

# Chapter 4 -

## White Oak River Subbasin 03-05-04

### Includes North River, Jarrett Bay, Nelson Bay and Core Sound

#### 4.1 Water Quality Overview

##### ***Subbasin 03-05-04 at a Glance***

###### **Land and Water Area (sq. mi.)**

Total area:	170
Land area:	102
Water area:	68

###### **Population Statistics**

1998 Est. Pop.:	8,514 people
Pop. Density:	83 persons/mi <sup>2</sup>

###### **Land Cover (%)**

Forest/Wetland:	35
Surface Water:	40
Urban:	1
Cultivated Cropland:	23
Pasture/ Managed Herbaceous:	1

###### **Water Area:**

Stream Miles:	6
Estuarine Acres:	39,498
Coastal Miles:	0
Shellfish Harvest Acres:	39,176

This subbasin contains major waterbodies, including North River, Jarrett Bay and Nelson Bay, plus the landward halves of Back Sound and Core Sound. A map of this subbasin, including water quality sampling locations, is presented in Figure B-7. Use support ratings for monitored waters are presented in Table B-7.

Atlantic, at the northern end of the subbasin, and Harkers Island, at the south, are the two most densely developed areas within the subbasin. A large part of the subbasin is in cultivated cropland (Open Grounds Farm).

Water quality in this subbasin is generally high. Ambient monitoring data at one station indicated drainage from swampy areas near Open Grounds Farm. Open Grounds Farm has implemented many BMPs over the years to reduce potential impacts from agricultural activities in this subbasin.

Most of this subbasin is estuarine with freshwater drainage from adjacent land. There are no freshwater streams in this subbasin. There are 39,176 acres of shellfish harvesting waters in the subbasin. Most of these

waters (25,958 acres) are classified as ORWs in the Core Sound. There are no coastal miles in this subbasin.

The most densely populated areas are near the Town of Atlantic in the northern part of the basin and Harkers Island in the southern portion. The Town of Beaufort discharges 1.2 MGD from its WWTP into Taylor Creek. Beaufort Fisheries also discharges 3 MGD of industrial wastewater to Taylor Creek. The other two wastewater discharges in the subbasin are small.

There are seven ambient monitoring sites in subbasin 03-05-04. The ambient site on Broad Creek detected dissolved oxygen and pH levels in excess of state standards; however, these levels were attributed to drainage of swampy waters in the watershed.

For more information, refer to the *White Oak River Basinwide Assessment Report* (June 2000) or contact Environmental Sciences Branch at (919) 733-9960 or visit the web site at <http://www.esb.enr.state.nc.us/>.

Figure B-7 North River and Tributaries to Core Sound Subbasin 03-05-04

CRAVEN

CARTERET

Atlantic

P8978000

P9740000

North

Sound

P8975000

P8976000

US-70

Core

P9730000

Beaufort

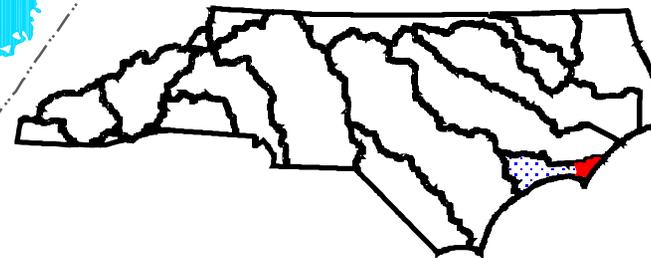
River

P8990000

Back

P9720000

Sound



**Legend**

- Subbasin Boundary
- Ambient Monitoring Station
- Benthic Station
- USGS Gaging Station
- County Boundary
- Primary Roads
- Hydrography
- Municipality



Planning Branch  
 Basinwide & Estuary Planning Unit  
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Table B-7 Use Support Ratings for Monitored Waters in Subbasin 03-05-04

Use Support Category	Use Support Ratings				
	FS	PS	NS	NR	Total
Aquatic Life and Secondary Recreation	4.4 mi. 37,705.8 ac	0	0	0 mi. 40.6 ac	4.4 mi. 37,746.4 ac
Fish Consumption	0	0	0	0	0
Primary Recreation	33,283.9 ac	0	0	0	33,283.9 ac
Shellfish Harvesting	0 mi. 27,642 ac	2.7 mi. 10,132 ac	0 mi. 1,403 ac	0	2.7 mi. 39,177 ac

## 4.2 Status and Recommendations for Previously Impaired Waters

This section reviews the status of recommendations made in the 1997 White Oak River Basinwide Water Quality Management Plan, reviews current status and use support ratings, and makes recommendations for the next five years. Previously impaired Class SA waters are discussed in Section 4.4 below. There were no other waters identified as impaired in the 1997 plan.

## 4.3 Status and Recommendations for Newly Impaired Waters

All waters in this subbasin are currently partially supporting (PS) on an evaluated basis for the fish consumption use support category because of a statewide fish consumption advisory for bowfin. Fish tissue samples were not collected in this subbasin. Refer to page 61 for more information on this issue. There are no other newly impaired waters in this subbasin. Class SA waters are discussed below in Section 4.4.

## 4.4 Impaired Class SA Waters

There are 39,177 acres and 2.7 stream miles of Class SA waters in subbasin 03-05-04 that were assessed in the shellfish harvesting use support category. In this subbasin, 11,535 acres (29%) are considered impaired in the shellfish harvesting use support category. There are 1,904 acres of ORW waters that impaired in Core Sound. Refer to Figure B-8 to identify locations of DEH SS growing areas and growing area classifications. Refer to page 49 for DEH SS growing area criteria. Data for making use support determinations were provided by DEH SS (refer to page 40). The larger water areas in this subbasin are described below with reference to DEH SS growing areas. The problem parameter for all waters listed below is fecal coliform bacteria contamination. Refer to page 49 for recommendations to address impaired Class SA waters.

The differences in acreage estimates between years are not necessarily related to changes in water quality, but to different methods of estimating acreage and changes in use support methodology. For more information on changes in use support methodology, refer to page 51.

Refer to Appendix III for use support methodology and a complete listing of individual monitored waters.

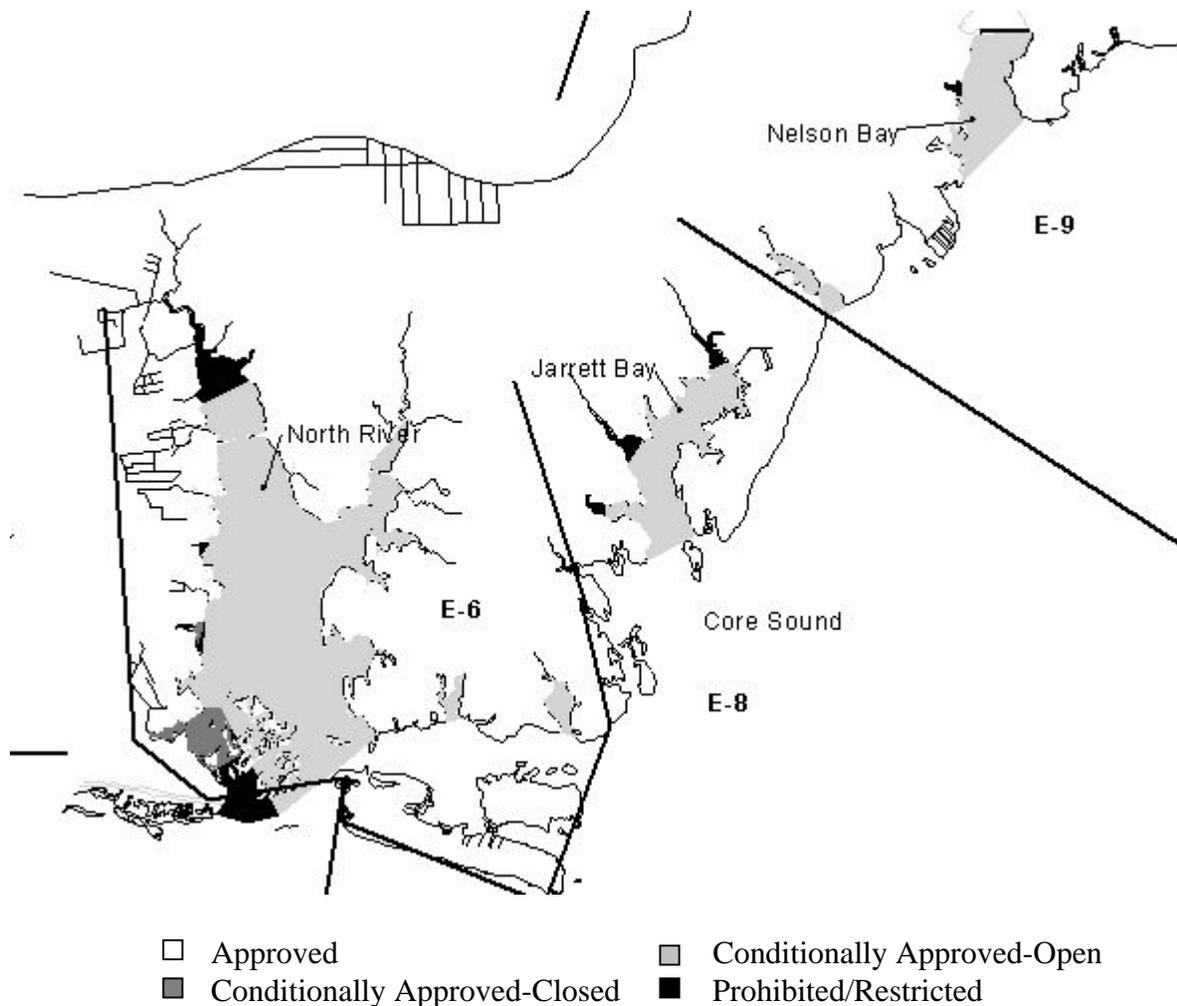


Figure B-8 DEH Shellfish Growing Area Classifications in Subbasin 03-05-04

**North River and Tributaries (Area E-6)**

There are 782 acres of the North River and adjacent bays and tributaries including Ward Creek, Goose Creek, The Straits, Davis Bay and a small portion of Back Sound that are not supporting shellfish harvesting. These areas are DEH SS classified as prohibited/restricted and permanently closed to shellfish harvesting. There are 361 acres of the North River, Newby Creek and Davis Bay that are also not supporting. These areas are DEH SS classified as conditionally approved-closed and were closed to shellfish harvesting most of the assessment period. The North River, Ward Creek and northern bays of the Straits (8,218 acres) are rated partially supporting. These areas are DEH SS classified as conditionally approved-open and were closed to shellfish harvesting from 11.7 percent to 16.6 percent of the five-year assessment period. The population of the area continues to grow around Beaufort. Potential sources of pollution include runoff from subdivisions, agricultural land and wildlife. Septic system problems have been noted around the community of North River (DENR, 1998g).

The North Carolina Coastal Federation with CWMTF funding has acquired 1,981 acres of wetlands adjacent to the North River to conduct a number of water quality enhancement projects. Refer to page 105 for more information on this project.

### **Core Sound and Western Bays and Tributaries (Areas E-8 and E-9)**

There are 261 acres of tributaries to Jarrett Bay and Nelson Bay that are not supporting shellfish harvesting. These areas are DEH SS classified as prohibited/restricted and permanently closed to shellfish harvesting. Jarrett Bay, Oyster Creek, Nelson Bay and adjacent areas of Core Sound (2,775 acres) are rated partially supporting. These areas are DEH SS classified as conditionally approved-open and were closed to shellfish harvesting from 11.0 percent to 13.7 percent of the five-year assessment period. Potential sources of pollution include runoff from subdivisions, agricultural land, domesticated animals, forestry practices and wildlife. Septic systems have been a noted problem in low lying areas (DENR, 1998i).

## **4.5 303(d) Listed Waters**

There are 1,335 acres in DEH growing areas E6 and portions of E8, E9, E5 and E7 in subbasin 03-05-04 that are on the year 2000 303(d) list. These waters were classified by DEH Shellfish Sanitation as prohibited/restricted. The reported acreages for these areas were based on DEH Shellfish Sanitation growing area acreage estimates. Refer to Appendix IV for more information on the state's 303(d) list and listing requirements. Refer to page 49 more information on changes in methodology.

## **4.6 Others Issues and Recommendations**

### **Nonpoint Source Issues in the North River**

Although the aquatic life/secondary recreation use support category in the upper North River is not currently impaired, there are indications of nutrient loading, channelization, habitat removal and habitat degradation. Continued development, road building, wetland ditching and draining, and poor de-snagging practices have the potential to cause degradation of aquatic habitats and water quality in the upper North River as well as increase the potential for eutrophication problems in the North River estuary. These land uses should implement best management practices to reduce water quality impacts.