

Chapter 3 -

White Oak River Subbasin 03-05-03

Includes Bogue Sound and the Newport River

3.1 Water Quality Overview

Subbasin 03-05-03 at a Glance

Land and Water Area (sq. mi.)

Total area:	228
Land area:	168
Water area:	60

Population Statistics

1990 Est. Pop.:	11,404 people
Pop. Density:	68 persons / mi ²

Land Cover (%)

Forest / Wetland:	59
Surface Water:	26
Urban:	4
Cultivated Crop:	6.5
Pasture / Managed Herbaceous:	4

Water Area:

Stream Miles:	18
Estuarine Acres:	34,723
Coastal Miles:	25
Shellfish Harvest Acres:	34,146

This subbasin contains the center of Carteret County, extending from the Croatan National Forest to Beaufort and Beaufort Inlet. A map of this subbasin including water quality sampling locations is presented in Figure B-5. Biological ratings for these sample locations are presented in Table B-5. Use support ratings for monitored waters are presented in Table B-6.

With the exception of Newport, most of the development in this subbasin is along the coast: Morehead City, Beaufort, Atlantic Beach and Bogue Banks. Land use in this subbasin is mostly forested. The highest population densities are in the Beaufort and Morehead City areas along the waterfront.

There are indications of nutrient inputs in the upper Newport River. There are also elevated fecal coliform bacteria levels after rainfall events. The tributaries to the Newport River are characteristic swamp streams. Water quality in estuarine waters of this subbasin is generally good.

Most of the waters in this subbasin are estuarine with the Newport River as the only major source of freshwater. There are 34,146 acres of estuarine water classified for shellfish harvesting; 11,368 of these acres are ORW.

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-5 Newport River and Tributaries to Bogue Sound Subbasin 03-05-03

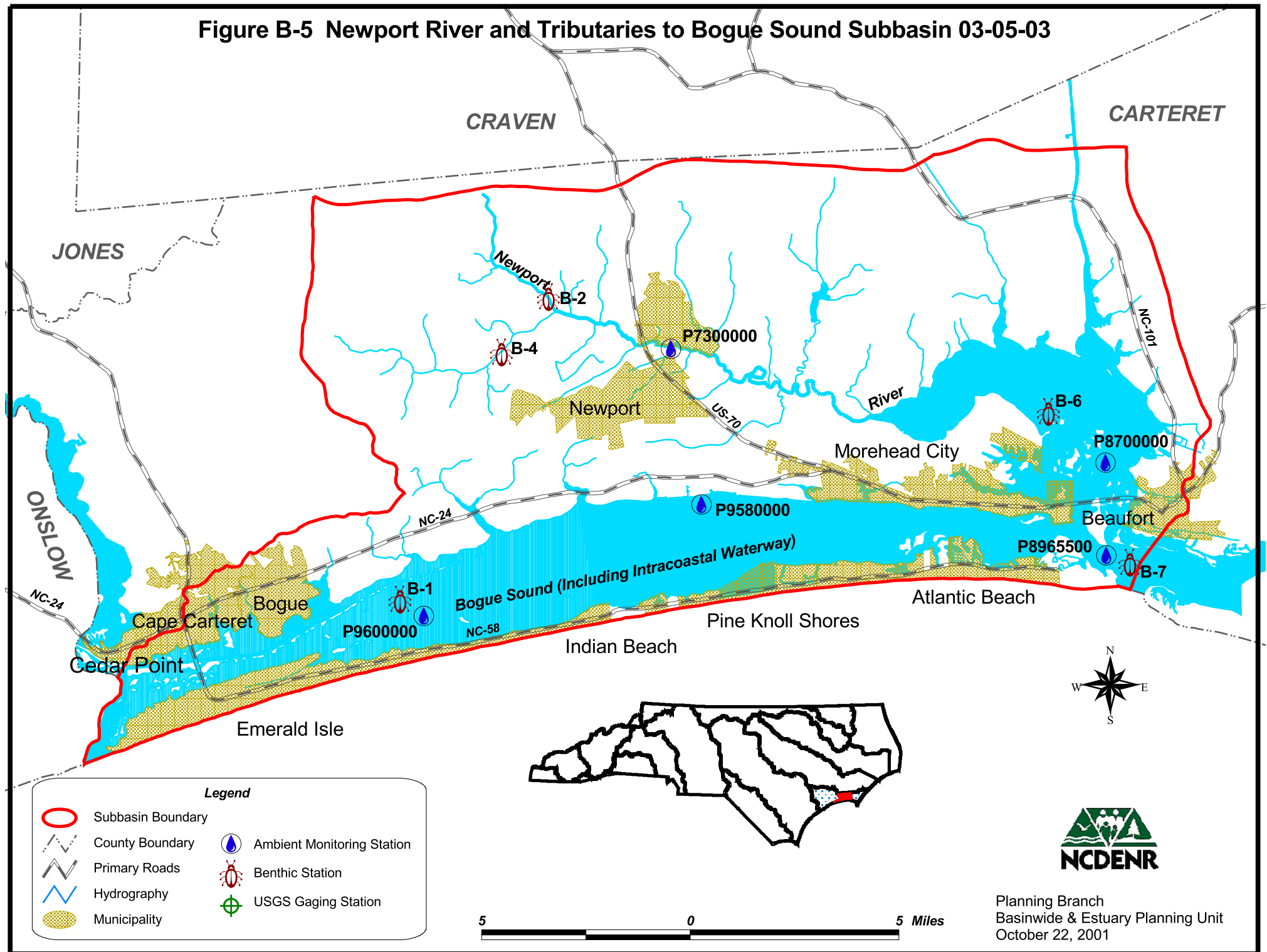


Table B-5 DWQ Monitoring Locations and Benthic Macroinvertebrate Bioclassifications (1999) for White Oak River Subbasin 03-05-03

Site	Stream	County	Road	Bioclassification
<i>Benthic Macroinvertebrates</i>				
B-1*	Bogue Sound	Carteret	Emerald Isle	Not Rated
B-2	NW Prong Newport River	Carteret	SR 1206	Not Rated
B-4	SW Prong Newport River	Carteret	SR 1124	Not Rated
B-6	Newport River	Carteret	Crab Point	Not Rated
B-7	Morehead Harbor	Carteret	Radio Island	Not Rated
<i>Ambient Monitoring**</i>				Parameters In Excess of State Standards
P7300000	Newport River	Carteret	Newport	DO
P6850000	Newport River	Carteret	Channel Marker G15	
P8965500	Morehead Harbor	Carteret	Morehead	
P9580000	Bogue Sound	Carteret	Salter Path	
P9600000	Bogue Sound	Carteret	Emerald Isle	

* Historical data are available; refer to Appendix III.

** Assessment period 9/1/94 to 8/31/99

Table B-6 Use Support Ratings for Monitored Waters in Subbasin 03-05-03

Use Support Category	Use Support Ratings				
	FS	PS	NS	NR	Total
Aquatic Life and Secondary Recreation	0 mi. 31,113.4 ac	0	0	21.6 mi. 0 ac 25 coastal mi.*	21.6 mi. 31,113.4 ac 25 coastal mi.*
Fish Consumption	0	25 coastal mi.*	0	0	25 coastal mi.*
Primary Recreation	22,895.0 ac 25 coastal mi.*	0	0		22,895.0 ac 25 coastal mi.*
Shellfish Harvesting	0 mi. 26,683 ac	2.0 mi. 2,763 ac	15.7 mi. 4,700 ac	0	17.7 mi. 34,146 ac

* Refers to miles along Atlantic coastline.

3.2 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 3.4 below. There were no other waters identified as impaired in the 1997 plan.

3.3 Status and Recommendations for Newly Impaired Waters

All waters in subbasin 03-05-03 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. Twenty-five miles of Atlantic coastline are currently partially supporting (PS) the fish consumption use support category because of a consumption advisory for king mackerel. 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 3.4.

3.4 Impaired Class SA Waters

There are 34,146 acres and 17.7 stream miles of Class SA waters in subbasin 03-05-03 that were assessed in the shellfish harvesting use support category. In this subbasin, 7,463 acres (22%) are considered impaired in the shellfish harvesting use support category. Refer to Figure B-6 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.

Bogue Sound and Tributaries (Areas D-4, E-1, E-2 and E-3)

There are 1,344 acres of Bogue Sound and tributaries including Spooner Creek, Broad Creek and Money Island Bay that are not supporting shellfish harvesting. These areas are DEH SS classified as prohibited/restricted and permanently closed to shellfish harvesting. Bogue Sound adjacent to Jumping Run (367 acres) is also not supporting shellfish harvesting. This area is DEH SS classified as conditionally approved-closed and was closed to shellfish harvesting most of the assessment period. The northern shoreline of Bogue Sound is experiencing rapid growth. Emerald Isle, Cape Carteret and Atlantic Beach are continuing to grow as well. These areas have very large seasonal populations and associated campgrounds and marinas. Bacterial water quality continues to decline along the north shore of Bogue Sound. There are also 146 acres of impaired ORW waters in the western portion of Bogue Sound. The Highway 24 causeway also alters flow into Broad and Gales Creeks. Potential sources of pollution include runoff from urbanized areas and subdivisions (NCDENR, 1999e; NCDENR, 1998e; and NCDENR, 1999c).

North Carolina Coastal Federation has acquired buffers at Atlantic Beach (Hoop Hole Creek) to permanently protect shellfish waters from development. Refer to page 105 for more information on this project.

North Carolina Wetlands Restoration Program has a restoration project on 4.4 acres in the Jumping Run Creek Watershed (refer to page 105) and a 2.8-acre shoreline stabilization and salt marsh restoration at the Maritime Museum near Beaufort.

Newport River and Tributaries (Area E-4)

There are 1,606 acres of the Newport River and adjacent bays and tributaries extending to the Atlantic Ocean including Harlowe Creek, Core Creek and Crab Point Bay that are not supporting shellfish harvesting. These areas are DEH SS classified as prohibited/restricted and permanently closed to shellfish harvesting. There are 1,380 acres of the Newport River, Harlowe Creek and Core Creek 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 middle portion of the Newport River (2,763 acres) is rated partially supporting. This area is DEH SS classified as conditionally approved-open and was closed to shellfish harvesting 11.7 percent of the five-year assessment period. The population of the area continues to grow around Newport, Morehead City and Beaufort. There are many subdivisions in this subbasin as well. Potential sources of pollution include runoff from urban areas and subdivisions as well as agricultural and forestry land uses (DENR, 1998f).

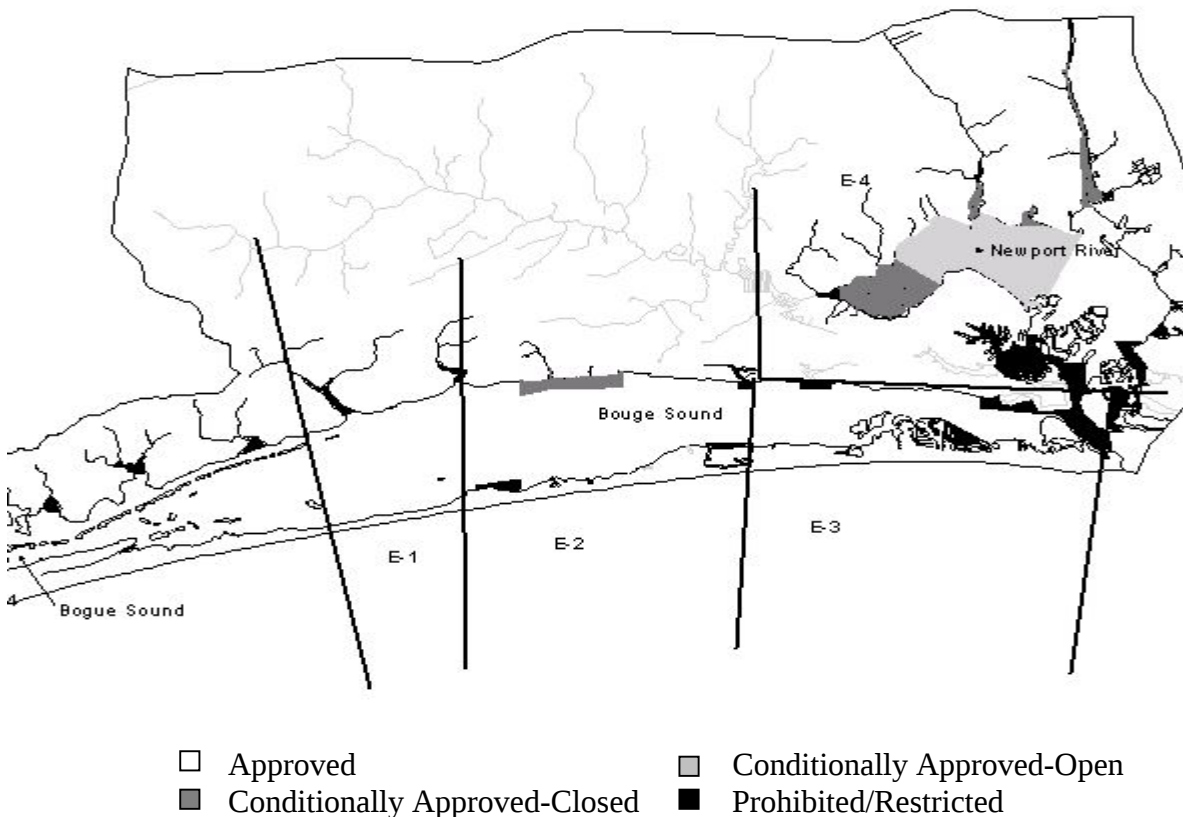


Figure B-6 DEH Shellfish Growing Area Classifications in Subbasin 03-05-03

3.5 303(d) Listed Waters

There are 4,046 acres in DEH growing areas D4, E1, E2, E3, E4 and E5 in subbasin 03-05-03 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.

3.6 Others Issues and Recommendations

Nonpoint Source Issues in the Upper Newport River

Although the aquatic life/secondary recreation use support category in the upper Newport River are 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 Newport River as well as increase the potential for eutrophication problems in the Newport River estuary. These land uses should implement best management practices to reduce water quality impacts.

Bogue Sound Growing Area Reclassifications

Because bacteriological water quality no longer meets approved area criteria, DEH SS is reclassifying areas along the north shore of Bogue Sound to conditionally approved-open. These areas are currently rated fully supporting the shellfish harvesting use support category. During the next basinwide assessment, these areas may be rated partially supporting if temporary closures continue to increase in frequency.

Stormwater Pumping

There have been swimming advisory signs posted at Emerald Isle by DEH SS in response to stormwater pumping. Because this pumping can close shellfish harvesting areas and swimming areas, it is recommended that stormwater pumping be done only during emergencies. Emerald Isle has been issued violations for pumping stormwater during non-emergency situations. Emerald Isle is pursuing funding to purchase land to be used for stormwater treatment. DEH SS and DWQ will continue to monitor this situation and pursue a resolution that does not involve potential contamination of surface waters with stormwater.

Calico Creek

Calico Creek is currently not rated; however, studies in 1999 indicate water quality impacts from urban nonpoint sources as well as the Morehead City WWTP (1.7 MGD). Calico Creek is poorly flushed and any additional inputs of nutrients or BOD may increase the potential for adverse water quality impacts. Several tidal periods are needed to flush the creek.