

North Carolina's Nutrient Criteria Development Plan

APNEP – STAC
July 29, 2014



Talking Points

- How did we get here?
- Where are we going? -- The NCDP
 - Albemarle Sound
 - Scientific Advisory Council

Environmental Protection Agency

- 1998 – “National Strategy for the Development of Regional Nutrient Criteria”
- 2001 – Federal Register Notice
 - ✓ States develop nutrient plans
 - ✓ Expectation States adopt nutrient criteria into standards by 2004
- 2001 – “Grubbs Memo”
- 2000-2002 – Technical Guidance Documents
- 2000-2003 – Ecoregional Nutrient Criteria
- 2007 – “Grumbles Memo”
- 2009 – “EPA Needs to Accelerate Adoption of NNC”
- 2011 – “Stoner Memo”

Division of Water Resources

- 2004 – First Nutrient Criteria Implementation Plan
 - Chlorophyll-a “threshold rules”
 - Periphyton
- 2004 -- EPA agrees to NCIP
- 2005–now: Legislation and DENR budget reductions
- 2011 – EPA rescinds agreement
- 2012-2014 – DWR develops new plan (NCDP):
 - 4 stakeholder meetings;
 - Public comment on draft plans
- June 2014 – EPA agrees to the NCDP

EPA Region 4 Comments

- NC's approach currently focuses mostly on one criterion – i.e. chlorophyll-*a* “Response only approach”
- Encourage criteria based on: TP, TN, Chl-*a*, and clarity
- Criteria must be:
 - ✓ Effective
 - ✓ Enforceable
 - ✓ Protective (not just reactive)
 - ✓ Measurable

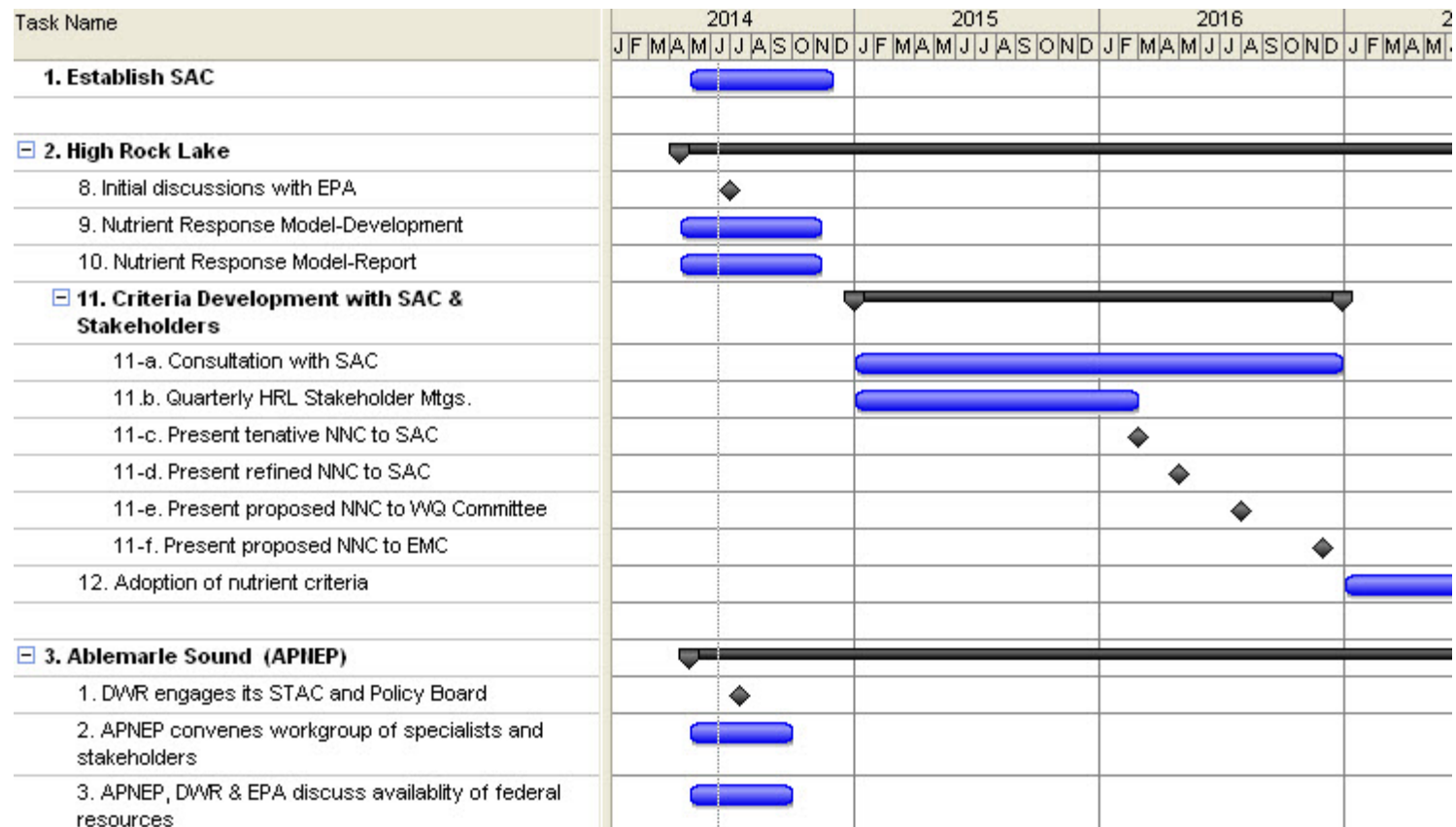
What is a Nutrient Criteria Development Plan?

- Commitment from States to address nutrient enrichment in surface waters
- Formalizes a strategy to adopt numeric nutrient criteria
 - ✓ *Timelines, milestones, deadlines*
- Prioritization of water bodies
- Ongoing, collaborative process



Nutrient Criteria Development Plan

Projects, tasks, timelines, milestones and deadlines



Numeric Nutrient Criteria (NNC)

- *Causal and response variables expressed as numerical concentrations and/or mass quantities or loadings*
- *Causal and response variables expressed as narrative statements with a scientifically defensible translator mechanism to derive or calculate numerical concentrations and/or mass quantities or loadings*

Response Variables	Causal Variables
Chlorophyll-a	Nitrogen
Phytoplankton	Phosphorus
Periphyton	
Macrophytes	
Diurnal DO range	
Minimum DO	
Diurnal pH range	

Other variables may be considered

Approach to Adopt NNC

Site-Specific	Anticipated Completion Date
1. High Rock Lake	July 2018
2. Albemarle Sound	December 2020
3. Central Cape Fear River Basin	December 2021

Water body-Specific	Anticipated Completion Date
4. Estuaries	June 2023
5. Reservoirs/Lakes	June 2024
6. Rivers/Streams	June 2025

Timelines are subject to change based upon resources, research needs, sufficient funding, personnel and other unforeseen events

Albemarle Sound

- Establish “workgroup” to advance the portions of the NCDP which support APNEP’s Comprehensive Conservation and Management Plan
 - ✓ Product is “Phase 1 Report”
- Define geographic boundaries of NCDP “Albemarle Sound” area

Phase 1 Report

- Summary/bibliography of relevant findings
- Analysis of available data
- Identify any research or monitoring needs
- Recommend variables as NNC that are scientifically defensible.

Comprehensive Conservation and Management Plan

Albemarle-Pamlico National Estuary Partnership



Comprehensive Conservation
and Management Plan
2012 - 2022

IDENTIFY

PROTECT

RESTORE

ENGAGE

MONITOR

Healthy Albemarle-Pamlico Estuarine System

3: Water Quantity & Quality A region where water quantity and quality maintain ecological integrity	3a: Appropriate hydrologic regimes support ecological integrity.
	3b: Nutrients and pathogens do not harm species that depend on the waters.
	3c: Toxics in waters and sediments do not harm species that depend on the waters.
	3d: Sediments do not harm species that depend on the waters.

Scientific Advisory Council

- 7 – 9 person panel
- Advise and provide in-depth knowledge about NNC to DWR and stakeholders
- Nominations will be solicited soon
- DWR Division Director selects members

Scientific Advisory Council

Ecological role of nutrients in:

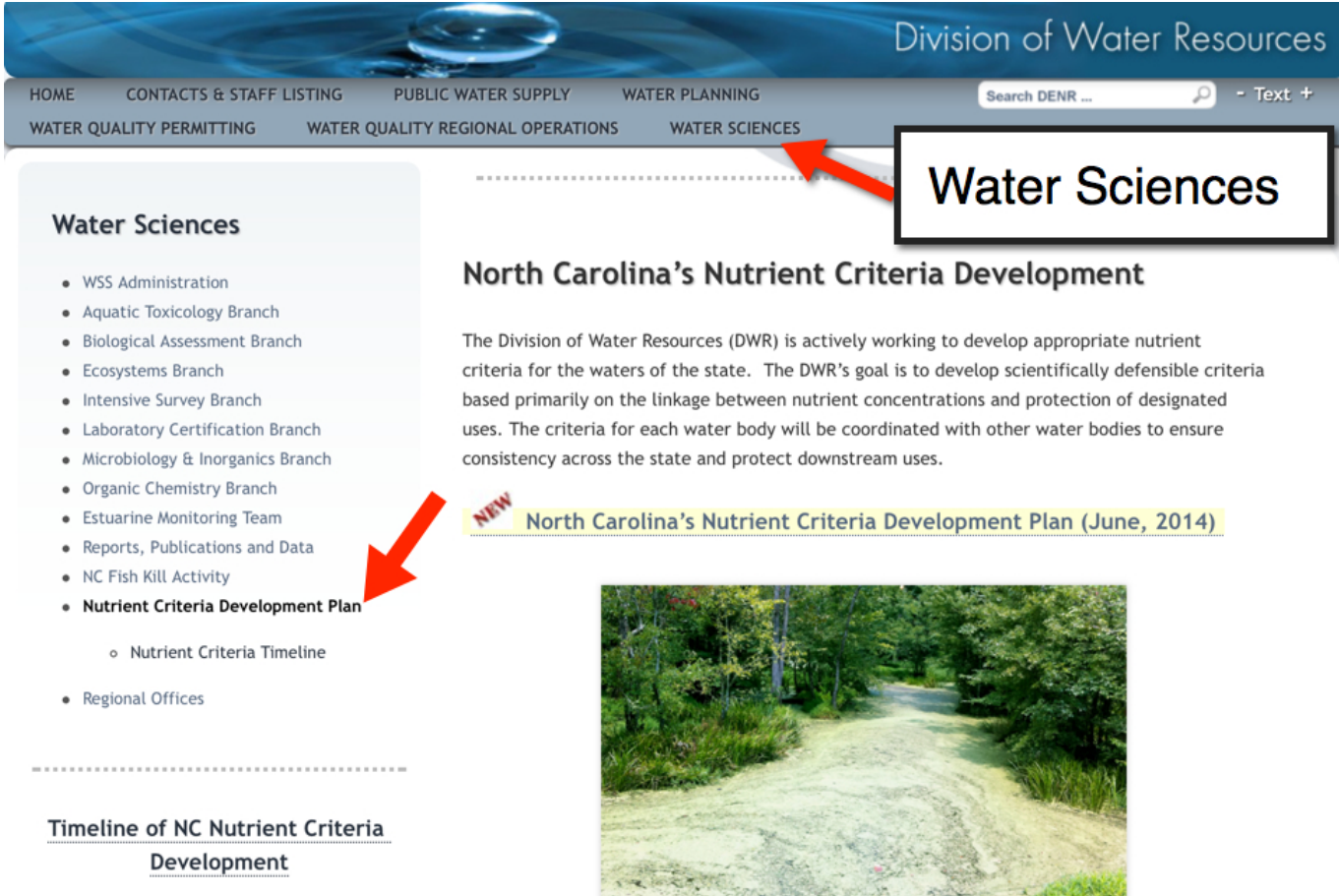
1. Reservoirs and lakes
2. Rivers and streams
3. Estuaries
4. Nutrient modeling
5. EPA Region 4
6. Nutrient abatement
 - Wastewater, stormwater, agricultural BMPs
7. Economics

The NCDP is a PLAN!

The NCDP is a PLAN	The NCDP is NOT a Contract, MOA or Regulation
The NCDP will <u>guide</u> the process of developing numeric nutrient criteria	The NCDP is NOT regulation which dictates how the Division will create & implement nutrient criteria
The NCDP is required	The NCDP is NOT static – it will change

NCDP Website:

www.ncwater.org



Division of Water Resources

HOME CONTACTS & STAFF LISTING PUBLIC WATER SUPPLY WATER PLANNING WATER QUALITY PERMITTING WATER QUALITY REGIONAL OPERATIONS WATER SCIENCES

Search DENR ... - Text +


Water Sciences

- WSS Administration
- Aquatic Toxicology Branch
- Biological Assessment Branch
- Ecosystems Branch
- Intensive Survey Branch
- Laboratory Certification Branch
- Microbiology & Inorganics Branch
- Organic Chemistry Branch
- Estuarine Monitoring Team
- Reports, Publications and Data
- NC Fish Kill Activity
- **Nutrient Criteria Development Plan**
 - Nutrient Criteria Timeline
- Regional Offices

North Carolina's Nutrient Criteria Development

The Division of Water Resources (DWR) is actively working to develop appropriate nutrient criteria for the waters of the state. The DWR's goal is to develop scientifically defensible criteria based primarily on the linkage between nutrient concentrations and protection of designated uses. The criteria for each water body will be coordinated with other water bodies to ensure consistency across the state and protect downstream uses.

NEW [North Carolina's Nutrient Criteria Development Plan \(June, 2014\)](#)



Timeline of NC Nutrient Criteria Development

NCDP Information

NC Nutrient Criteria Development Plan



Ask a Question.

Nutrient Criteria Development Process

The DWR is evaluating nutrients and will develop numeric nutrient criteria throughout North Carolina for 1) reservoirs/lakes, 2) rivers/streams and 3) estuaries. The development of these site-specific criteria will occur for the following water bodies: 1) Reservoir/Lake - High Rock Lake, 2) Estuary - Albemarle/Pamlico River.

A Scientifically-based, Transparent Process

North Carolina is committed to creating nutrient criteria that are scientifically-based and cost-effective. Therefore, we are assembling a panel of experts in the fields of water quality, water chemistry, and water resources. This panel will assist the DWR and stakeholders with the development of numeric nutrient criteria and the associated implementation and management strategies.

North Carolina is also committed to a transparent nutrient criteria development process. Thus, each water body specific criteria development process will have a stakeholder component. To be notified and receive updates on the stakeholder processes, [please register here](#). Additionally, the DWR will update this webpage as needed to communicate important dates and milestones for

Ask a question

Register to be
on email list



Next Steps

- Convene work group
- Define geographic boundaries of study area
- APNEP, DWR and EPA discuss funding sources
- Review data gaps indentified in Dr. Moorman's report "*Estuarine Monitoring Programs in the Albemarle Sound Study Area, North Carolina*"
- Discuss monitoring needs

Things I can influence

- Modify DWR ambient monitoring system
- Implement phytoplankton monitoring
- Literature reviews
- Data analyses

Literature Reviews-EndNote

The screenshot shows the EndNote Library interface. At the top, the title bar reads "EndNote Library.enlp" and the Thomson Reuters logo is visible. Below the title bar is a search bar with the text "Search" and a dropdown menu set to "Search Whole Group". There are also checkboxes for "Match Case" and "Match Words".

Author	Year	Title
Suplee	2007	Developing Nutrient Criteria for Streams: An Evaluation of the Frequency Distribution Method
Sutula	2011	Review of Indicators for Development of Nutrient Numeric Endpoints in California Estuaries
Sutula	2007	Technical Approach to Develop Nutrient Numeric Endpoints for California Estuaries
Todd	2001	Instream Swamps and Their Effect on Dissolved Oxygen Dynamics Within Blackwater Streams of the
USGS	2012	Stream Nutrient Reductions from Conservation Practices Not Consistently Detectable Across
USGS	2013	Nitrate in the Mississippi River and Its Tributaries, 1980–2010: An Update
USGS	2013	Relation of watershed setting and stream nutrient yields at selected sites in central and easte

Below the table is a toolbar with various icons for document management. The main preview area shows the cover of a technical report titled "TECHNICAL APPROACH TO DEVELOP NUTRIENT NUMERIC ENDPOINTS FOR CALIFORNIA ESTUARIES". The report is identified as "Technical Report 516" and dated "March 2007". The cover features a blue background with white text and a partial logo at the bottom.

Questions

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