

# *Nutrient Criteria Development for Albemarle Sound: Progress and Prognostications*

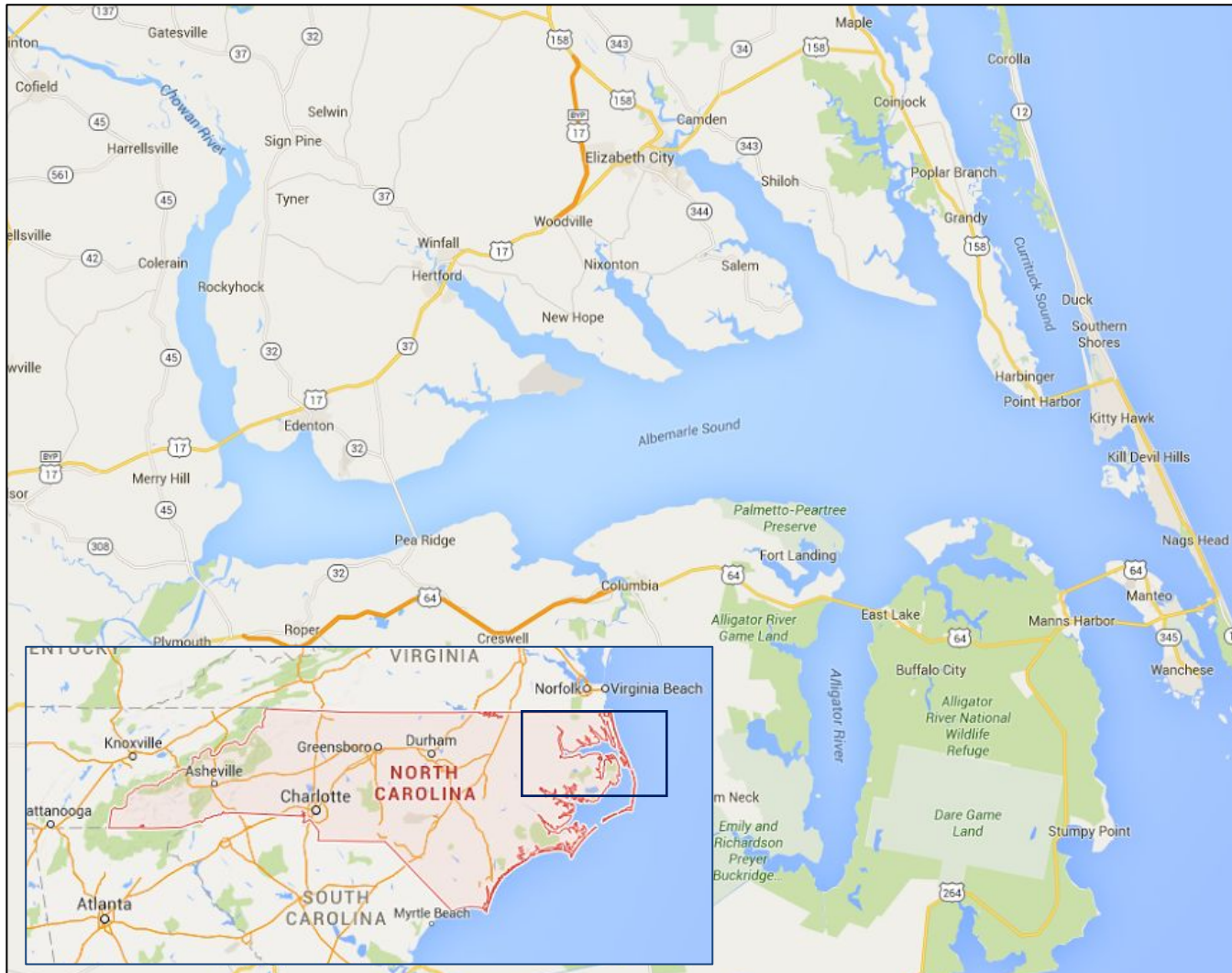


Jim Hawhee  
N.C. Division of Water Resources  
1 November 2017

*Department of Environmental Quality*



# Albemarle Sound



Department of Environmental Quality



## *Nutrient Criteria 101*

Water quality criteria are limits on particular chemicals or conditions in a water body...Criteria protect particular designated uses, such as propagation of fish and wildlife, recreation, and public water supply.

- EPA Watershed Academy

## *Nutrient Criteria 101*

- Examples of North Carolina's estuarine nutrient-related criteria:
  - Chlorophyll a (corrected): not greater than 40 ug/l ...
  - Dissolved oxygen: not less than 5.0 mg/l, except...
  - pH: shall be normal for the waters in the area, which range between 6.8 and 8.5, except...

# *Nutrient Criteria Development Plan Overview*

- Authority: mutually agreed to by DEQ, EPA
- Charge: Revisit statewide nutrient-related criteria by 2025
- Albemarle Sound one of three pilot waterbodies
- Two phase approach for Albemarle Sound
- Statewide criteria recommendations to follow for lakes, estuaries, and rivers

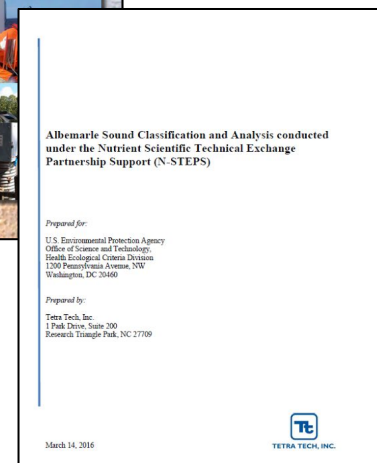
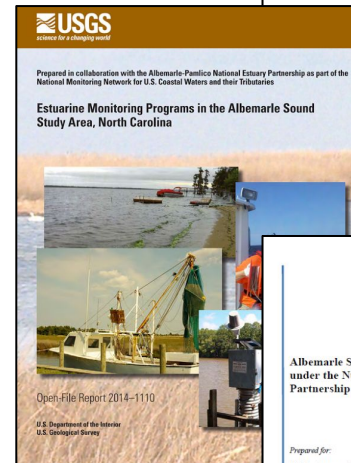
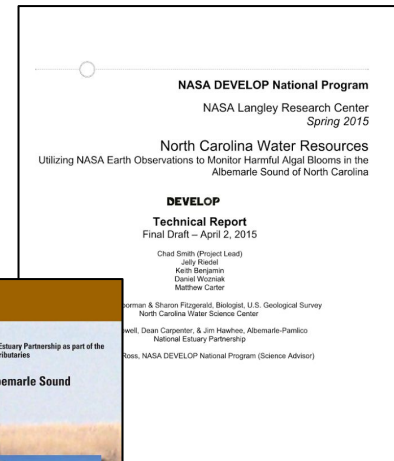
## *Phase I Summary*

- Open, APNEP-facilitated workgroup
- 9 meetings from 2014 to 2016
- Parameters considered: pH, DO, clarity, TSS, turbidity, phytoplankton and cyanotoxins, chlorophyll a, nitrogen, and phosphorus
- Original slate of supporting projects undertaken in 2015-2016

# Phase I Supporting Projects

- Remote sensing evaluation (NASA)
- Data classification and analysis (Tetra Tech)
- National law and policy review (Sea Grant)
- Literature compilation (Tetra Tech)
- USGS Albemarle Sound initiatives
- DWR supplementary data analyses
- Criteria development case studies

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## *Phase I Summary, Continued*

- Workgroup fact-finding in early 2016
- Member-generated criteria proposals evaluated by workgroup in late 2016
- Where limitations were evident, further research was proposed and ranked



## *What's next?*

- Advancement of ongoing research and data evaluation efforts
- Consideration of criteria by SAC and CIC in Phase II
- Potential areas for discussion:
  - Application and implications of a clarity standard?
  - Chlorophyll *a* as a seasonal average?
  - N & P criteria: whether and how to set?
  - Bioconfirmation approach?

## *Prioritized Research for Phase II*

- Additional algal toxin surveys
- Nutrient bioassays
- Clarity optical model
- Quantify historical SAV coverage
  - Status: complete (thanks APNEP!)
- Evaluate and summarize historical clarity data
- Evaluate correlations between oxygen-sensitive fish species, habitat utility and seasonality.

# APNEP Nutrient Workgroup Website

**Committees**

- Policy Board
- Science & Technical Advisory Committee
- Implementation Committee
  - Contaminants Workgroup
  - Education & Engagement Workgroup
  - Flows Workgroup
  - Freshwater Habitats & Fish Passage Workgroup
  - Monitoring Networks Workgroup
  - **Nutrients Workgroup**
  - Oyster Workgroup
  - Submerged Aquatic Vegetation Workgroup
- Past Committees

**Nutrients Workgroup**

[Overview](#)   [Meetings](#)

[Sign up for the Nutrient Workgroup's listserv](#)

[View supporting files through Google Drive](#)

**Overview**

APNEP is facilitating a working group to study and recommend appropriate nutrient standards for North Carolina's estuaries. This work will advance according to North Carolina's [Nutrient Criteria Development Plan](#) using the Albemarle Sound as a pilot study area.

APNEP staff support: [Jim Hawhee](#) (primary), [Dean Carpenter](#)

**Meetings**

Meeting	Agenda	Notes	Meeting Materials
<b>2015</b>			
*Note: Nutrient-related work prior to April 2015 occurred as part of APNEP's Contaminants Workgroup. Contaminants Workgroup notes are included below for reference and continuity.			
April 23, 2015 WebEx Webinar Connection information on agenda	<a href="#">Agenda</a>	<a href="#">Notes</a>	<a href="#">link</a>
<b>2014</b>			
October 21, 2014 USGS Water Sciences Center 3916 Sunset Ridge Rd., Raleigh, NC	<a href="#">Agenda</a>	<a href="#">Notes</a>	<a href="#">link</a>
August 5, 2014 Kinston-Lenoir Public Library 510 Queen Street, Kinston, NC	<a href="#">Agenda</a>	<a href="#">Notes</a>	<a href="#">link</a>

<http://apnep.org/web/apnep/nutrients>

# Questions?



Jim Hawhee:

(919) 807-6438 | [jim.hawhee@ncdenr.gov](mailto:jim.hawhee@ncdenr.gov)

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