

Chapter 14

Neuse River Subbasin 03-04-14

Including the: Thorofare and West Thorofare Bay

14.1 Subbasin Overview

Subbasin 03-04-14 at a Glance

Land Cover (percent)

Forest/Wetland:	16.6
Surface Water:	81.0
Urban:	0.1
Cultivated Cropland:	1.4
Pasture/ Managed Herbaceous:	0.1

Counties

Carteret and Pamlico

Stream Statistics

Total Streams:	18.6 mi/171,418.8 ac
Total Supporting:	168,883.3 ac
Total Impaired:	18.6 mi/2,535.5 ac
Total Not Rated:	0.0 mi/ 0.0 ac
Total No Data:	0.0 mi/ 0.0 ac

There is very little land area in this subbasin and no large communities.

There is 1 minor NPDES wastewater discharge permit in this subbasin and no permitted animal operations.

Based on shellfish harvesting data, there has been little water quality change since the last assessment. These areas are rather remote and are generally not affected by freshwater runoff due to the small watershed and lack of major tributaries.

The North Carolina State Division of Environmental Health (DEH) is responsible for classifying coastal waters as to their suitability for shellfish harvesting, monitoring and issuing advisories for coastal recreational swimming areas. In this subbasin DEH only monitors for shellfish harvesting.

Shellfish closures are based on public health principles and are designed to prevent human illness associated with the consumption of shellfish. Shellfish area closures are based on fecal coliform bacteria concentrations. Marinas, domestic pets, migratory waterfowl and other wild animals contribute to the bacterial loading throughout much of this area.

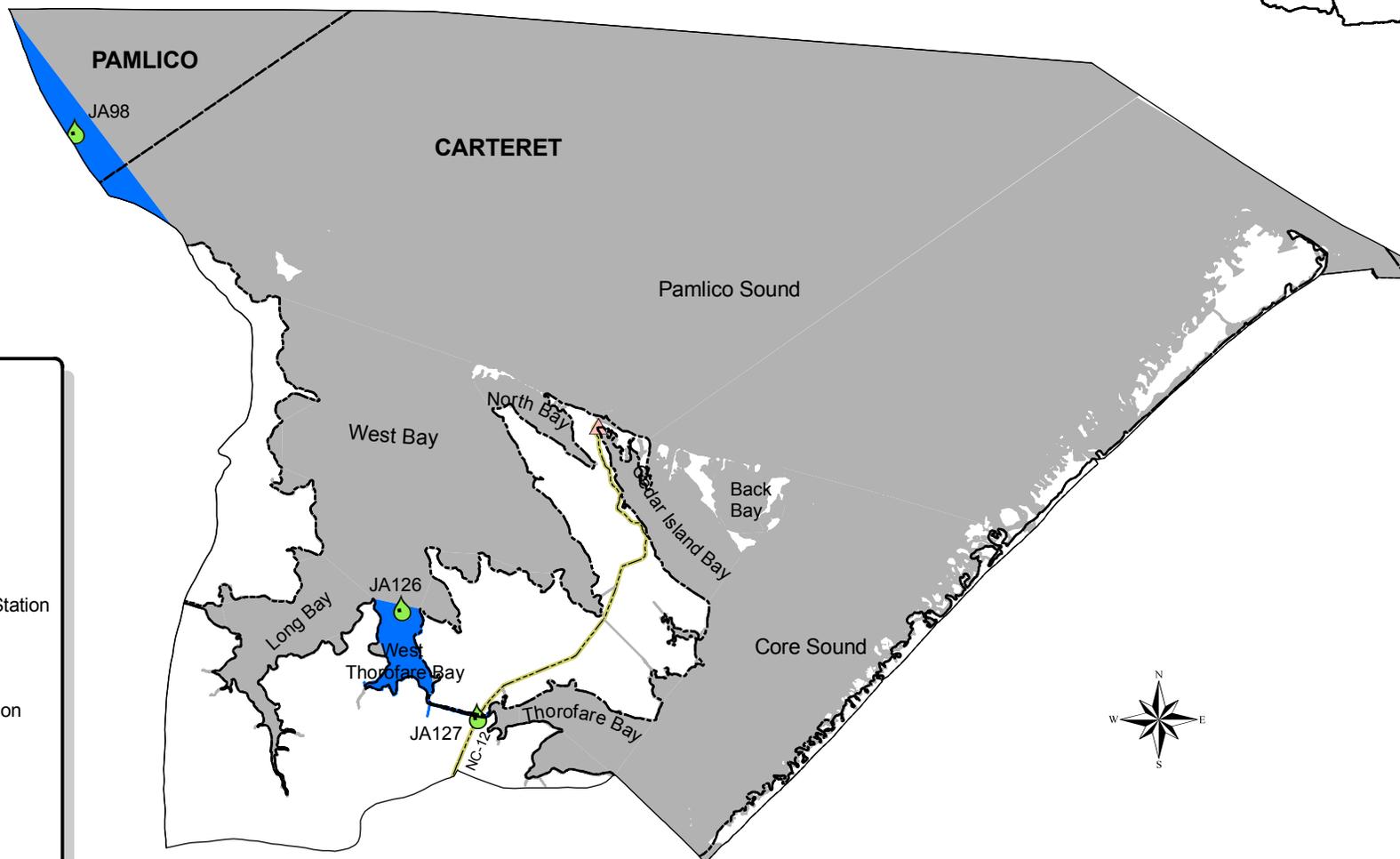
A map including the locations of the NPDES facilities and water quality monitoring stations is presented in Figure 36. Table 44 contains a list of assessment unit numbers (AU#) and length, streams monitored, monitoring data types, locations and use support ratings for waters in the subbasin. Refer to http://h2o.enr.state.nc.us/tmdl/General_303d.htm for more information about use support methodology.

Waters in the following sections and in Table 44 are identified by an assessment unit number (AU#). This number is used to track defined segments in the water quality assessment database, list 303(d) Impaired waters and identify waters throughout the basin plan. The AU# is a subset of the DWQ index number (classification identification number). A letter attached to the end of the AU# indicates that the assessment is smaller than the DWQ index segment. No letter indicates that the AU# and the DWQ index segment are the same.

14.2 Use Support Assessment Summary

All surface waters in the state are assigned a classification appropriate to the best-intended use of that water. Waters are regularly assessed by DWQ to determine how well they are meeting their best-intended use. For more information about the use support assessment, refer to http://h2o.enr.state.nc.us/tmdl/General_303d.htm. Appendix X provides definitions of the terms used throughout this basin plan.

Figure 36 Neuse River Subbasin 03-04-14



Legend

- Subbasin Boundary
- County Boundary
- Municipality
- Primary Roads

Monitoring Stations

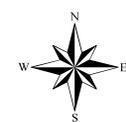
- Ambient Monitoring Station
- Benthic Community
- Fish Community
- Lake Monitoring Station

NPDES Dischargers

- Major
- Minor

Aquatic Life Rating

- Impaired
- No Data
- Not Rated
- Supporting



Planning Section
 Basinwide Planning Unit
 October 25, 2007

Table 44 Neuse River Basin

Subbasin (WBD-8 Number) 03020105

DWQ Subbasin

03-04-14

Assessment Unit Number	Name	Overall Category	Potential Stressors	Use Support Category	Use Support Rating	Reason for Rating	Parameter of Interest	Collection Year	Listing Year	IR Category
Description	DWQ Subbasin	Miles/Acres	Potential Sources							
Watershed (WBD-10 Number) 0302010502				Pamlico Sound-Ocracoke Inlet						
Subwatershed (WBD-12 Number) 030201050206				Town of Portsmouth-Portsmouth Island						
27-148.5	Neuse-Southeast Pamlico Sound ORW Area	2		Shellfish Harvesting	Supporting	No Criteria Exceeded	Approved Growing Area	2006		1
All waters within a line beginning at the southwest tip of Ocracoke Island, and extending northwest along the Tar-Pamlico River Basin and Neuse River Basin boundary line to Lat. 35 06'50", Long 76 06'30", thence in a southwest direction to Ship Point										
SA;ORW,NSW	03-04-14	38,582.8	S Acres							
Watershed (WBD-10 Number) 0302010504				Cape Lookout Shoals-Core Banks						
Subwatershed (WBD-12 Number) 030201050401				Core Banks-Drum Inlet						
27-149	Core Sound	2		Shellfish Harvesting	Supporting	No Criteria Exceeded	Approved Growing Area	2006		1
From Northeastern limit of White Oak River Basin (a line from Hall Point to Drum Inlet) to Pamlico Sound										
SA;ORW,NSW	03-04-14	18,201.7	S Acres							
27-149-1	Thorofare Bay	4cs	Fecal Coliform Bacteria Stormwater Runoff	Shellfish Harvesting	Impaired	Loss of Use	Cond Approved-Open Growing Area	2006	2008	4cs
From source to Core Sound										
SA;ORW,NSW	03-04-14	1,674.5	S Acres							
27-149-1-1	Thorofare	4cs	Fecal Coliform Bacteria Stormwater Runoff	Aquatic Life	Supporting	No Criteria Exceeded	Water Quality Standards Aquatic Life	2006		1
From West Thorofare Bay to Thorofare Bay										
SA;HQW,NSW	03-04-14	34.9	S Acres	Nickel	Recreation	Supporting	Fecal Coliform (recreation)	2006		1
				Shellfish Harvesting	Impaired	Loss of Use	Prohibited Growing Area	2006	2004	4cs
27-149-1-2	Merkle Hammock Creek	4cs	Fecal Coliform Bacteria Stormwater Runoff	Shellfish Harvesting	Impaired	Loss of Use	Cond Approved-Open Growing Area	2006	2008	4cs
From source to Thorofare Bay										
SA;NSW,ORW	03-04-14	186.0	S Acres							
27-149-1-3	Barry Bay	4cs	Fecal Coliform Bacteria Stormwater Runoff	Shellfish Harvesting	Impaired	Loss of Use	Cond Approved-Open Growing Area	2006	2008	4cs
From source to Thorofare Bay										
SA;ORW,NSW	03-04-14	606.6	S Acres							
27-149-2	Rumley Bay	2		Shellfish Harvesting	Supporting	No Criteria Exceeded	Approved Growing Area	2006		1
From source to Core Sound										
SA;ORW,NSW	03-04-14	167.7	S Acres							

Table 44 Neuse River Basin

Subbasin (WBD-8 Number) 03020105

DWQ Subbasin

03-04-14

Assessment Unit Number		Name		Overall Category	Potential Stressors Potential Sources	Use Support Category	Use Support Rating	Reason for Rating	Parameter of Interest	Collection Year	Listing Year	IR Category
Description	Classification	DWQ Subbasin	Miles/Acres									
27-149-4-2-2	Noras Cove			2		Shellfish Harvesting	Supporting	No Criteria Exceeded	Approved Growing Area	2006		1
Entire Cove												
SA;ORW,NSW	03-04-14	29.6	S Acres									
27-149-4-2-3	End of Island Slough			2		Shellfish Harvesting	Supporting	No Criteria Exceeded	Approved Growing Area	2006		1
From Pamlico Sound to Back Bay												
SA;ORW,NSW	03-04-14	2.8	S Acres									
27-149-4-2-4	Snake Gut			2		Shellfish Harvesting	Supporting	No Criteria Exceeded	Approved Growing Area	2006		1
From Pamlico Sound to Back Bay												
SA;ORW,NSW	03-04-14	4.8	S Acres									
27-149-4-2-7	Drum Pond			2		Shellfish Harvesting	Supporting	No Criteria Exceeded	Approved Growing Area	2006		1
From source to Back Bay												
SA;ORW,NSW	03-04-14	0.3	S Acres									
27-149-4-2-8	Goose Bay			2		Shellfish Harvesting	Supporting	No Criteria Exceeded	Approved Growing Area	2006		1
Entire Bay												
SA;ORW,NSW	03-04-14	33.4	S Acres									
27-149-4-2-8-1	Oyster Creek			2		Shellfish Harvesting	Supporting	No Criteria Exceeded	Approved Growing Area	2006		1
From Core Sound to Goose Bay												
SA;ORW,NSW	03-04-14	45.8	S Acres									
27-149-4-2-9	Great Ditch			2		Shellfish Harvesting	Supporting	No Criteria Exceeded	Approved Growing Area	2006		1
From Core Sound to Goose Bay												
SA;ORW,NSW	03-04-14	47.6	S Acres									

Watershed (WBD-10 Number) 0302020407

Neuse River

Subwatershed (WBD-12 Number) 030202040704

Turnagain Bay-Rattan Bay

27-148-1-6-1a	Old Canal			4cs	Fecal Coliform Bacteria Stormwater Runoff	Shellfish Harvesting	Impaired	Loss of Use	Cond Approved-Open Growing Area	2006	2004	4cs
From Turnagain Bay to 0.6 miles towards Stump Bay												
SA;HQW,NSW	03-04-14	6.4	S Acres									
27-148-1-6-1b	Old Canal			2		Shellfish Harvesting	Supporting	No Criteria Exceeded	Approved Growing Area	2006		1
From Stump Bay to 0.4 miles towards Turnagain Bay												
SA;HQW,NSW	03-04-14	4.0	S Acres									

Watershed (WBD-10 Number) 0302020409

Neuse River-Pamlico Sound

Table 44 Neuse River Basin

Subbasin (WBD-8 Number) 03020204

DWQ Subbasin

03-04-14

Assessment Unit Number	Name		Overall Category	Potential Stressors Potential Sources	Use Support Category	Use Support Rating	Reason for Rating	Parameter of Interest	Collection Year	Listing Year	IR Category
Description	DWQ Subbasin	Miles/Acres									
27-148-1-7	Piney Island Bay		2		Shellfish Harvesting	Supporting	No Criteria Exceeded	Approved Growing Area	2006		1
From source to Long Bay											
SA;HQW,NSW	03-04-14	57.7 S Acres									
27-148-1-8	Owens Bay		2		Shellfish Harvesting	Supporting	No Criteria Exceeded	Approved Growing Area	2006		1
From source to Long Bay											
SA;HQW,NSW	03-04-14	74.5 S Acres									
27-148-1-9	Jacks Bay		2		Shellfish Harvesting	Supporting	No Criteria Exceeded	Approved Growing Area	2006		1
From source to Long Bay											
SA;HQW,NSW	03-04-14	61.0 S Acres									
27-148-2-1	Bull Creek		2		Shellfish Harvesting	Supporting	No Criteria Exceeded	Approved Growing Area	2006		1
From source to West Thorofare Bay											
SA;HQW,NSW	03-04-14	13.2 S Acres									
27-148-2-2	Cadduggen Creek		2		Shellfish Harvesting	Supporting	No Criteria Exceeded	Approved Growing Area	2006		1
From source to West Thorofare Bay											
SA;HQW,NSW	03-04-14	2.5 S Acres									
27-148-2-3	Goose Bay		2		Shellfish Harvesting	Supporting	No Criteria Exceeded	Approved Growing Area	2006		1
From source to West Thorofare Bay											
SA;HQW,NSW	03-04-14	46.2 S Acres									
27-148-2a	West Thorofare Bay		4cs	Fecal Coliform Bacteria Stormwater Runoff	Shellfish Harvesting	Impaired	Loss of Use	Prohibited Growing Area	2006	2004	4cs
From source 0.4 miles downstream of source											
SA;HQW,NSW	03-04-14	1.8 S Acres									
27-148-2b	West Thorofare Bay		2		Aquatic Life	Supporting	No Criteria Exceeded	Water Quality Standards Aquatic Life	2006		1
From 0.03 miles downstream of source to West Bay											
SA;HQW,NSW	03-04-14	1,016.3 S Acres									
					Recreation		No Criteria Exceeded	Fecal Coliform (recreation)	2006		1
					Shellfish Harvesting		No Criteria Exceeded	Approved Growing Area	2006		1
27-148-3	Merkle Bay		2		Shellfish Harvesting	Supporting	No Criteria Exceeded	Approved Growing Area	2006		1
From source to West Bay											
SA;HQW,NSW	03-04-14	336.1 S Acres									

Subwatershed (WBD-12 Number) 030202040902

Cedar Island-West Bay

Table 44 Neuse River Basin

Subbasin (WBD-8 Number) 03020204

DWQ Subbasin

03-04-14

Assessment Unit Number	Name		Overall Category	Potential Stressors Potential Sources	Use Support Category	Use Support Rating	Reason for Rating	Parameter of Interest	Collection Year	Listing Year	IR Category
Description	DWQ Subbasin	Miles/Acres									
27-147.5b	PAMLICO SOUND		2		Shellfish Harvesting	Supporting	No Criteria Exceeded	Approved Growing Area	2006		1
Southern portion Pamlico within Neuse River Basin subbasin 030414 with the exception of DEH prohibited area at mouth of Cedar Island Ferry Harbor											
SA;HQW,NSW	03-04-14	84,692.5 S Acres									
27-148-10	North Bay		2		Shellfish Harvesting	Supporting	No Criteria Exceeded	Approved Growing Area	2006		1
From source to West Bay											
SA;HQW,NSW	03-04-14	958.4 S Acres									
27-148-4	Deep Bend		2		Shellfish Harvesting	Supporting	No Criteria Exceeded	Approved Growing Area	2006		1
From source to West Bay											
SA;HQW,NSW	03-04-14	241.2 S Acres									
27-148-5	Nameless Bay		2		Shellfish Harvesting	Supporting	No Criteria Exceeded	Approved Growing Area	2006		1
From source to West Bay											
SA;HQW,NSW	03-04-14	75.5 S Acres									
27-148-6	Green Point Cove		2		Shellfish Harvesting	Supporting	No Criteria Exceeded	Approved Growing Area	2006		1
From source to West Bay											
SA;HQW,NSW	03-04-14	100.3 S Acres									
27-148-7	Dowdy Bay		2		Shellfish Harvesting	Supporting	No Criteria Exceeded	Approved Growing Area	2006		1
From source to West Bay											
SA;HQW,NSW	03-04-14	157.6 S Acres									
27-148-8	Point of Island Bay		2		Shellfish Harvesting	Supporting	No Criteria Exceeded	Approved Growing Area	2006		1
From source to West Bay											
SA;HQW,NSW	03-04-14	115.5 S Acres									
27-148-9	Newstump Bay		2		Shellfish Harvesting	Supporting	No Criteria Exceeded	Approved Growing Area	2006		1
From source to West Bay											
SA;HQW,NSW	03-04-14	176.6 S Acres									
Subwatershed (WBD-12 Number) 030202040903											
Portsmouth Island-Pamlico Sound											
27-147.5c	PAMLICO SOUND		4cs	Fecal Coliform Bacteria	Shellfish Harvesting	Impaired	Loss of Use	Prohibited Growing Area	2006	2004	4cs
DEH prohibited area at Cedar Island Ferry Harbor in southern portion Pamlico within Neuse River Basin subbasin 030414											
SA;HQW,NSW	03-04-14	12.5 S Acres		Marina Stormwater Runoff							

Table 44 Neuse River Basin

Subbasin (WBD-8 Number) 03020204

DWQ Subbasin

03-04-14

Assessment Unit Number	Name		Overall Category	Potential Stressors	Use Support Category	Use Support Rating	Reason for Rating	Parameter of Interest	Collection Year	Listing Year	IR Category
Description	DWQ Subbasin	Miles/Acres		Potential Sources							
27-149-4-2-5	Fullers Ditch		2		Shellfish Harvesting	Supporting	No Criteria Exceeded	Approved Growing Area	2006		1
From Pamlico Sound to Back Bay											
SA;ORW,NSW	03-04-14	6.9 S Acres									
27-149-4-2-6	The Passage		2		Shellfish Harvesting	Supporting	No Criteria Exceeded	Approved Growing Area	2006		1
From Pamlico Sound to Back Bay											
SA;ORW,NSW	03-04-14	70.6 S Acres									
27-149-4-2-6-1	Deep Slough		2		Shellfish Harvesting	Supporting	No Criteria Exceeded	Approved Growing Area	2006		1
From Pamlico Sound to The Passage											
SA;ORW,NSW	03-04-14	3.8 S Acres									
				Subwatershed (WBD-12 Number) 030202040904							
27-147.5c	PAMLICO SOUND		4cs	Fecal Coliform Bacteria	Shellfish Harvesting	Impaired	Loss of Use	Prohibited Growing Area	2006	2004	4cs
DEH prohibited area at Cedar Island Ferry Harbor in southern portion Pamlico within Neuse River Basin subbasin 030414				Marina							
SA;HQW,NSW	03-04-14	12.5 S Acres		Stormwater Runoff							

Note:

See Section 23.3 for Overall and IR Category explanation.

Supporting waters are listed in Categories 1-3.

Impaired waters are listed in Categories 4 or 5.

Refer to Table 45 for a summary of use support for waters in subbasin 03-04-14 (see Chapter 23, Section 23.3 for description of the IR category (for each parameter of interest) and Overall (river segment) category).

14.3 Status and Recommendations of Previously and Newly Impaired Waters

The following waters were either identified as Impaired in the previous basin plan (2002) or are newly Impaired based on recent data. If previously identified as Impaired, the water will either remain on the state's 303(d) list or will be delisted based on recent data showing water quality improvements. If the water is newly Impaired, it will likely be placed on the 2008 303(d) list. The current status and recommendations for addressing these waters are presented below, and each is identified by an AU#. Information regarding 303(d) listing and reporting methodology can be found at http://h2o.enr.state.nc.us/tmdl/General_303d.htm.

Table 45 Summary of Use Support Ratings in Subbasin 03-04-14

Units	Total Monitored Waters		Total Impaired Waters		Total Supporting Waters		Total Not Rated Waters		Total No Data	Total
	Miles/ Acres	Miles/ Acres	%	Miles/ Acres	%	Miles/ Acres	Miles/ Acres	Miles/ Acres	Miles/ Acres	
Estuarine River miles	19	19	100.0	0	0.0	0	0	0	19	
Estuarine acres	171,419	2,536	1	168,883	99	0	0	0	171,419	

% - Percent of total miles/acres.

14.3.1 Division of Environmental Health Growing Area F-3

Table 46 Shellfish Growing Area F-3 Classifications

Class SA Water	Assessment Unit #	AU Length	Growing Area Classification ¹	DWQ Shellfish Rating ²	DEH Growing Area
Turnagain Bay	27-137	1556.75	CAO	I	F-2, F-3
PAMLICO SOUND	27-147.5a	64244.00	APP	S	F-3, F-6
PAMLICO SOUND	27-147.5b	84692.50	APP	S	F-2, F-3, F-4
Long Bay	27-148-1	3227.79	APP	S	F-3
Flag Creek	27-148-1-1	4.74	APP	S	F-3
Golden Creek	27-148-1-2	9.70	APP	S	F-3
Golden Creek	27-148-1-2	9.70	APP	S	F-3
Benneys Creek	27-148-1-3	2.60	APP	S	F-3
Henrys Creek	27-148-1-4	2.75	APP	S	F-3
Fur Creek	27-148-1-5	7.33	APP	S	F-3
Stump Bay	27-148-1-6	101.83	APP	S	F-3
Old Canal	27-148-1-6-1a	6.43	CAO	I	F-3
Old Canal	27-148-1-6-1b	4.05	APP	S	F-3
Piney Island Bay	27-148-1-7	57.75	APP	S	F-3
Owens Bay	27-148-1-8	74.46	APP	S	F-3
Jacks Bay	27-148-1-9	61.00	APP	S	F-3
Bull Creek	27-148-2-1	13.18	APP	S	F-3
Cadduggen Creek	27-148-2-2	2.52	APP	S	F-3

Class SA Water	Assessment Unit #	AU Length	Growing Area Classification ¹	DWQ Shellfish Rating ²	DEH Growing Area
Goose Bay	27-148-2-3	46.22	APP	S	F-3
West Thorofare Bay	27-148-2a	1.82	PRO	I	F-3
West Thorofare Bay	27-148-2b	1016.35	APP	S	F-3
Merkle Bay	27-148-3	336.14	APP	S	F-3
Deep Bend	27-148-4	241.24	APP	S	F-3
Nameless Bay	27-148-5	75.46	APP	S	F-3
Green Point Cove	27-148-6	100.28	APP	S	F-3
Dowdy Bay	27-148-7	157.61	APP	S	F-3
Point of Island Bay	27-148-8	115.48	APP	S	F-3
Newstump Bay	27-148-9	176.60	APP	S	F-3
Thorofare	27-149-1-1	34.92	PRO	I	F-3, F-4

1 - Growing Area Classifications: APP – Approved; CAO – Conditionally Approved-Open; CAC – Conditionally Approved-Closed; RES – Restricted; PRO- Prohibited.

2 - DWQ Shellfish Rating: S – Supporting; I - Impaired

The following DWQ Class SA waters and the Impaired assessment units associated with these waters are located within Growing Area F-3. If the entire Class SA water is located within more than one growing area it is noted in Table 46 above. See shellfish harvesting use support and growing area map in Chapter 10 section 10.3.4 (Figures 17 and 18).

According to the *Sanitary Survey of Neuse River Area, Area F-3 & F-4, (DEH. Shellfish Sanitation Unit, September 2006)*, there have been little water quality changes since the last survey. These areas are rather remote and are generally not affected by freshwater runoff due to the small watershed and lack of major tributaries. Rainfall normally has little effect on the approved waters of this area except during extremely heavy rainfall events (hurricanes or other severe coastal storm events), which cause temporary closures.

Area F-3 is composed of waters of the West Bay area and covers approximately 30 square miles. This area is predominately marsh and open water, with little human presence (permanent population is less than 100) that is not expected to change in the future. Oyster production is considered fair, and there is no commercial clam production in the West Bay area.

There are no marinas, however there is one large docking facility at Piney Island as well as a smaller docking area and boat ramp on the mainland. The wastewater treatment facility on Piney Island appears to be functioning well as were all the individual onsite wastewater system in the area F-3.

Stormwater runoff from a small portion of Open Grounds Farm drains into the head of Long Bay, and could contain high levels of bacteria and nutrients. Given this area is predominately marsh and open water, there are an abundant of waterfowl and small mammals that may contribute fecal coliform bacteria to this watershed as well.

Assessment of the shellfish harvesting area F-3 resulted in little change in bacterial water quality.

14.3.2 Division of Environmental Health Growing Area F-4

Table 47 Shellfish Growing Area F-4 Classifications

Class SA Water	Assessment Unit #	AU Length	Growing Area Classification ¹	DWQ Shellfish Rating ²	DEH Growing Area
PAMLICO SOUND	27-147.5b	84692.50	APP	S	F-2, F-3, F-4
PAMLICO SOUND	27-147.5c	12.50	PRO	I	F-4
Neuse-Southeast Pamlico Sound ORW Area	27-148.5	38582.81	APP	S	F-4
North Bay	27-148-10	958.44	APP	S	F-4
Core Sound	27-149	18201.66	APP	S	F-4
Thorofare Bay	27-149-1	1674.52	CAO	I	F-4
Thorofare	27-149-1-1	34.92	PRO	I	F-3, F-4
Merkle Hammock Creek	27-149-1-2	185.99	CAO	I	F-4
Barry Bay	27-149-1-3	606.61	CAO	I	F-4
Rumley Bay	27-149-2	167.69	APP	S	F-4
John Day Ditch	27-149-2-1	2.45	APP	S	F-4
Lewis Creek	27-149-3	72.30	APP	S	F-4
Southwest Prong Lewis Creek	27-149-3-1	11.77	APP	S	F-4
Big Gut	27-149-3-2	1.91	APP	S	F-4
Cedar Island Bay	27-149-4	2856.95	APP	S	F-4
Great Pond	27-149-4-1	2.97	PRO	I	F-4
Back Bay	27-149-4-2	850.55	APP	S	F-4
Great Pond	27-149-4-2-1	42.54	APP	S	F-4
Hog Island Narrows	27-149-4-2-10	11.49	APP	S	F-4
Noras Cove	27-149-4-2-2	29.56	APP	S	F-4
End of Island Slough	27-149-4-2-3	2.76	APP	S	F-4
Snake Gut	27-149-4-2-4	4.80	APP	S	F-4
Fullers Ditch	27-149-4-2-5	6.92	APP	S	F-4
The Passage	27-149-4-2-6	70.65	APP	S	F-4
Deep Slough	27-149-4-2-6-1	3.83	APP	S	F-4
Drum Pond	27-149-4-2-7	0.26	APP	S	F-4
Goose Bay	27-149-4-2-8	33.35	APP	S	F-4
Oyster Creek	27-149-4-2-8-1	45.82	APP	S	F-4
Great Ditch	27-149-4-2-9	47.62	APP	S	F-4

1 - Growing Area Classifications: APP – Approved; CAO – Conditionally Approved-Open; CAC – Conditionally Approved-Closed; RES – Restricted; PRO- Prohibited.

2 - DWQ Shellfish Rating: S – Supporting; I – Impaired.

The following DWQ Class SA waters and the Impaired assessment units associated with these waters are located within Growing Area F-4. If the entire Class SA water is located within more than one growing area it is noted in Table 47 above. See shellfish harvesting use support and growing area map in Chapter 10 section 10.3.4 (Figures 17 and 18).

According to the *Sanitary Survey of Neuse River Area, Area F-3 & F-4*, (DEH. Shellfish Sanitation Unit, September 2006), there have been little water quality changes since the last survey. These areas are rather remote and are generally not affected by freshwater runoff due to the small watershed and lack of major tributaries. Rainfall normally has little effect on the approved waters of this area except during extremely heavy rainfall events (hurricanes or other severe coastal storm events), which cause temporary closures.

Area F-4 consists of the waters of Thorofare Bay, Cedar Island, Back Bay, eastern Core Sound and the southern portion of the Pamlico Sound. There are approximately 300 square miles of water and marshland that is rather isolated and remote. The eastern boundary of the area contains a chain of uninhabited barrier islands. This area in the past has been one of the better oyster producing regions of the state. Clam production continues to be good. The permanent population in this area is just over 300, and little to no population growth can be expected in the future.

There is one marina within the F-4 area, the Cedar Island Community Harbor. This marina had 75 slips in the past but due to storm damage, as of the 2006 survey, there are only 45 slips.

A boat basin is maintained adjacent to the Quality Seafood Fish House. There are a total of eight boat slips within the basin. There are several floor drains in and around the processing area of the fish house that drain directly onto the basin without treatment. The stormwater from the surrounding area drains into the basin as well. This basin is closed to shellfish harvesting.

The Cedar Island Ferry Terminal is also located at the northern end of the island. The ferry terminal basin and the small adjacent boat ramp basin are closed to shellfish harvesting.

There is a large network of ditches draining the roads and residential areas on Cedar Island. One area of particular concern is from Lola near the start of Cedar Island. A large canal was dug to drain several surrounding properties and has since shoaled over at the mouth. The canal receives runoff that lies stagnant much of the time. During heavy rains, the canal fills and flows into the bay and potentially releasing pulses of contaminated water.

There is also a large horseback riding facility next to the ferry terminal. Horses are rode and often allowed to roam free on the beach or in the marsh areas. There is also a large herd of cows that roams free along to beach on the north side of Cedar Island. These are both a potential source of bacterial contamination.

All of the homes within this area are served by individual on-site wastewater systems, those inspected during this survey were found to be functioning properly. Other pollution sources in this area include waterfowl and other wildlife.

Assessment of the shellfish harvesting area F-4 resulted in little change in bacterial water quality. One change in classifications was made at the boat basin at Quality Seafood in Cedar Island. It was reclassified from Approved to Prohibited due to potential pollution sources. Several changes in sampling stations will be made in order to more effectively monitor these areas.

14.3.3 Division of Environmental Health Growing Area F-7

Please see Chapter 13 section 13.3.4 for information on growing area F-7. Growing area F-7 encompasses part of subbasin 13 and 14.

14.4 Status and Recommendations for Waters with Noted Impacts

The surface waters discussed below are not Impaired. However, notable water quality problems and concerns were documented for these waters during this assessment. Attention and resources should be focused on these waters to prevent additional degradation and facilitate water quality

improvements. DWQ will notify local agencies of these water quality concerns and work with them to conduct further assessments and to locate sources of water quality protection funding. Additionally, education on local water quality issues and voluntary actions are useful tools to prevent water quality problems and to promote restoration efforts. The current status and recommendations for addressing these waters are presented below, and each is identified by an AU#. Nonpoint source program agency contacts are listed in Appendix IV.

14.4.1 West Thorofare Bay [27-148-2b]

Current Status

West Thorofare Bay [27-148-2b; SA; HQW; NSW] from 0.3 miles downstream of source to West Bay (1,016.3 saltwater acres) is Supporting for aquatic life and recreational uses due to No Criteria Exceeded at ambient monitoring station JA126. The geometric mean of the 14 fecal coliform bacteria samples collected at this was 2 CFU/100 ml.

This station was discontinued in July 2002.

This segment is also Supporting shellfish harvesting due to a DEH rating of approved.

Recommendation

DWQ recommends the use of BMPs throughout this watershed to reduce stormwater runoff which carries bacteria which leads to shellfish harvesting and beach closures.

14.4.2 Thorofare [27-149-1-1]

Current Status

Thorofare [27-149-1-1; SA; HQW; NSW] from West Thorofare Bay to Thorofare Bay (34.9 saltwater acres) is Supporting for aquatic life and recreational uses due to No Criteria Exceeded at ambient monitoring station JA127. The geometric mean of the 17 fecal coliform bacteria samples collected at this was 4 CFU/100 ml.

This site was also discontinued in July 2002.

This segment is Impaired for shellfish harvesting due to a DEH rating of prohibited.

Recommendation

DWQ recommends the use of BMPs throughout this watershed to reduce stormwater runoff which carries bacteria which leads to shellfish harvesting and beach closures.

14.5 Additional Water Quality Issues within Subbasin 03-04-14

The previous sections discussed water quality concerns for specific stream segments. The following section discusses issues that may threaten water quality in the subbasin that are not specific to particular streams, lakes, or reservoirs. The issues discussed may be related to waters near certain land use activities or within proximity to different pollution sources.

14.5.1 Mercury Contamination – Fish Tissue Assessment

The Division conducted fish tissue surveys at four stations within the Neuse River Basin from 1999 to 2004. These surveys were conducted as part of the mercury contaminant assessments in the eastern part of the state and during statewide pesticide assessments.

Tissue samples collected from the Neuse River at Goldsboro contained organic contaminants at undetectable levels or at levels less than the US EPA, US FDA, and State of North Carolina criteria. The Goldsboro samples consisted of composites of largemouth bass.

Elevated mercury concentrations (greater than the EPA and NC level of 0.4 ppm) were detected in fish samples collected from all four stations within the Neuse Basin. These included the Eno River near Durham, Neuse River at Goldsboro, Neuse River at Kinston, and Contentnea Creek at Snow Hill. Elevated levels were most often detected in largemouth bass, a species at the top of the food chain and most often associated with mercury bioaccumulation in North Carolina. Presently, there are no site-specific fish consumption advisories for mercury in the Neuse River basin; however, an advisory for the consumption of bowfin, and chain pickerel east of Interstate 85 was issued by NCDHHS in 2002 and a statewide advisory for the consumption of largemouth bass in 2006.

Because fish spend their entire lives in the aquatic environment, they incorporate chemicals from this environment into their body tissues. Contamination of aquatic resources has been documented for heavy metals, pesticides, and other complex organic compounds. Once these contaminants reach surface waters, they may be available for bioaccumulation, either directly or through aquatic food webs, and may accumulate in fish and shellfish tissues. Results from fish tissue monitoring can serve as an important indicator of further contamination of sediments and surface water.