

Chapter 8

North Carolina Water Quality Classifications and Standards

8.1 Description of Surface Water Classifications and Standards

North Carolina's Water Quality Standards Program adopted classifications and water quality standards for all the state's river basins in 1963. The program remains consistent with the Federal Clean Water Act and its amendments. Water quality classifications and standards have also been modified to promote protection of surface water supply watersheds, high quality waters (HQW), and unique and special pristine waters with outstanding resource values (ORW).

8.1.1 Statewide Classifications

All surface waters in the state are assigned a *primary* classification that is appropriate to the best uses of that water. In addition to primary classifications, surface waters may be assigned a *supplemental* classification. Most supplemental classifications have been developed to provide special protection to sensitive or highly valued resource waters. Table 21 briefly describes the best uses of each classification. A full description is available in the document titled: *Classifications and Water Quality Standards Applicable to Surface Waters and Wetlands of North Carolina* (NCDENR-DWQ, 2004). Information on this subject is also available at DWQ's website: <http://h2o.enr.state.nc.us/csu/>.

8.1.2 Statewide Water Quality Standards

Each primary and supplemental classification is assigned a set of water quality *standards* that establish the level of water quality that must be maintained in the waterbody to support the uses associated with each classification. Some of the standards, particularly for HQW and ORW waters, outline protective management strategies aimed at controlling point and nonpoint source pollution. These strategies are discussed briefly below. The standards for C and SC waters establish the basic protection level for all state surface waters. The other primary and supplemental classifications have more stringent standards than for C and SC, and therefore, require higher levels of protection.

Some of North Carolina's surface waters are relatively unaffected by pollution sources and have water quality higher than the standards that are applied to the majority of the waters of the state. In addition, some waters provide habitat for sensitive biota such as trout, juvenile fish, or rare and endangered aquatic species.

High Quality Waters (Class HQW)

There are 395,269 acres of HQW waters in the Pasquotank River basin (Figure 10). Special HQW protection management strategies are intended to prevent degradation of water quality below present levels from both point and nonpoint sources. HQW requirements for new wastewater discharge facilities and facilities, which expand beyond their currently permitted loadings, address oxygen-consuming wastes, total suspended solids, disinfections, emergency requirements, volume, nutrients (in nutrient sensitive waters) and toxic substances.

Table 21 Primary and Supplemental Surface Water Classifications

PRIMARY FRESHWATER AND SALTWATER CLASSIFICATIONS	
<u>Class*</u>	<u>Best Uses</u>
C and SC	Aquatic life propagation/protection and secondary recreation.
B and SB	Primary recreation and Class C and SC uses.
SA	Suitable for commercial shellfish harvesting and SB and SC uses.
WS	<i>Water Supply (WS)</i> : Assigned to watersheds based on land use characteristics. The WS classifications have management strategies to protect the surface water supply. For WS-I through WS-IV, these include limits on point source discharges and local programs to control nonpoint source and stormwater runoff. A WS Critical Area (CA) has more stringent protection measures and is designated within one-half mile from a WS intake or WS reservoir. All WS classifications are suitable for Class C uses.
WS-I	Generally located in natural and undeveloped watersheds.
WS-II	Generally located in predominantly undeveloped watersheds.
WS-III	Generally located in low to moderately developed watersheds.
WS-IV	Generally located in moderately to highly developed watersheds.
WS-V	Generally upstream of and draining to Class WS-IV waters. No categorical restrictions on watershed development or treated wastewater discharges.
SUPPLEMENTAL CLASSIFICATIONS	
<u>Class</u>	<u>Best Uses</u>
Sw	<i>Swamp Waters</i> : Waters that have low velocities and other natural characteristics that are different from adjacent streams (i.e., lower pH, lower levels of dissolved oxygen).
Tr	<i>Trout Waters</i> : Provides protection to freshwaters for natural trout propagation and survival of stocked trout.
HQW	<i>High Quality Waters</i> : Waters that have excellent water quality, primary nursery areas and other functional nursery areas, WS-I and WS-II or SA waters.
ORW	<i>Outstanding Resource Waters</i> : Unique and special waters of exceptional state or national recreational or ecological significance which require special protection.
NSW	<i>Nutrient Sensitive Waters</i> : Waters subject to excessive plant growth and requiring limitations on nutrient inputs.

* Primary classifications beginning with "S" are assigned to saltwaters.

For nonpoint source pollution, development activities which require a Sedimentation and Erosion Control Plan in accordance with rules established by the NC Sedimentation Control Commission or an approved local erosion and sedimentation control program, and which drain to and are within one mile of HQWs, are required to control runoff from the development using either a low density or high density option. The low-density option requires a 30-foot vegetated buffer between development activities and the stream; whereas, the high-density option requires structural stormwater controls. In addition, the Division of Land Resources (DLR) requires more stringent erosion controls for land-disturbing projects within one mile of and draining to HQWs.

- Criteria for HQW Classification**
- Waters rated as Excellent based on DWQ's chemical and biological sampling.
 - Streams designated as native or special native trout waters by the Wildlife Resources Commission (WRC).
 - Waters designated as primary nursery areas or other functional nursery areas by the Division of Marine Fisheries.
 - Waters classified by DWQ as WS-I, WS-II or SA.

Outstanding Resource Waters (Class ORW)

There are 485 miles, 15,938 freshwater acres, and 43,154 saltwater acres of ORW waters in the basin (Figure 10). These waters have excellent water quality (rated based on biological and chemical sampling as with HQWs) and an associated outstanding resource.

The requirements for ORW waters are more stringent than those for HQWs. Special protection measures that apply to North Carolina ORWs are set forth in 15A NCAC 2B .0225. At a minimum, no new discharges or expansions are permitted, and a 30-foot vegetated buffer or stormwater controls for new developments are required. In some circumstances, the unique characteristics of the waters and resources that are to be protected require that a specialized (or customized) ORW management strategy be developed.

The ORW rule defines outstanding resource values as including one or more of the following:

- an outstanding fisheries resource;
- a high level of water-based recreation;
- a special designation such as National Wild and Scenic River or a National Wildlife Refuge;
- within a state or national park or forest; or
- a special ecological or scientific significance.

Class SA Waters

There are 395,236 acres of SA waters in the basin. The best uses of Class SA waters are for shellfishing for market purposes and any other usage specified by the "SB" or "SC" classification. Fecal coliform bacteria in class SA waters shall meet the current sanitary and bacteriological standards as adapted by the Commission for Health Services. Domestic wastewater discharges are not allowed, and there are provisions for stormwater controls. Refer to 15A NCAC 2B .0221 for specifics on water quality standards in Class SA waters. All Class SA waters are also carry a supplemental designation of HQW or ORW by rule (see above), depending on the resource value present at the time of classification.

Primary Recreation (Class B and SB)

There are 25 freshwater miles, 15,938 freshwater acres, 111 saltwater miles, and 312,119 saltwater acres classified for primary recreation in the Pasquotank River basin. Waters classified as Class B are protected for primary recreation, include frequent and/or organized swimming, and must meet water quality standards for fecal coliform bacteria. Sewage and all discharged wastes into Class B waters must be treated to avoid potential impacts to the existing water quality.

Aquatic Life Propagation and Secondary Recreation (Class C and SC)

There are 3,595 freshwater miles, 4,981 freshwater acres, 12 saltwater miles, and 374,818 saltwater acres classified for aquatic life propagation/protection and secondary recreation in the Pasquotank River basin.

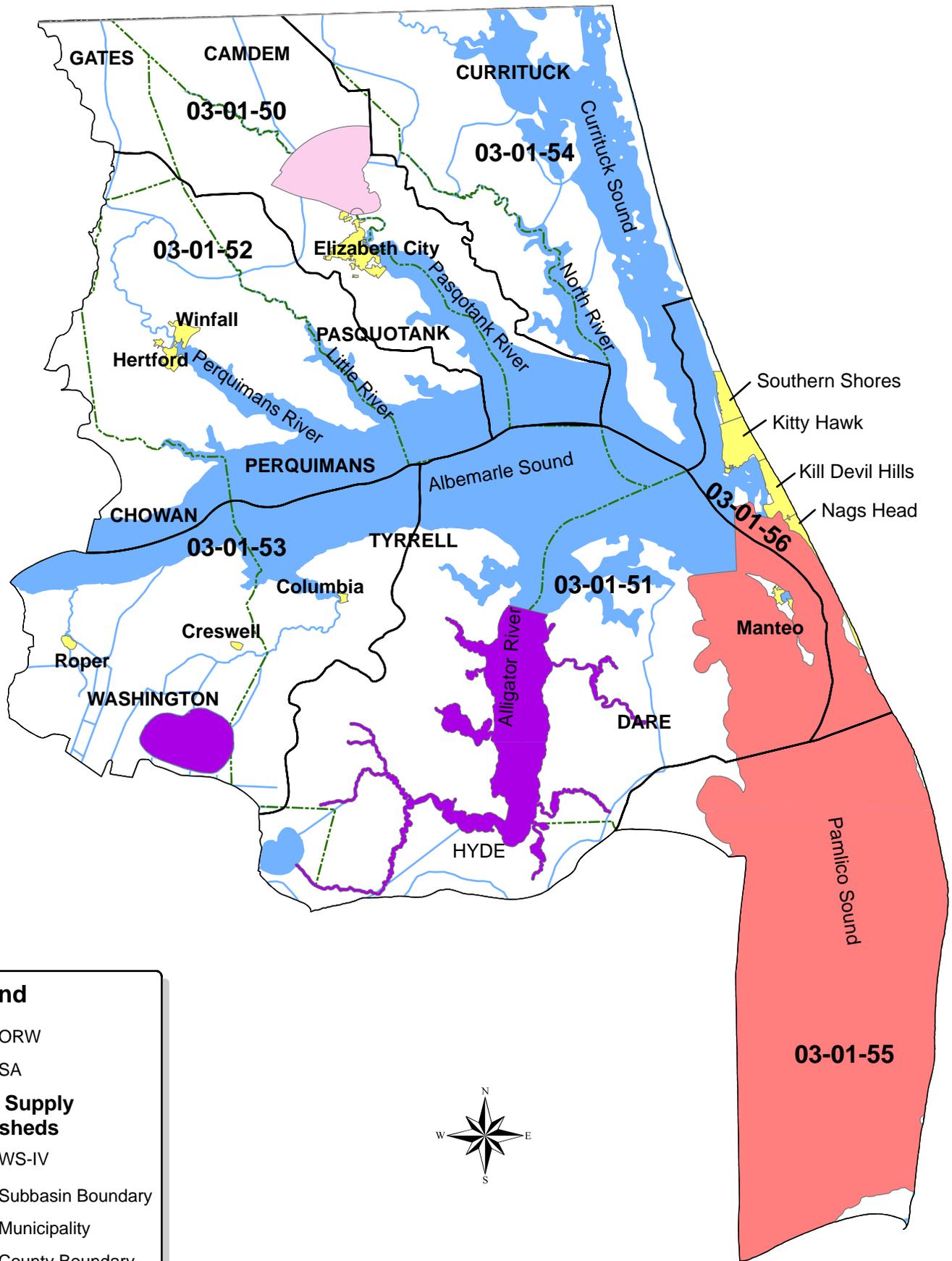
Swamp Waters (Class Sw)

There are 3,159 freshwater miles, 20,918.9 freshwater acres, 8.8 saltwater miles, and 66,519 saltwater acres with the supplemental classification of swamp waters in the basin. Waters with this supplemental classification will naturally be more acidic (have lower pH values) and have lower levels of dissolved oxygen.

Water Supply watershed (Class WS)

There are 54 miles of waters classified as water supply waters. WS classifications are assigned to watersheds based on land use characteristics of the area. Each water supply classification has a set of management strategies to protect the surface water supply. There are five WS classes ranging from WS-I through WS-V; only levels III, IV and V occur in the Pasquotank basin. WS-I provides the highest level of protection and WS-IV provides the least protection. A Critical Area (CA) designation is also listed for watershed areas within a half-mile and draining to the water supply intake or reservoir where an intake is located.

Figure 10 HQW, ORW, SA and WSWS waters in the Pasquotank River Basin



Legend

- ORW
- SA
- Water Supply Watersheds**
- WS-IV
- Subbasin Boundary
- Municipality
- County Boundary
- Hydrography

