd	Newport	Not Evaluated	High	Active	Detention Pond
SW8930603	Deer Haven Subdivision	NCSR 1154	Newport	Not Evaluated	Low	Active	Low Density
SW8940404	Duke Energy Progress North River 115k V Substation	1150 Hghway 101	Beaufort	Not Evaluated	N/A	Active	Low Density
SW8940813	Justins Corner Subdivision	Off Mandy Ln	Morehead City	Not Evaluated	Low	Active	Detention Pond
SW8960328	The Village at Camp Morehead By The Sea	Off NC 24	Morehead City	Not Evaluated	Low	Active	Curb and Gutter

Table 5-3.3: Active state issued stormwater permits on private properties that have not been evaluated by DEQ for compliance

Permit Number	Facility Name	Facility Address	City	DEQ Compliant?	Density	Status	Regulated Activity
SW8960616	Bur Oaks Subdivision	Bur Oaks Blvd Sr 1195	Newport	Not Evaluated	Low	Active	Low Density
SW8961108	Newport Food Lion	7075 Hwy 70	Newport	Not Evaluated	High	Active	Detention Pond
SW8970102	Woodlands IV Subdivision	N New Bern St	Newport	Not Evaluated	Low	Active	Low Density
SW8970307	Blair Pointe Phase I	NCSR 1177	Morehead City	Not Evaluated	Low	Active	Low Density
SW8980103	Britthaven of Newport	210 Foxhall Rd	Newport	Not Evaluated	N/A	Active	Off-site
SW8980409	Jarrett Bay Boatworks Steel Tank Road	530 Sensation Weigh	Beaufort	Not Evaluated	Low	Active	Redevelop-ment
SW8980826	Alice J. Bayer	NC Hwy 101	Beaufort	Not Evaluated	Low	Active	Low Density
SW8981115	Sheerline Subdivision	530 Sensation Weigh	Beaufort	Not Evaluated	Low	Active	Low Density
SW8990929	Jones Brothers Industrial Park formerly Jones Brothers Partnership Shell Building	Miller Farm Rd	Morehead City	Not Evaluated	High	Active	Detention Pond
SWA000076	Development of 5264 Highway 70	5264 Highway 70	Morehead City	Not Evaluated	High	Active	Detention Pond

Based on DEQ information as of January 2024: https://www.deq.nc.gov

Table 5-3.3: Potential retrofit projects on private developed lands

Location	Project Type	Approximate Treatment Volume (CFT)	Project Cost	Cost per CFT
Tuttles Grove	Regional Stormwater Wetland	270,644	$1,353,000	$5.00
Heritage Pointe	SCM Retrofit	36,583	$658,000	$17.98
Lowes Shopping Center on HWY 70	SCM Retrofit	57,037	$1,027,000	$18.00
Blair Farms	Infiltration Basin	61,621	$1,294,000	$21.00

Objective 04

The rate and volume of stormwater runoff being transported over land to waterways needs to be reduced to restore water quality. This objective focuses on opportunities on publicly owned land that is owned by the federal, state and local governments, including N.C. Department of Transportation. By focusing the objective on public lands and conveyance systems; governmental agencies managing property and infrastructure within the watershed can lead by example and demonstrate commitment to improving watershed health to the community.

Table 5-4

Actions and Timeline for Objective 4		Timeline
A4.1	Utilize the plan as framework to obtain public funds for stormwater management to help pay for expenditures on retrofits and projects.	Years 1-5
A4.2	Locations identified by stakeholders with chronic flooding problems impacting public infrastructure should be evaluated for stormwater retrofit projects to determine if correction measures that protect water quality and reduce flooding can be identified. Feasible designs should be prioritized for securing funding for retrofits. These locations are listed in Table 5-4.1 below.	Years 1-3
A4.3	Review list of state issued stormwater permits that are held by governmental agencies and prioritize retrofits for permits that are not in compliance with requirements, or which have not been evaluated for compliance. Examine two permits that are not in compliance (Table 5-4.2), four that are expired (Table 5-4.3), and 31 that have not been evaluated for compliance by DEQ. Pick priority projects to provide cost-share support to bring them into compliance using the $5 million appropriation by the N.C. General Assembly, and other funds that will be secured.	Years 1-2
A4.4	Work with N.C. Department of Transportation to install stormwater retrofits along its highway drainage system that will reduce the rate and volume of runoff into coastal waters. Specific projects identified include the large ditches that drain directly into the Newport River along Highway 70 (estimated cost is $2 million for the retrofit with a volume reduction of 62,490 cubic feet for the 1-year, 24-hour storm) and the oversized ditches along Highway 70 at the Beaufort Airport (estimated cost is $1 million for the retrofit with a volume reduction of 68,664 cubic feet for the 1-year, 24-hour storm). See Table 5-4-3 below for other potential retrofit locations.	Years 1-3
A4.5	Work with the Towns to incorporate Green Street Designs that reduce the rate and volume of runoff into future capital improvement plans of municipal streets. Review sites identified during field visits that would make good green street retrofits (see Table 5-4.4).	Years 1-5
A4.6	Where applicable and practical, work with government agencies to seek to use pervious paving surfaces for public development or redevelopment projects.	Years 1-5
A4.7	Pursue strategy with NC DOT to incorporate retrofits into the state-maintained transportation system within the watershed. Pursue strategy with DOT that any new road upgrades or maintenance plans include plans to reduce the rate and volume of runoff.	Years 1-5
A4.8	Work with the Town of Morehead City to Implement green street retrofits on N.23rd Street.	Years 1-4

Table 5-4.1: Flooding hotspots on public properties identified during field visits with governmental officials

- Briarpatch Dr, Beaufort
- Ronnie Rd, Beaufort
- Broad St, Beaufort
- Marsh St, Beaufort
- Pollock St, Beaufort
- Cedar St, Beaufort
- 2nd St & Carteret Ave, Beaufort
- 1st St & Craven Ave, Beaufort
- White Sands, Newport
- Market St, Newport
- Gracelyn Park, Newport
- Live Oak St @ First St, Beaufort
- Hilltop Rd, Newport
- W Railroad St, Newport
- Country Club Rd @ Kingfisher Dr, MHC
- Blair Pointe Rd @ Country Club Rd
- Avery St, MHC
- Emeline Pl W of S Yaupon Terrace
- Pine St, Beaufort
- Mulberry St, Beaufort

Table 5-4.2: Publicly owned state permitted stormwater systems deemed by DEQ to be out of compliance

Permit Number	Facility Name	Facility Address	City	DEQ Compliant?	Density	Status	Regulated Activity
SW8090334	Newport Park	100 McQueen Ave	Newport	No	High	Active	Detention Pond
SW8991110	Corner of US 70 Hibbs Rd	Corner of US 70 Hibbs Rd	Newport	No	High	Expired	Detention pond

Table 5-4.3: Publicly owned state permitted stormwater systems with expired permits that have not been evaluated by DEQ

Permit Number	Facility Name	Facility Address	City	DEQ Compliant?	Density	Status	Regulated Activity
SW8070340	Newport Elementary School - Additions & Renovations	Chatham St	Newport	Not Evaluated	High	Expired	Detention Pond
SW8070933	Morehead City Baseball Park	Mayberry Loop Rd	Morehead City	Not Evaluated	High	Expired	Infiltration
SW8121001	Beaufort Fire Department Substation	2731 Highway 101	Beaufort	Not Evaluated	High	Expired	Detention Pond
SW8151004	Beaufort Fire Department #1	Live Oak St	Beaufort	Not Evaluated	High	Expired	Detention Pond

Table 5-4.4: Publicly owned state permitted stormwater systems with active permits that have not been evaluated by DEQ

Permit Number	Facility Name	Facility Address	City	DEQ Compliant?	Density	Status	Regulated Activity
SW8000838	Morehead City 2000 Street Improvements Plan			Not Evaluated	Low	Active	Other
SW8001007	Business Drive Extension			Not Evaluated	Low	Active	Low Density
SW8010430	New Beaufort Elementary School	Carraway St	Beaufort	Not Evaluated	High	Active	Infiltration
SW8010714	Morehead Middle School	400 Barbour Rd	Morehead City	Not Evaluated	Low	Active	Low Density
SW8010913	Contract No. 8-WWTP Filter & Irrigation	Town of Morehead City	Morehead City	Not Evaluated	Low	Active	Low Density
SW8011018	Contract No. 41 Water Treatment Plant	Carteret County	Beaufort	Not Evaluated	Low	Active	Low Density
SW8020314	Boys and Girls Club of Carteret County	331 Arendell St	Morehead City	Not Evaluated	High	Active	Infiltration
SW8040101	Contract No. 9-Bikeway Improvements	N Side of Bridges St	Morehead City	Not Evaluated	Low	Active	Other
SW8050713	Contract No. 34 Street Improvements	Various Within City	Morehead City	Not Evaluated	Low	Active	Other
SW8060239	2005 WWTP Improvements Morehead City	Treatment Plant Rd	Morehead City	Not Evaluated	Low	Active	Low Density
SW8070403	Newport Boating Access Area	333 E Chatham St	Newport	Not Evaluated	Low	Active	Low Density
SW8070844	Morehead Community Center	N 16th St	Morehead City	Not Evaluated	Low	Active	Low Density
SW8071222	West Beaufort Boating Access Area	W Beaufort Rd at Town Creek	Beaufort	Not Evaluated	Low	Active	Low Density
SW8090105	Reclaimed Water Elevated Storage Tank	Mayberry Loop Rd	Morehead City	Not Evaluated	Low	Active	Low Density
SW8090120	Contract 71 Water Treatment Plant No. 4	1545 Country Club Rd	Morehead City	Not Evaluated	Low	Active	Low Density
SW8100512	Carteret County Industrial Park Lot 6A	311 Facility Dr	Newport	Not Evaluated	Low	Active	Low Density

Table 5-4.4: Publicly owned state permitted stormwater systems with active permits that have not been evaluated by DEQ

Permit Number	Facility Name	Facility Address	City	DEQ Compliant?	Density	Status	Regulated Activity
SW8160618	West End Pump Station and Force Main	261 Arthur Farm Rd	Newport	Not Evaluated	Low	Active	Low Density
SW8171117	Newport - 230kV Substation - Switch	232 Danny Garner Rd	Newport	Not Evaluated	Low	Active	Low Density
SW8180219	Harlowe 230 kV Substation	4417 Hwy 101	Newport	Not Evaluated	Low	Active	Low Density
SW8921104	Morehead City Elementary School			Not Evaluated	Low	Active	Low Density
SW8921205	Morehead Middle School	400 Barbour Rd	Morehead City	Not Evaluated	Low	Active	Low Density
SW8950901	Carteret County Senior Center	3820 Galantis Dr	Morehead City	Not Evaluated	High	Active	Detention Pond
SW8950903	1995 Morehead Waterfront Improvements			Not Evaluated	Low	Active	Redevelopment
SW8980101	Carteret County Industrial Park	Business Dr	Morehead City	Not Evaluated	Low	Active	Low Density
SW8980540	Morehead City Well 5 & Tank 3			Not Evaluated	Low	Active	Low Density
SW8981035	Town of Newport Water Treatment Improve.			Not Evaluated	Low	Active	Low Density
SW8981125	Town of Newport Sewer / Middle School Tr			Not Evaluated	Low	Active	Low Density
SW8990419	Michael J Smith Field	180 Airport Rd	Beaufort	Not Evaluated	High	Active	Low Density, Detention Pond
SWG040012	Well No. 4 Access Road	Approx 1830 Live Oak St	Beaufort	Not Evaluated	N/A	Active	General Permit
SWG040109	Town of Newport Chatham Street Sewer Extension	Extending From 330 E Chatham St	Newport	Not Evaluated	N/A	Active	General Permit
SWG040113	Morehead Wildwood Harlowe 115kV Line Loop into Harlowe Substation	Intersection of Hwy 101 and Harvesty Loop Rd	Newport	Not Evaluated	N/A	Active	General Permit

Based on DEQ information as of January 2024: https://www.deq.nc.gov

Table 5-4.3: NCDOT flooding hotspots and other stormwater retrofit locations identified during field visits

- Chatham St & Newport Loop Rd
- Chatham St & HWY 70, Newport
- Wildwood Rd @ Oak Trail
- Along US 70 @ Circle K
- E Chatham St @ Newport River
- HWY 70 @ Bayberry Rd, Newport
- Country Club Rd @ Kingfisher Dr
- N20thSt between Anne Neal Rd & Jersey St
- Blair Pointe Rd @ Country Club Rd
- HWY 70 @ Brandywine
- N 20th St & Mayberry Loop Rd

Table 5-4.4: Calico Creek stormwater retrofit project already funded and being implemented

Location	Project Type	Approximate Treatment Volume (CFT)	Project Cost	Cost per CFT
Meeting St, Beaufort (currently under design)	SCM Retrofit	51,498	$927,000	$18.00
Fairview Dr & Live Oak St, Beaufort	Infiltration Basin	65,231	$1,370,000	$21.00
Bayberry Rd, Newport	Bioretention Cell	32,608	$489,000	$15.00
Calico Creek, Morehead City (currently ongoing)	Swales, Permeable Pavement, Stormwater Drain Pipes	-	$5,000,000	-
Totals		**149,337**	**$2,786,000**	**$18.66**

Objective 05

Water quality is protected and enhanced through the protection and restoration of salt marshes along estuarine shorelines. Within the Newport River watershed, in addition to water quality benefits, salt marshes provide valuable functions such as fisheries/animal habitats, storm surge mitigation, sea level rise adaptation, and shoreline stabilization. While many shorelines have been stabilized with traditional hardened approaches (bulkheads, rip-rap revetments), there remain many shorelines surrounding the Newport River that are naturally vegetated shorelines. Where existing bulkheads need repair, or naturally vegetated shorelines are unable to be sustained over time, restoration projects including living shorelines provide excellent opportunities to provide erosion control as well as water quality benefits.

Table 5-5

	Actions and Timeline for Objective 5	Timeline
A5.1	Continue outreach to estuarine shoreline property owners along the Newport River to enroll them in the Federation's cost-share program that encourages the use of living shorelines instead of bulkheads and other hard-stabilization structures for erosion control.	Years 1-5
A5.2	Seek additional state and federal funds to continue the living shoreline cost-share program.	Years 1-5
A5.3	Complete the development of an estuarine shoreline management plan for the Town of Morehead City that will identify priority areas for salt marsh restoration and living shorelines along the Newport River within the Town's jurisdiction. Quantify the water quality benefits of sites prioritized in the plan. The Town has committed $400,000 to the development of this plan.	Year 1
A5.4	As the Morehead City Estuarine Shoreline Management Plan nears completion, seek to prepare similar plans for the areas along the Newport River for the Town of Beaufort and for the incorporated shorelines within the jurisdiction of the Carteret County.	Year 2-5
A5.5	Determine the feasibility of restoring the nearly 462 acres of salt marsh currently owned by the N.C. Coastal Land Trust (which will be transferred to the Federation in 2025). Mosquito ditches throughout this marsh short circuit its protective water quality functions and ability to dampen storm surges on inland properties. The estimated cost of restoration is $4,764,000 which could achieve a volume reduction of 1,867,057 cubic feet in a 1-year, 24-hour storm.	Years 1-3
A5.6	Scope out a living shoreline project for the Yacht Basin Shoreline in Morehead City that is estimated to cost $1.5 million and would reduce the volume of runoff by 3,081 cubic feet per the 1-year, 24-hour storm.	Year 2
A5.7	Continue to work with the UNC Institute of Marine Sciences to develop a living shoreline salt marsh restoration project on Phillips Island.	Years 1-4

Objective 06

Accomplishing the actions in this plan requires monitoring the performance of the plan and projects that are implemented. Records should be maintained on the progress of the plan. Progress made in achieving water quality improvements should be tracked and recorded. This plan will be adapted as necessary based upon the results of this monitoring.

Table 5-6

Actions and Timeline for Objective 6		Timeline
A6.1	Document the rate and volume of stormwater reduced by actions taken because of this plan by utilizing the Runoff Reduction Calculator Tool or other appropriate volume calculation methodologies, which will be maintained by the Federation.	Years 1-5
A6.2	Maintain a dashboard and monitor the performance of stormwater reduction retrofits that have been installed within the watersheds. This will be carried out as part of the tools and data collected for the ongoing $5 million project to develop a cost-share program for stormwater retrofits.	Years 1-3
A6.3	Conduct yearly, scheduled assessments with partners of the progress made to date implementing plan actions.	Years 1-5
A6.4	Based upon yearly assessments, revise and update actions as needed that can still be accomplished within the 5-year timeframe of the plan.	Yearly

Objective 07

Community awareness and engagement is a critical component to achieving the primary goal of this plan. Stakeholders including residents, property owners, fishers, business owners, developers and others can help advance actions in the plan.

Table 5-7

Actions and Timelines for Objective 7		Timeline
A7.1	Develop regular articles to appear in Coastal Review as well as to be televised on "Stories from the Coast" (on WRAL, WITN, WECT) that provide updates and analysis on plan implementation.	Years 1-5
A7.2	Use financial support for outreach and education provided by funding from U.S. EPA for the CPRG grant to raise awareness and understanding of the value of the coastal habitats on the Newport River to improve resiliency as well as to protect water quality.	Years 1-5
A7.3	Distribute copies of Smart Yards to residents and landowners within the watershed.	Years 1-5
A7.4	Include education signage at select retrofit sites to educate the public about the techniques and widespread applicability.	Years 1-5
A7.5	Form and conduct advisory committee to plan restoration and recreational infrastructure for the Newport River Watershed Preserve.	Years 1-2
A7.6	Continue to convene working group of partners that devised the plan to maintain engagement to implement actions and to provide continuity and liaisons with local governments.	Yearly

Objective 08

Starting in year 4 of this plan, it should be comprehensively reviewed and updated to reflect actions achieved, in progress, or not started. The update should include any Community awareness and engagement is a critical component to achieving the primary goal of this plan. Stakeholders including residents, property owners, fishers, business owners, developers and others can help advance actions in the plan.

Table 5-8

Actions and Timelines for Objective 8		Timeline
A8.1	Convene planning team to review and update plan actions.	Years 4-5
A8.2	Distribute drafts of update to local governments for review and suggestions.	Year 5
A8.3	Incorporate new actions that provide additional opportunities for reducing the existing rates and volumes of stormwater runoff.	Year 5
A8.4	At the end of year 5, release updated plan and begin anew on implementation.	Year 5

Quantitative Measures

To achieve the measurable outcome of reductions in permanent and temporary closures of shellfish waters within the Newport River watersheds, the volume of runoff will be reduced by the following quantities listed in Table 5-9 over the next 5 years, and then in 10 year increments. The overall volume reduction goal increases over this time period as land uses intensify in the watershed.

Table 5-9 Runoff Reduction Goal Targets and Schedule

Time Frame	Overall Volume Reduction Goals (CFT) From 1985 Baseline Year	Objective 2: Restore and Conserve Working and Undeveloped Properties (CFT)	Objective 3: Retrofit Private Stormwater Management Systems (CFT)	Objective 4: Retrofit Publicly Owned Stormwater Management Systems (CFT)	Percent of Total Runoff Volume Reduction Goal Achieved
Short-Term (2030)	12,860,928	4,224,735	1,000,000	500,000	33%
Mid-Term (2040)	19,000,000	8,613,199	1,500,000	1,000,000	87%
Long-Term (2050)	31,447,208	16,081,102	2,000,000	1,500,000	116%

Explanation

- **Time Frame:**
  - The table is divided into three key periods: Short-Term (2030), Mid-Term (2040), and Long-Term (2050).

- **Overall Volume Reduction Goals (CFT):**
  - These values represent the overall runoff volume reduction goals, measured in cubic feet (CFT), from a baseline year (1985) to account for the increased runoff due to land use changes.
  - The goals increase over time, indicating a plan to progressively reduce runoff more significantly as time progresses.

- **Objective 2:** Restore and Conserve Working and Undeveloped Properties (CFT):
  - This objective focuses on restoring and conserving working lands and undeveloped properties to help reduce runoff.
  - The volume of runoff reduction attributed to this objective also increases over time.

- **Objective 3:** Retrofit Private Stormwater Management Systems (CFT):
  - This objective involves retrofitting existing private stormwater systems to reduce runoff.
  - The runoff reduction goal from this activity starts at 1,000,000 CFT by 2030 and increases to 2,000,000 CFT by 2050.

- **Objective 4:** Retrofit Publicly Owned Stormwater Management Systems (CFT):
  - Similar to Objective 3 but focuses on publicly owned systems.
  - The targeted reductions increase over time, aiming for 1,500,000 CFT by 2050.

- **Percent of Total Runoff Volume Reduction Goal Achieved:**
  - This column indicates the percentage of the total runoff volume reduction goal achieved by each respective time period.
  - By 2030, the plan aims to achieve 33% of the total goal.
  - By 2040, 87% of the total goal is projected to be achieved.
  - Interestingly, by 2050, the table shows that 116% of the total goal will be achieved, indicating an overachievement of the target.

Summary

This table reflects a phased approach to reducing runoff volume through various conservation and retrofitting efforts. The goals are designed to escalate over time, leading to significant reductions by 2050. The table also suggests that, by 2050, the efforts might exceed the originally set goals, demonstrating a strong commitment to managing runoff effectively.

SECTION 6
Conclusion

The *Newport River Watershed Protection and Restoration Plan* sets forth goals, objectives, management actions, and timelines designed to enhance water quality by reducing runoff rates and volumes.

These efforts will also mitigate flooding and elevate community awareness regarding watershed management. The successful implementation of this plan hinges on the collaborative efforts of the Federation and its partners, who will work together to execute the proposed actions. Achieving these goals will require the voluntary participation and support of diverse public and private stakeholders, providing mutual benefits such as safeguarding the military training mission of the U.S. Department of Defense, preserving open space and recreational areas for residents and visitors, and ensuring clean water for the thriving shellfish and seafood industries.

Protecting and restoring water quality in the Newport River is an ongoing commitment that will extend beyond the initial five-year scope of this plan. To remain effective, the plan will be updated every five years, reflecting progress, challenges, and new opportunities. Continuous evaluations will ensure that the Newport River Watershed Protection and Restoration Plan meets the evolving needs of both the watershed and the community. The Federation will maintain active engagement with all stakeholders, including towns and the county, to monitor progress in implementing educational initiatives, project developments, cumulative runoff reduction, and ongoing water quality monitoring.

The most direct measure of the plan's success will be the frequency and duration of shellfish harvest closures in the Newport River. The primary goal is to prevent the expansion of these closures, ultimately reducing both their occurrence and the acreage affected. Key strategies to achieve these objectives include reducing runoff rates and volumes from land uses within the Newport River watersheds.

Water quality data from the Shellfish Sanitation and Recreational Water Quality Section of the N.C. Division of Marine Fisheries will be used to monitor the Newport River watersheds. These agencies regularly test and report on coastal water quality, allowing the plan's effectiveness to be assessed without the need for additional data collection efforts.

The Newport River Watershed Preserve, currently being acquired, is strategically located near shellfish growing waters and has the potential to significantly reduce existing runoff rates and volumes that impair water quality. Restoring hydrology on this land, which currently contributes to water quality issues, is a critical action that will ensure it remains undeveloped and unurbanized.

The 2,927 acres of the Preserve currently being acquired can achieve approximately 33 percent of the volume reduction goals set forth in this plan. Completing the acquisition of an additional 4,122 acres and restoring hydrology on those parcels will not only meet the reduction goals for current conditions but also help offset future runoff increases from land use changes, achieving about 87% of the reduction goal set for 2040. Continued expansion of this Preserve over time will more than offset runoff increases elsewhere in the watershed.

Photo by www.nccoast.org

However, it is also essential to secure runoff reductions from private and public lands and to ensure that new land uses comply with existing state coastal stormwater standards.

The total cost to implement the actions identified in this plan will vary significantly depending on factors such as project location, size, design complexity, labor and materials, land values, and market fluctuations. Annual maintenance costs should be considered and budgeted accordingly by those responsible for any stormwater management system or retrofit. Project partners will explore a variety of funding sources on a project-by-project basis and pursue projects that deliver multiple benefits to local governments, residents, and visitors within the river's watershed.