

**Section B - Chapter 8**  
**Tar-Pamlico River Subbasin 03-03-08**  
**Pamlico Sound, Lake Mattamuskeet and Swanquarter Bay**

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**8.1 Subbasin Overview**

*Subbasin 03-03-08 at a Glance*

**Land and Water Area**

Total area: 1,220.0 mi<sup>2</sup>  
Land area: 356.1 mi<sup>2</sup>  
Water area: 863.9 mi<sup>2</sup>

**Population Statistics**

2000 Est. Pop.: 9,053 people  
Pop. Density: 25 persons/mi<sup>2</sup>

**Land Cover (percent)**

Forest/Wetland: 21.3  
Surface Water: 71.0  
Urban: 0.2  
Cultivated Crop: 7.3  
Pasture/  
Managed Herbaceous: 0.2

**Counties**

Carteret, Dare, Hyde and Pamlico

**Municipalities**

Swanquarter and Englehard

With the exception of the Outer Banks, this subbasin is one of the most rural on the coast. Lake Mattamuskeet and the Swanquarter National Wildlife Refuges also cover large areas in this subbasin. The predominant land cover is forest and wetland with some cultivated cropland.

There are seven NPDES wastewater discharge permits in this subbasin with a total permitted flow of 0.58 MGD (Figure B-8). There is also one general NPDES stormwater permit in the subbasin. Refer to Appendix I for identification and more information on individual NPDES permit holders. Significant issues related to compliance with NPDES permit conditions are discussed below. There are also four registered animal operations in this subbasin.

Fish tissue data have been from the Atlantic Ocean in this subbasin. DEH monitors four swimming areas and five shellfish growing areas in the basin as well (Figure B-8 and Table B-15).

Refer to *2003 Tar-Pamlico River Basinwide Assessment Report* at <http://www.esb.enr.state.nc.us/bar.html> and Section A, Chapter 3 for more information on monitoring.

Use support ratings for all waters in subbasin 03-03-08 are summarized in Part 8.2 below. Recommendations, current status and future recommendations for waters that were Impaired in 1999 are discussed in Part 8.3 below. Current status and future recommendations for newly Impaired waters are discussed in Part 8.4 below. Waters with noted water quality impacts are discussed in Part 8.5 below. Water quality issues related to the entire subbasin are discussed in Part 8.6. Refer to Appendix III for a complete list of monitored waters and more information on Supporting monitored waters.

Figure B-8 Tar-Pamlico River Subbasin 03-03-08

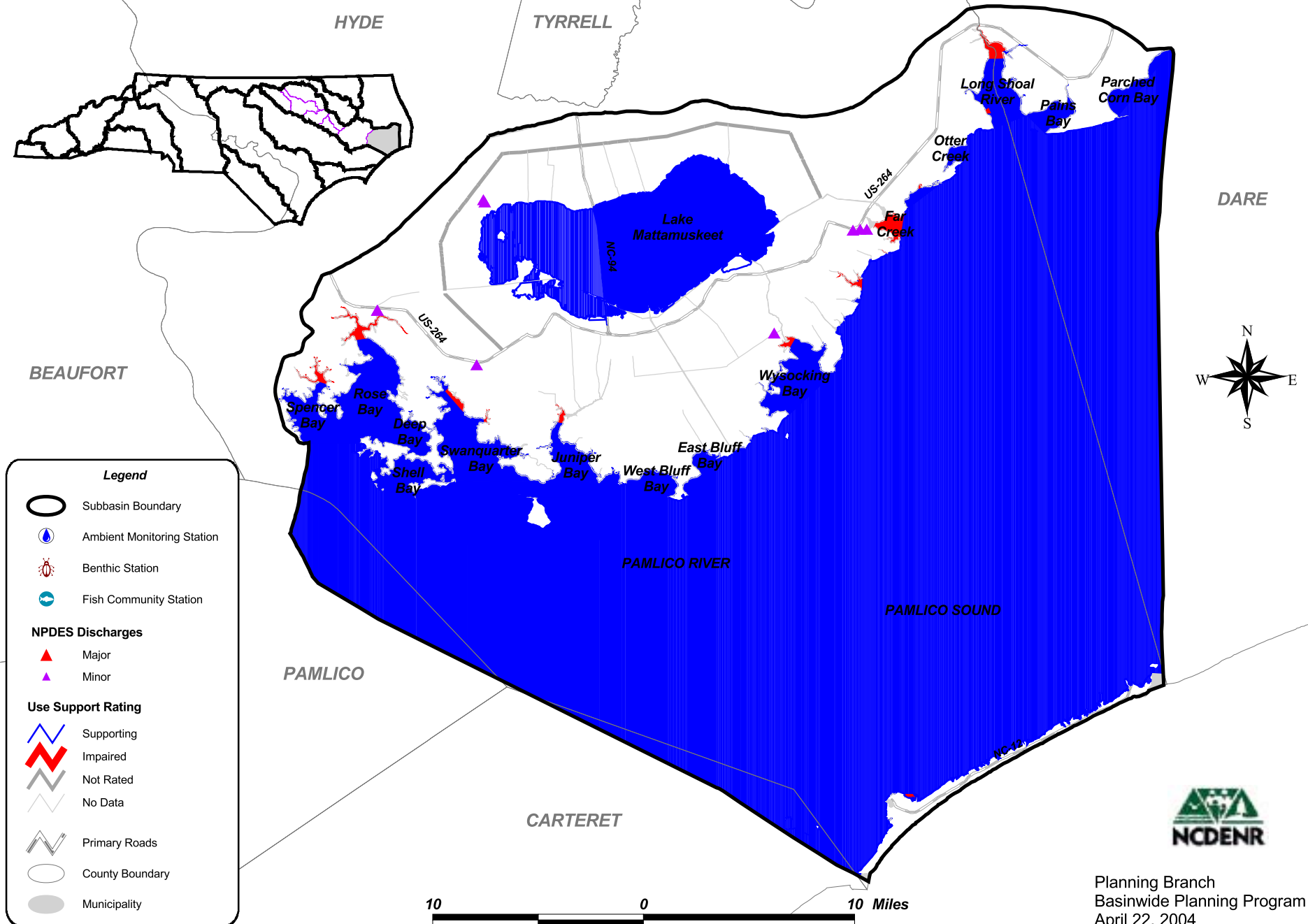


Table B-15 DWQ Assessment and Use Support Ratings Summary for Monitored Waters in Subbasin 03-03-08

Waterbody	Assessment Unit Number	DWQ Classification	Length/Area	Category	Data Type with Map Number and Data Results			Use Support Rating	
					Biological	Ambient	Other	2004	1998
Pamlico Sound Swanquarter Bay/Juniper Bay ORW Area, including the Northeast Swanquarter Bay Area	29-46.5	SA ORW	11,670.0 ac	AL		A-44 to A-46 nce		S	
Lake Mattamuskeet	29-57-1-1	SC	40,314.1 ac	AL			L-1 nce	S	
Swanquarter Bay	29-49a	SA ORW	136.2 ac	REC			DEH nce	S	
Atlantic Ocean	99-(6)	SB	17.3 mi	FC				I	
See Appendix III	89 segments	SA	505621.5 ac	SH			DEH nce	S	
See Appendix III	23 segments	SA	2404.6 mi	SH			DEH ce	I	

**Assessment Unit Number** - Portion of DWQ Classified Index where monitoring is applied to assign a use support rating.

<p><b>Use Categories:</b>                  AL - Aquatic Life                  REC - Recreation                  FC - Fish Consumption</p>	<p><b>Monitoring data type:</b>                  F - Fish Community Survey                  B - Benthic Community Survey                  SF - Special Fish Community Study                  SB - Special Benthic Community Study                  A - Ambient Monitoring Site                  L - Lakes Assessment                  FT - Fish Tissue Site</p>	<p><b>Bioclassifications:</b>                  E - Excellent      N - Natural                  G - Good            MS - Moderate Stress                  GF - Good-Fair    SS - Severe Stress                  F - Fair                  P - Poor</p>	<p><b>Use Support Ratings 2004:</b>                  S - Supporting, I - Impaired, NR - Not Rated</p> <p><b>Use Support Ratings 1998:</b>                  FS - fully supporting, ST - supporting but threatened,                  PS - partially supporting, NS - not supporting,                  NR - not rated, N/A - not applicable</p>
		<p><b>Ambient Data</b>                  nce - no criteria exceeded                  ce - criteria exceeded</p>	

## 8.2 Use Support Assessment Rating Summary

Use support ratings were assigned for waters in subbasin 03-03-08 in the aquatic life, recreation, fish consumption and shellfish harvesting categories. All waters are Impaired on an evaluated basis in the fish consumption category because of statewide fish consumption advice for mercury that is applied in this category to basins east and south of I-85 (page 90). Also, 17.3 Atlantic coastline miles are Impaired in the fish consumption category based on fish tissue monitoring data.

There were 509,926.1 estuarine acres (93 percent) monitored during this assessment period in the aquatic life category. There were no Impaired acres in the aquatic life category. There are 2,404.6 estuarine acres Impaired in the shellfish harvesting category. Refer to Table B-16 for a summary of use support ratings for waters in the subbasin 03-03-08.

Table B-16 Summary of Use Support Ratings by Category in Subbasin 03-03-08

Use Support Rating	Aquatic Life	Fish Consumption	Recreation	Shellfish Harvesting
<b>Monitored Waters</b>				
Supporting	509,926.1 Est ac	0	136.2 Est ac	505,621.5 Est ac
Impaired	0	17.3 coastline mi	0	2,404.6 Est ac
Not Rated	0	0	0	0
<b>Total</b>	<b>509,926.1 Est ac</b>	<b>17.3 coastline mi</b>	<b>136.2 Est ac</b>	<b>508,026.1 Est ac</b>
<b>Unmonitored Waters</b>				
Supporting	77.0 Est ac	0	0	0
Impaired	0	71.3 mi 548,788.2 Est ac	0	0
Not Rated	28.5 mi	0	0	0
No Data	42.7 mi 38,785.1 Est ac 17.3 coastline mi	0	71.3 mi 548,652.0 Est ac 17.3 coastline mi	0
<b>Total</b>	<b>71.3 mi 38,862.2 Est ac 17.3 coastline mi</b>	<b>71.3 mi 548,788.2 Est ac</b>	<b>71.3 mi 548,652.0 Est ac 17.3 coastline mi</b>	<b>0</b>
<b>Totals</b>				
<b>All Waters</b>	<b>71.3 mi 548,788.2 Est ac 17.3 coastline mi</b>	<b>71.3 mi 548,788.2 Est ac 17.3 coastline mi</b>	<b>71.3 mi 548,788.2 Est ac 17.3 coastline mi</b>	<b>508,026.1 Est ac</b>

## **8.3 Status and Recommendations of Previously Impaired Waters**

### **8.3.1 Impaired Class SA Waters**

Portions of Class SA waters were partially supporting in the 1999 basin plan because they were classified as prohibited to shellfish harvesting by DEH SS. No specific recommendations were made to address bacterial contamination in these waters in the 1999 basin plan. Because of changes in use support methodology, there are changes in the acreages and areas that are Impaired in the shellfish harvesting use category. These waters are discussed below in Part 8.4.2.

## **8.4 Status and Recommendations of Newly Impaired Waters**

Waters in the following section are identified by assessment unit number (AU#). This number is used to track defined segments in the water quality assessment database, 303(d) Impaired waters list, and the various tables in this basin plan. The assessment unit number 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 assessment unit and the DWQ index segment are the same.

### **8.4.1 Atlantic Ocean [AU# 99-(6)]**

#### *Current Status and 2002 Recommendations*

The Atlantic Ocean (17.3 coastline miles) is currently Impaired in the fish consumption category because there is a statewide consumption advice for mercury in fish tissue that is applied to waters east and south of I-85, including the Atlantic Ocean where king mackerel fish tissue was analyzed in 1999.

### **8.4.2 Impaired Shellfish Harvesting Waters (Class SA)**

#### *Current Status*

The following groups of waters are Impaired in the shellfish harvesting category. The current status is discussed briefly for each below. Recommendations are presented at the end of this section for all the Impaired waters. Refer to Appendix III for descriptions of the specific assessment units areas.

#### **Pamlico River [AU# 29-(40.5) b, c, d and e]**

Portions of the Pamlico River (759.3 acres) adjacent to Middle Town, Long and Far Creeks near Ocracoke are currently Impaired because these areas are prohibited or permanently closed to shellfish harvesting by DEH SS (page 51). Middle Town Creek and Far Creek are part of DEH shellfish growing area G-5. The Long Creek area is part of DEH shellfish growing area G-3. The Ocracoke area is part of DEH shellfish growing area G-6. DEH sanitary surveys indicate fair clam and oyster production in G-6, and good oyster production in G-5 and G-3.

**Rose Bay [AU# 29-44a] and Rose Bay Creek [AU# 29-44-1]**

Rose Bay and Rose Bay Creek (472.3 acres) are currently Impaired because these areas are prohibited or permanently closed to shellfish harvesting by DEH SS (page 51). These segments are part of DEH shellfish growing area G-3. DEH sanitary surveys indicate good oyster production in G-3, with no clam production.

**Germantown Bay and Tributaries [AU# 29-42-1a]**

Germantown Bay and tributaries (241.6 acres) are currently Impaired because these areas are prohibited or permanently closed to shellfish harvesting by DEH SS (page 51). Germantown Bay and tributaries are part of DEH shellfish growing area G-3. DEH sanitary surveys indicate good oyster production in G-3, with no clam production.

**Swanquarter Bay [AU# 29-49a]**

Swanquarter Bay and tributaries (171.5 acres) are currently Impaired because these areas are prohibited or permanently closed to shellfish harvesting by DEH SS (page 51). Swanquarter Bay and tributaries are part of DEH shellfish growing area G-3. DEH sanitary surveys indicate good oyster production in G-3, with no clam production.

**Juniper Bay [AU# 29-52a]**

Juniper Bay and tributaries (86.0 acres) are currently Impaired because these areas are prohibited or permanently closed to shellfish harvesting by DEH SS (page 51). Juniper Bay and tributaries are part of DEH shellfish growing area G-4. DEH sanitary surveys indicate fair oyster production in G-4, with no clam production.

**Wysocking Bay [AU# 29-60a]**

Wysocking Bay (126.3 acres) is currently Impaired because this area is prohibited or permanently closed to shellfish harvesting by DEH SS (page 51). Wysocking Bay is part of DEH shellfish growing area G-4. DEH sanitary surveys indicate fair oyster production in G-4, with no clam production.

**Middle Town Creek [AU# 29-66]**

Middle Town Creek (71.5 acres) is currently Impaired because this area is prohibited or permanently closed to shellfish harvesting by DEH SS (page 51). Middle Town Creek is part of DEH shellfish growing area G-5. DEH sanitary surveys indicate good oyster production in G-5, with no clam production.

**Cedar Creek [AU# 29-67]**

Cedar Creek (12.1 acres) is currently Impaired because this area is prohibited or permanently closed to shellfish harvesting by DEH SS (page 51). Cedar Creek is part of DEH shellfish growing area G-5. DEH sanitary surveys indicate good oyster production in G-5, with no clam production.

**Lone Tree Creek [AU# 29-69]**

Lone Tree Creek (1.8 acres) is currently Impaired because this area is prohibited or permanently closed to shellfish harvesting by DEH SS (page 51). Lone Tree Creek is part of DEH shellfish growing area G-5. DEH sanitary surveys indicate good oyster production in G-5, with no clam production.

### **Far Creek and Tributaries [AU# 29-70-(4)]**

Far Creek and tributaries (545.8 acres) are currently Impaired because these areas are prohibited or permanently closed to shellfish harvesting by DEH SS (page 51). Far Creek and tributaries are part of DEH shellfish growing area G-5. DEH sanitary surveys indicate good oyster production in G-5, with no clam production.

### **Berrys Bay [AU# 29-71a]**

Berrys Bay (1.8 acres) is currently Impaired because this area is prohibited or permanently closed to shellfish harvesting by DEH SS (page 51). Berrys Bay is part of DEH shellfish growing area G-5. DEH sanitary surveys indicate good oyster production in G-5, with no clam production.

### **Long Shoal River [AU# 29-73-(2) a and c]**

Long Shoal River and tributaries (455 acres) are currently Impaired because these areas are prohibited or permanently closed to shellfish harvesting by DEH SS (page 51). Long Shoal River and tributaries are part of DEH shellfish growing area G-5. DEH sanitary surveys indicate good oyster production in G-5, with no clam production.

#### 2004 Recommendations

DEH SS will continue to monitor bacterial water quality. DWQ, DEH, DCM are currently developing tools to better track water quality changes, make use support assessments, and support research in shellfish harvesting waters of North Carolina. The North Carolina Coastal Nonpoint Source Program (page 176) is developing a series of programs to help local governments address bacterial contamination in coastal waters. DWQ is also cooperating with DCM to assure that water quality problems identified in basinwide water quality plans are considered in development of local land use plans in coastal counties.

## **8.5 Status and Recommendations for Waters with Noted Impacts**

Waters in the following section are identified by assessment unit number (AU#). This number is used to track defined segments in the water quality assessment database, 303(d) Impaired waters list, and the various tables in this basin plan. The assessment unit number 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 assessment unit and the DWQ index segment are the same.

The surface waters discussed in this section are not Impaired. However, notable water quality problems and concerns have been documented for these waters based on this assessment. While these waters are not Impaired, attention and resources should be focused on these waters to prevent additional degradation or facilitate water quality improvement.

### **8.5.1 Lake Mattamuskeet [AU# 29-57-1-1]**

#### Current Status and 2004 Recommendations

Lake Mattamuskeet (40,314 acres) is currently Supporting in the aquatic life category based on lakes monitoring data at site L-1. Both nitrogen and turbidity were elevated during monitoring

in 2002. Lake levels were low during the drought and bottom material may have been mixed readily into the water column.

DWQ will continue to monitor water quality in Lake Mattamuskeet. Land-disturbing activities should implement BMPs to minimize or prevent future impacts to water quality in the Lake Mattamuskeet watershed.

### **8.5.2 Boundary Canal [AU# 29-70-5-2-1]**

#### *Current Status and 2004 Recommendations*

Boundary Canal (28.5 miles) is currently Not Rated in the aquatic life category because of six whole effluent toxicity failures at the Hyde County-Fairfield water treatment plant during the last two years of the assessment period.

DWQ is working with Hyde County to minimize potential impacts to aquatic life that may be caused by the discharge.

## **8.6 Additional Water Quality Issues within Subbasin 03-03-08**

This 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.

### **8.6.1 Impacts of Post-Hurricane De-Snagging on Instream Habitats**

Many streams in the subbasin have noted impacts from the recent hurricanes. The biological community in the streams can recover rapidly if instream habitat is maintained. De-snagging operations should carefully remove debris from stream channels to restore natural flow and leave enough instream habitats so the biological community can recover. For more information on this issue, refer to page 81.