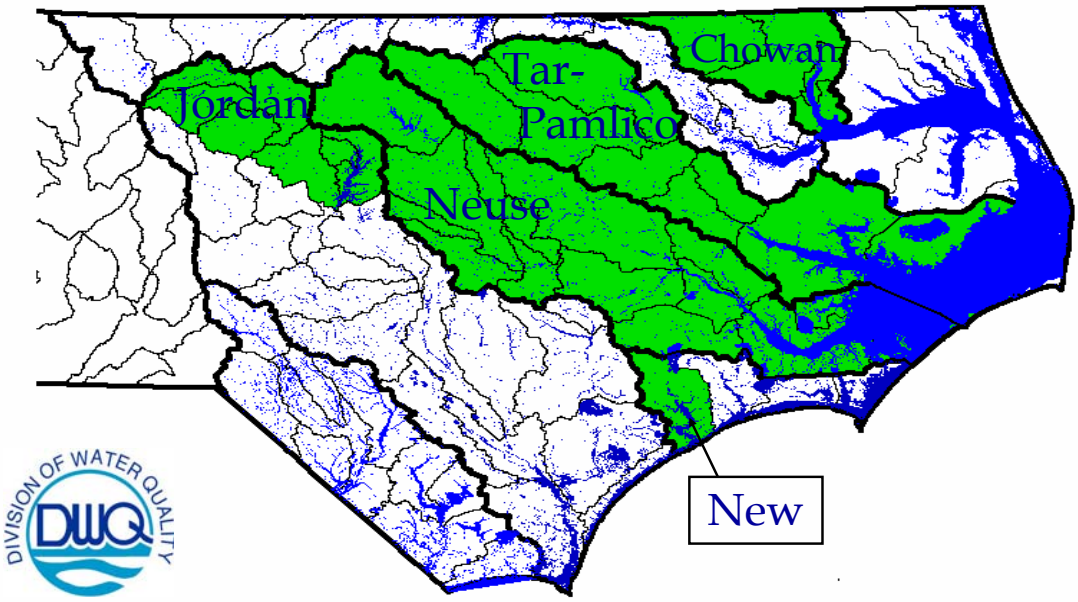
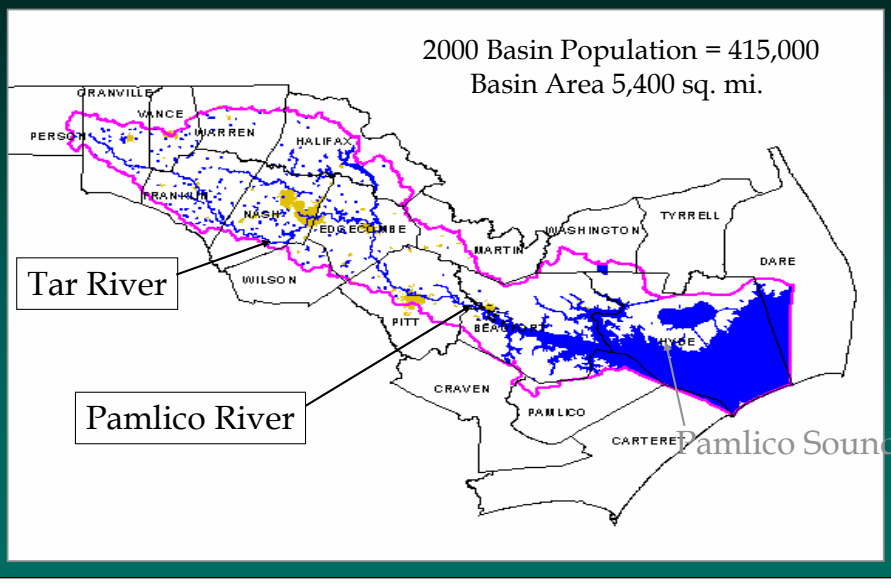
Glad to be here …

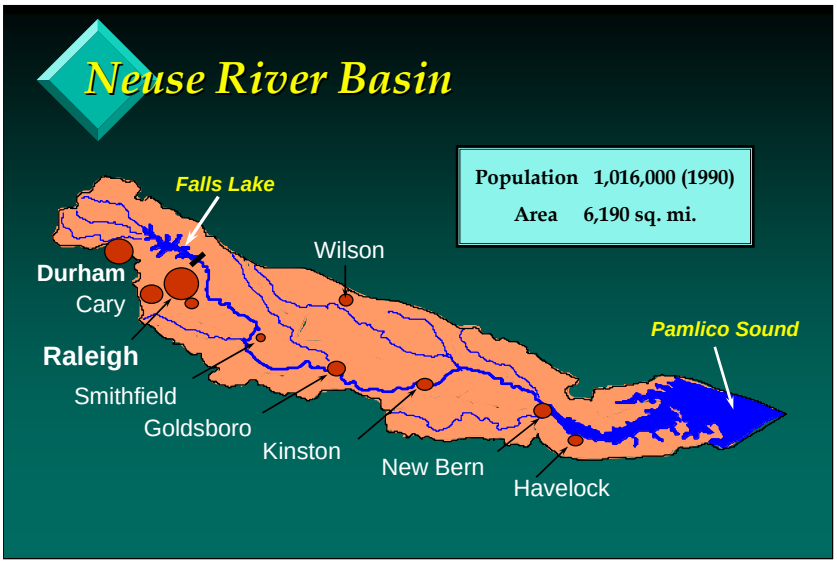
Purpose - I have been asked to talk a little about NC's experience with watershed permitting in the Neuse River basin in the hope that it will be of some use to others tackling similar issues

NC's 'Nutrient Sensitive Waters'



Tar-Pamlico River Basin





This is a quick look at where the Neuse River basin is located in NC. It is one of 17 river basins, one of only four contained entirely within the state - in that regard, much simpler than what some of you are facing.

The basin stretches 200 miles from the central Piedmont to the Pamlico Sound.

- drains 6,200 sq. mi.

Just upstream of Raleigh is Falls Dam, which is the divide between the upper and lower portions of the basin. Falls Lake reservoir is a popular recreation area and serves as the main water source for the City of Raleigh. The lake was impounded in the early '80s and travels about 25 miles from end to end.

- 20 sq. mi.

In this upper portion, we have

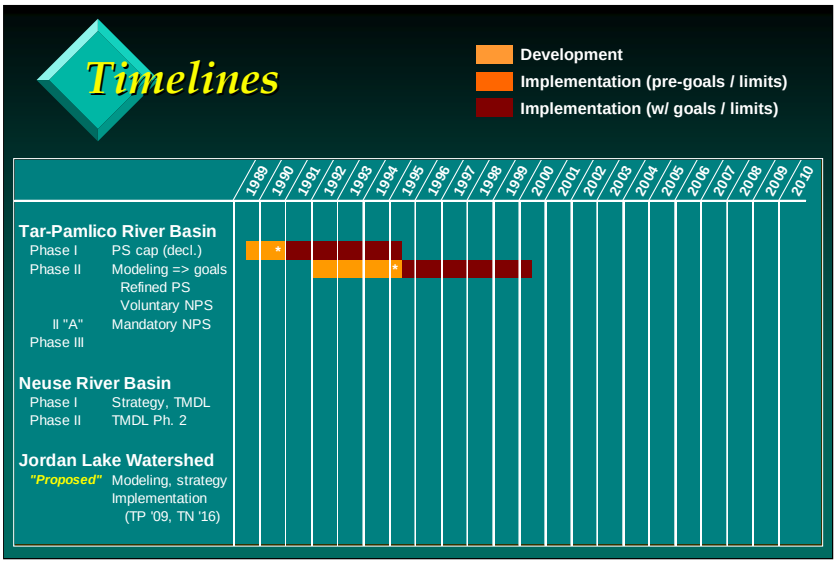
- Durham, home of Duke University
- Research Triangle Park

A few miles downstream of Raleigh, the river drops to the relatively flat coastal plan and so does not move especially fast (~18 mi./day). Some of the mid and lower portions of the basin, especially in the tributaries, are swampy in nature.

Near New Bern, the river spreads out to become a broad, shallow estuary (avg. 15 ft. deep) and slows further. The Pamlico Sound is bound on the east by the Outer Banks, so

- flushing in the Neuse estuary is poor,
- eutrophication creates low D.O. conditions, and
- fish kills have occurred.

A series of major fish kills in the estuary in the late summer and fall of 1995 prompted legislative action that led to adoption of a comprehensive Nutrient Management Strategy for the basin.


Timelines
Development
Implementation (pre-goals / limits)
Implementation (w/ goals / limits)
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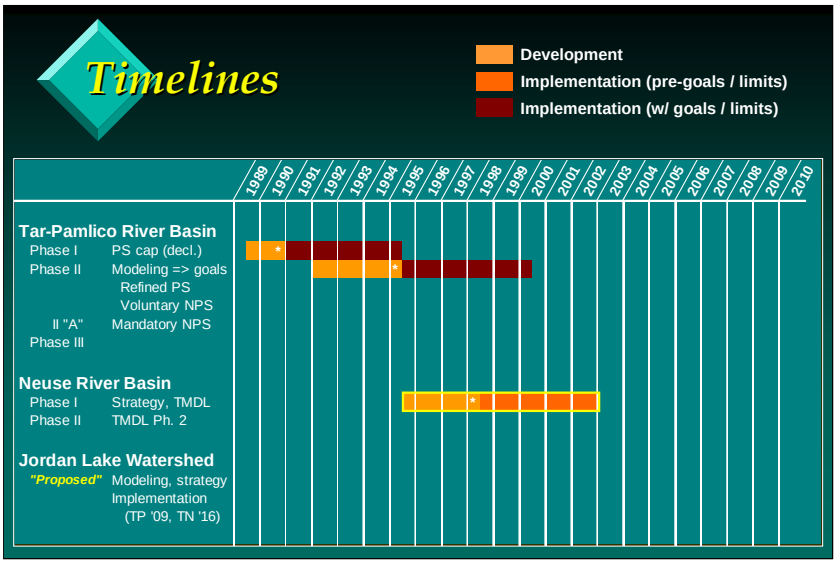
Tar-Pamlico River Basin
Phase I PS cap (decl.)
Phase II Modeling => goals
Refined PS
Voluntary NPS
II "A" Mandatory NPS
Phase III
Neuse River Basin
Phase I Strategy, TMDL
Phase II TMDL Ph. 2
Jordan Lake Watershed
"Proposed" Modeling, strategy
Implementation
(TP '09, TN '16)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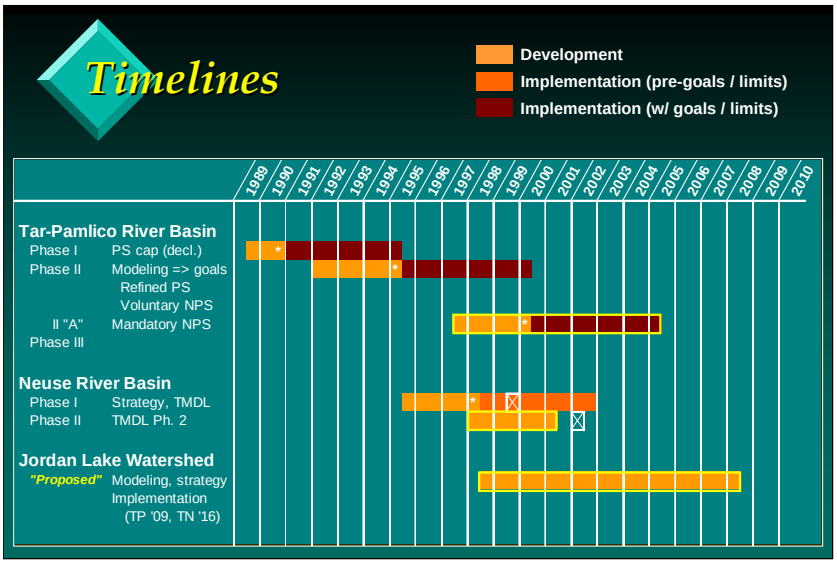
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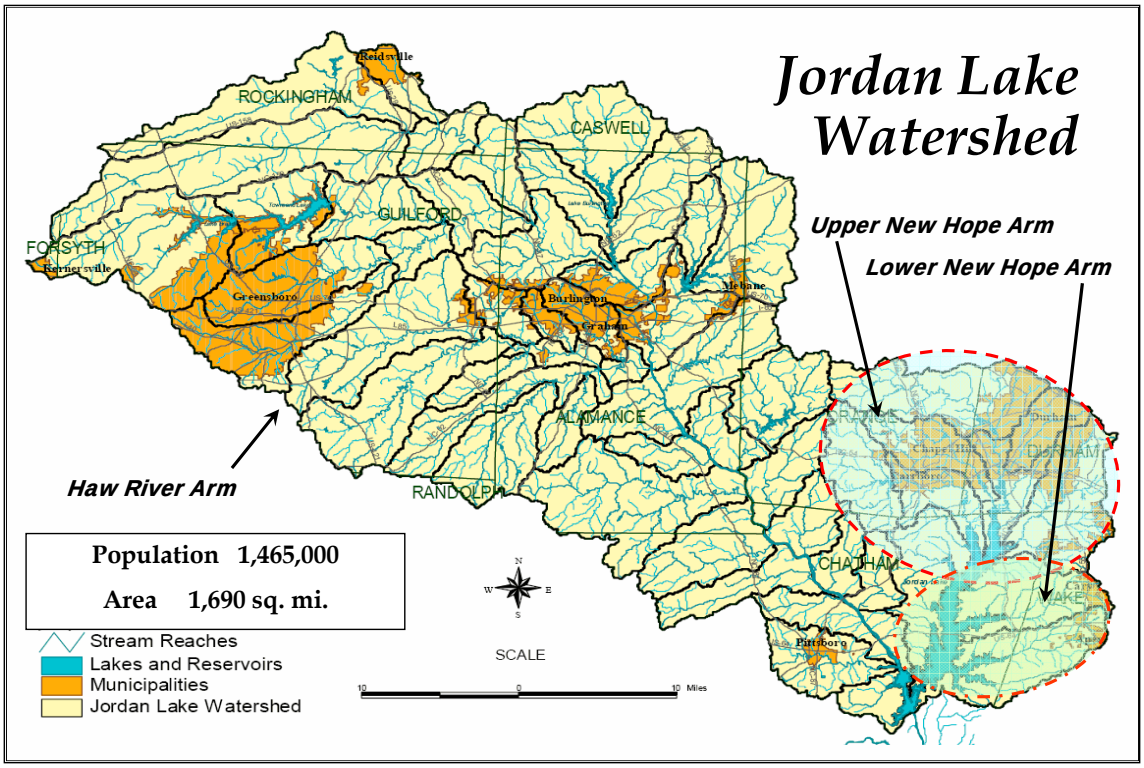
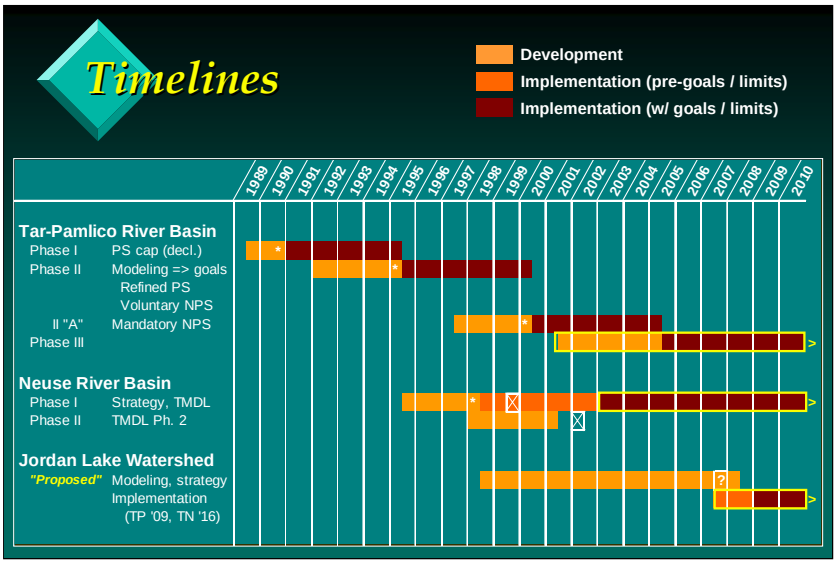


This map shows the extent of the Jordan Lake watershed.
-1,700 sq mi total

Major munis – Greensboro, Burlington, Chapel Hill, Durham

Lake in lower right.
For our purposes, the area is divided into three subwatersheds:
-Upper New Hope Arm – upper 1/3 of lake
-Lower New Hope – middle ½
-Haw – southern end – 1,300 sq mi

Haw accounts for 70-90% of flow to the lake. This arm averages 5 days HDT. In comparison, New Hope averages 418 days.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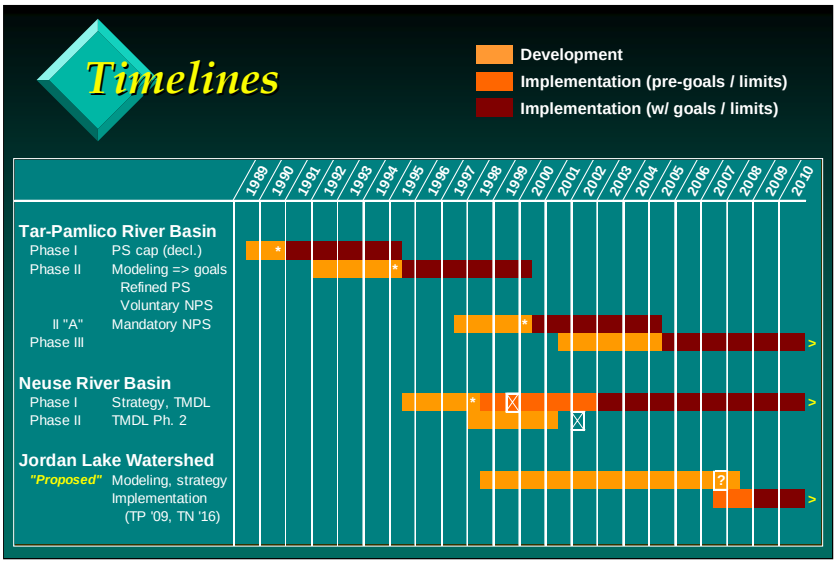


Trading concept/ program has evolved over time, both within the Tar-Pam and across these three watersheds.

30% reduction target carried over from TP to Neuse

Mandatory NPS reductions carried over from Neuse to TP

Jordan borrows from both but targets are better defined (started w/ a model instead of coming back to one) and more comprehensive in its NPS coverage.

Tar-Pamlico Strategy

- Phase I
  - Declining PS nitrogen cap, no permit limits
  - $$$ to Ag Cost-Share if over (“exceedance tax”)
  - “Trading” option
  - Model development
  - No NPS requirements

Tar-Pamlico Strategy

- Phase II
  - Estuary goals: TN 30% ↓, no TP increase
  - Refined PS cap & trading
  - Voluntary NPS controls
- 2000 NPS Rules
  - Agriculture
  - Urban stormwater
  - Fertilizer management
  - Riparian buffer protection

Tar-Pamlico Strategy

- Phase III
  - Estuary clean-up by 2013

The Strategy is broad in scope - covers all sources across the entire basin.

Consistent with legislative mandate, it is designed to produce a 30% reduction in nitrogen from PS and from NPS

Neuse PS Strategy

- Allocations for existing dischargers
- Provisions for new & expanding discharges
- Provisions for regionalization
- Group compliance option w/ offset payments
- Transport considerations
- Protection against “hot spots”

Neuse PS Strategy

- Applies to individually permitted dischargers with nitrogen-bearing wastestreams
- Sets initial nitrogen allocations for 110 existing dischargers, as annual mass loads
- Requires permit limits for larger dischargers (≥ 0.5 MGD), effective 2003

Neuse NPS Strategy

- Mandatory 30% nitrogen reduction
  - Agriculture
  - Urban stormwater
  - Nutrient management
  - Riparian buffers

Neuse PS Strategy

- Mandatory 30% nitrogen reduction
  - TN allocations
  - Permit limits for WWTPs ≥ 0.5 MGD
  - Trading
  - Group compliance option
    - Offset payments if group exceeds cap
- Expanded phosphorus controls

Proposed Jordan Lake Strategy

- Three subwatersheds, unique targets
  - Upper New Hope: 35% N ↓, 5% P ↓
  - Lower New Hope: no increase in TN or TP
  - Haw: 8% N ↓, 5% P ↓
- Point Sources:
  - Individual load allocations for both TN, TP
  - Permit limits for WWTPs ≥ 0.1 MGD
  - Effluent trading
  - Group compliance option – in-lieu fee if over

Proposed Jordan Lake Strategy

- Nonpoint Sources: similar to Neuse, Tar-Pamlico except:
  - All local governments subject to stormwater rule
  - Requires load reductions from existing development
  - Possible trading among all sources

Trading vs. "Trading"

- "Classic" Trading
- Group Compliance Programs
- In-Lieu Fee Programs

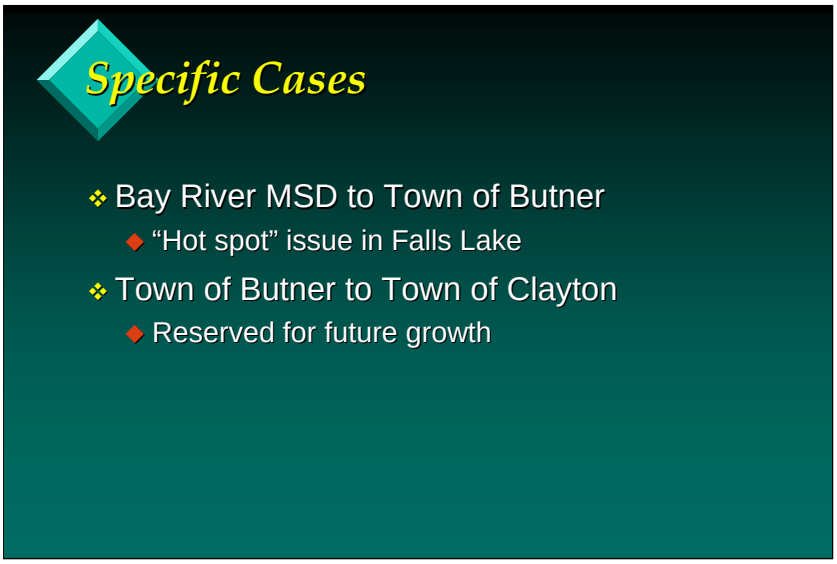
"Classic" Trading

- Transfers occur within limits of overall cap
- All parties subject to strategy
- Direct transaction between parties
- Market-driven prices – most cost-effective

Examples of "Classic" Trading

PS – PS

- ✓ *Neuse River dischargers*
- ? *Jordan Lake dischargers (proposed rules)*
- ✓ *Neuse River Compliance Association*
- ? *Jordan Lake compliance assoc. (proposed)*


Specific Cases
Bay River MSD to Town of Butner
"Hot spot" issue in Falls Lake
Town of Butner to Town of Clayton
Reserved for future growth

Group Compliance Approach

- Voluntary program
- Group is subject to TN limit = combined cap
- No individual limits if group is within cap
- Trades not necessarily involved
- Transactions are among members
- Market-driven prices

Examples of Compliance Groups

PS – PS

- ✓ *Neuse River Compliance Association*
- ? *Jordan Lake compliance assoc. (proposed)*

In-Lieu Fee Programs

- No direct transaction among sources
- State sets fee (&/lb) in rule
- State assumes responsibility for project implementation and upkeep
- Cost-effective (?) – rate is in flux

Examples of In-Lieu Fee Programs

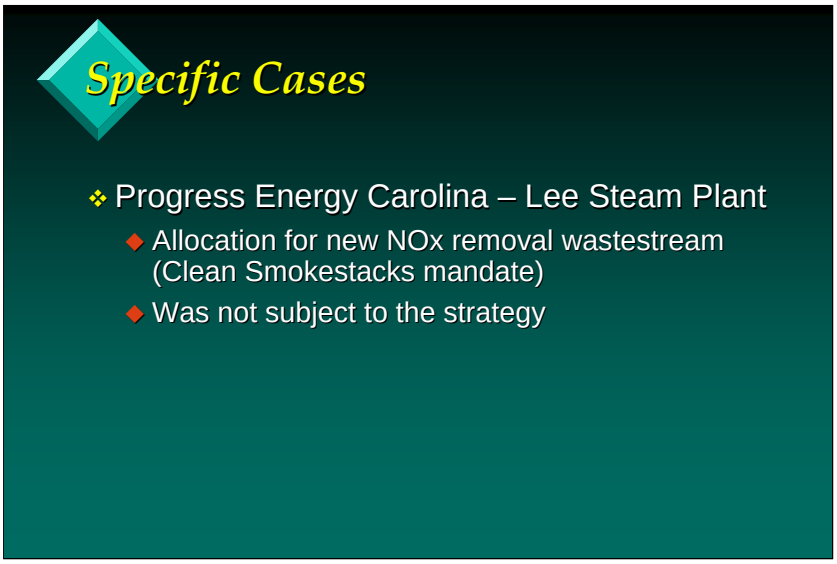
PS – NPS

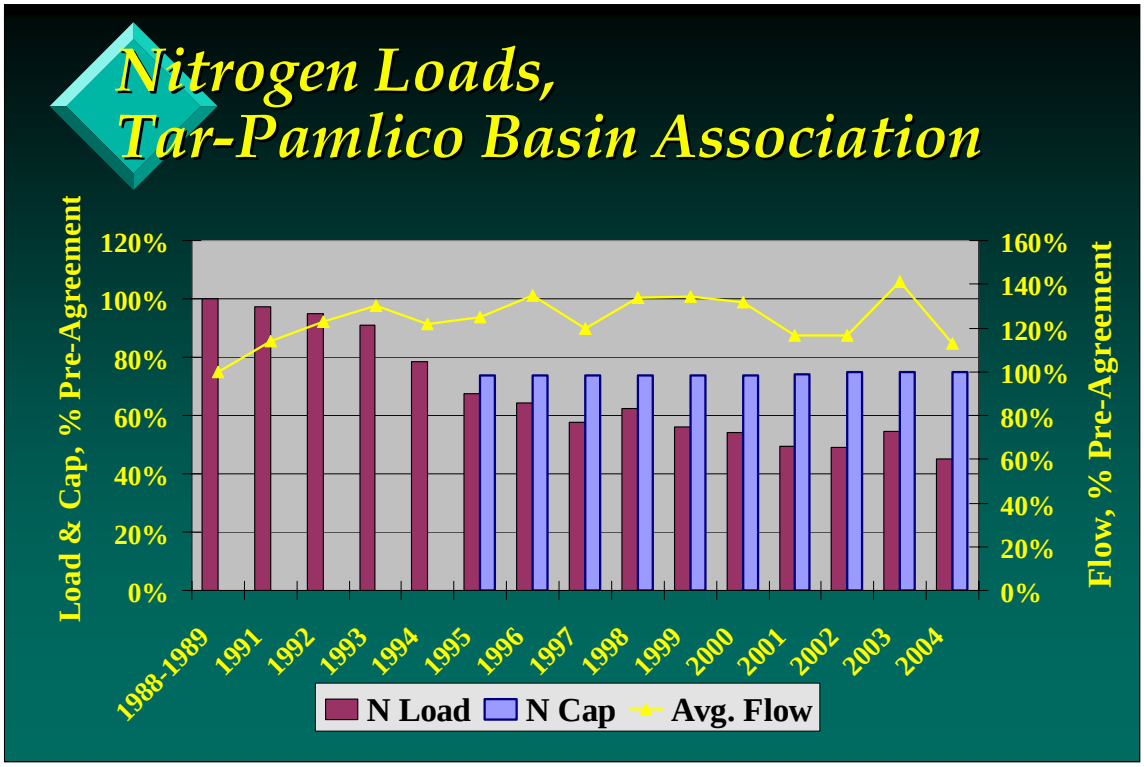
- ✓ *NC Ag Cost Share Program*
  - ✓ Tar-Pamlico Basin Association
- ✓ *NC EEP WRF*
  - Neuse/ Jordan Compliance Associations
  - ✓ Neuse/ Jordan new & expanding dischargers

Examples of In-Lieu Fee Programs

NPS – NPS

- *NC EEP Wetlands Restoration Fund (WRF)*
  - Neuse new development
  - Tar, Jordan new development
  - Jordan existing development
- *NC EEP Riparian Buffer Restor'n Fund (RBRF)*
  - Tar/Neuse/Catawba buffer impacts


Specific Cases
Progress Energy Carolina – Lee Steam Plant
Allocation for new NOx removal wastestream (Clean Smokestacks mandate)
Was not subject to the strategy



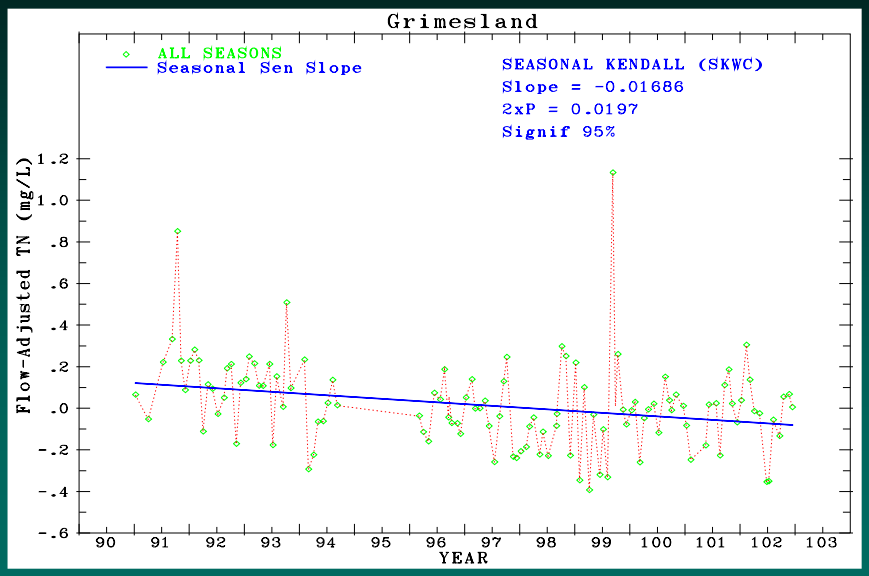
Tar-Pam program is showing signs of success

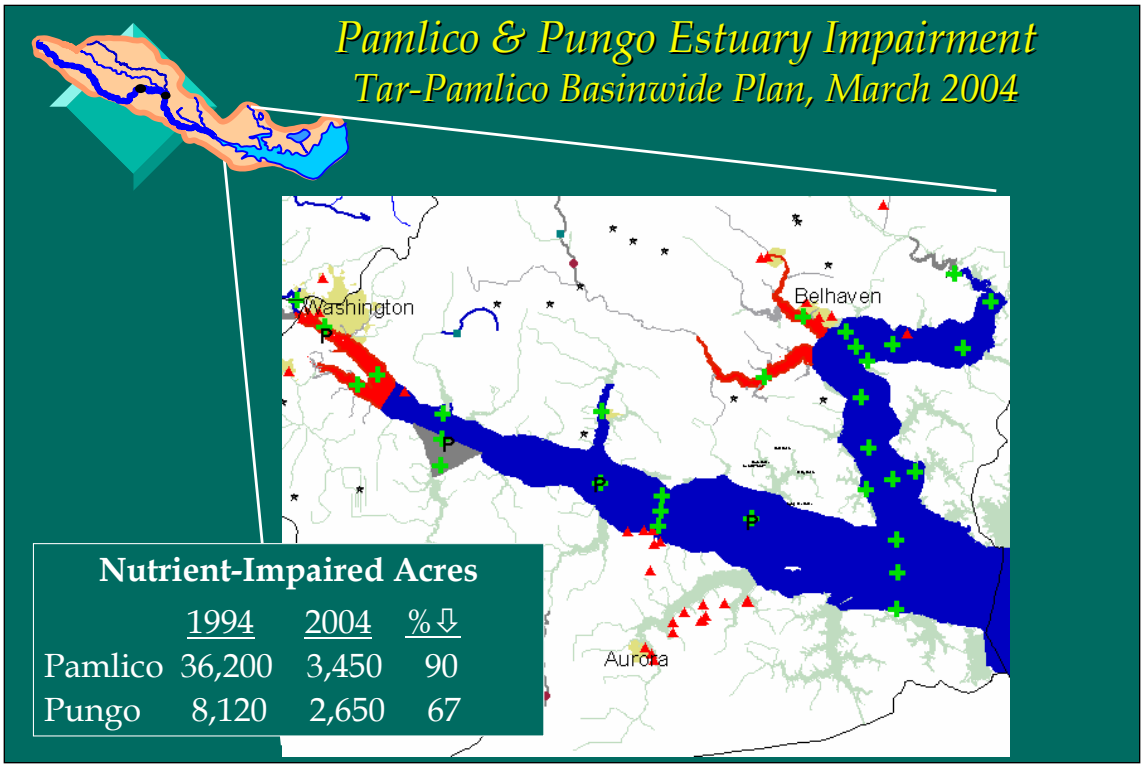
•PS group is well under its cap for now; compliance bubble allows very cost-eff reductions

•Success at this level means that the ACSP offset option is used as fallback, not relied on as the solution

Estimated TN Conc. Decrease

1991 – 2002 = 0.20 mg/l, or 18%

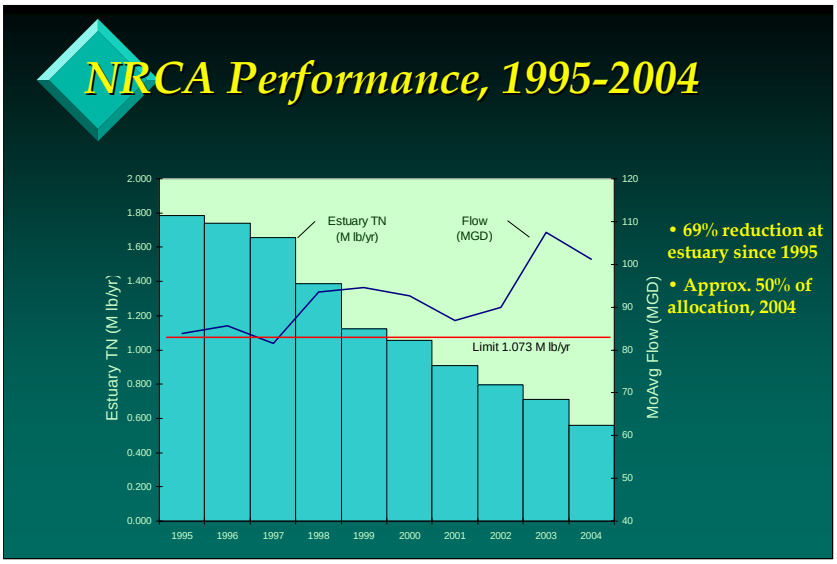




Red = impaired.

1st Basinwide Plan, impaired line extended nearly to Pungo River.

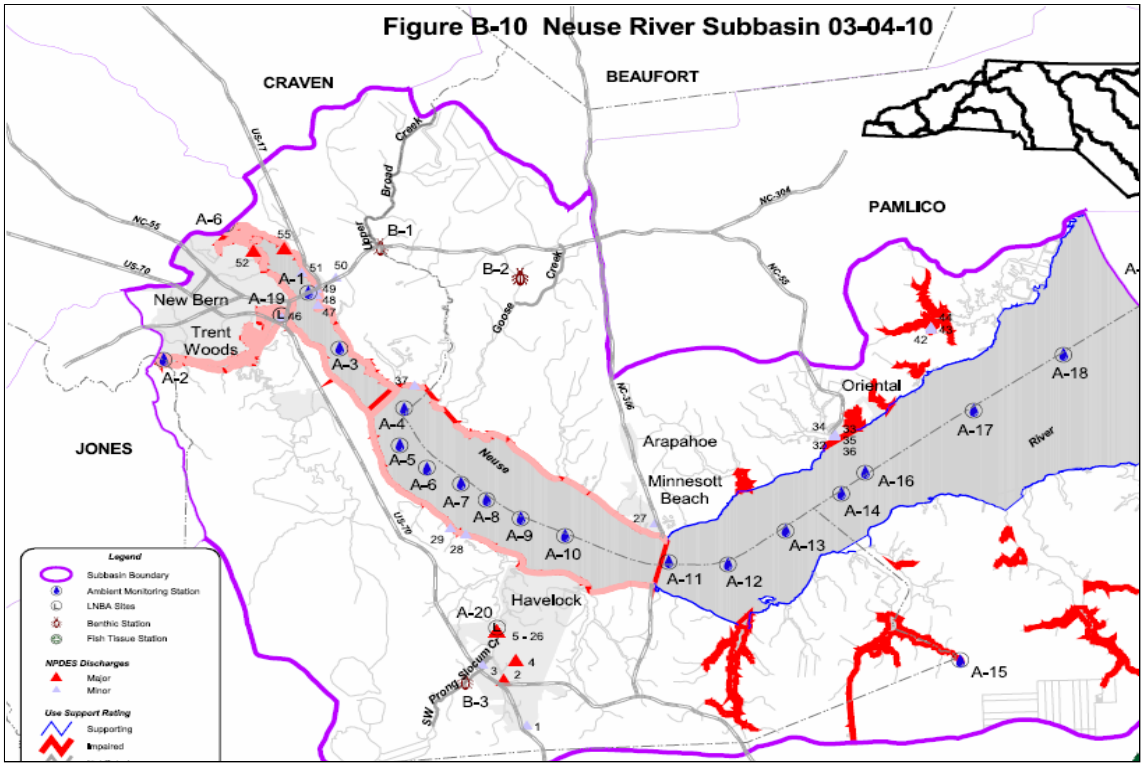
Again, Phase III staked selves to eliminating impairment w/in 2 Basin cycles from 2004, = 2014.



Neuse PS Progress

2 actual allocation trades to date.
One didn't carry through, hot spot clause invoked, Falls Lake
Has prompted recog need develop nested strategy Falls w'shed,
add'l management measures

PSs impressive redux, yet …



Estuary impairment unabated.

And will remain impaired upcoming Basinwide WQ Mgmt Plan (2007).

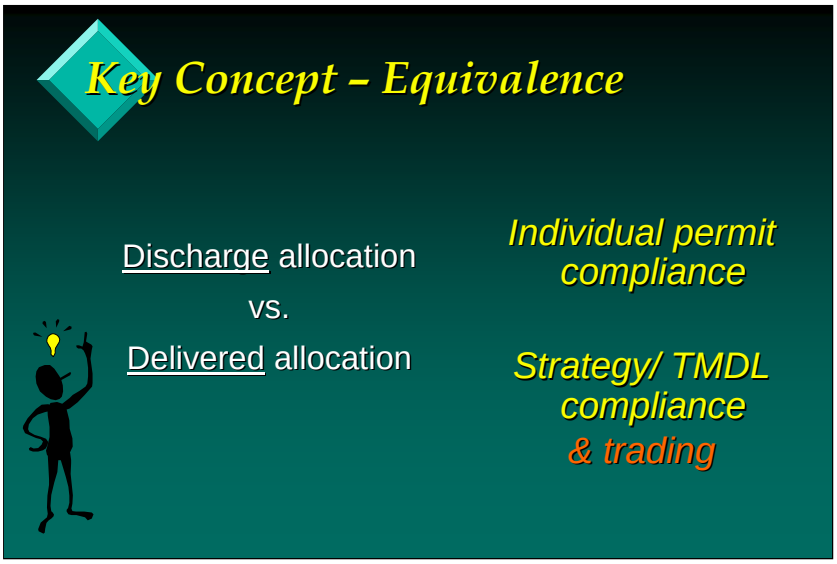
Grease, Grit, and What-not

Assorted thoughts on the notion of trading and on what seems to help or hinder NC's trading programs…

Grease, Grit, and What-not

- Money (Duh!)
  - Advance payments in Tar-Pamlico Phase I
  - $ for monitoring & modeling
  - $ for NPS programs, BMPs, etc.
  - $ for collection system & WWTP improvements

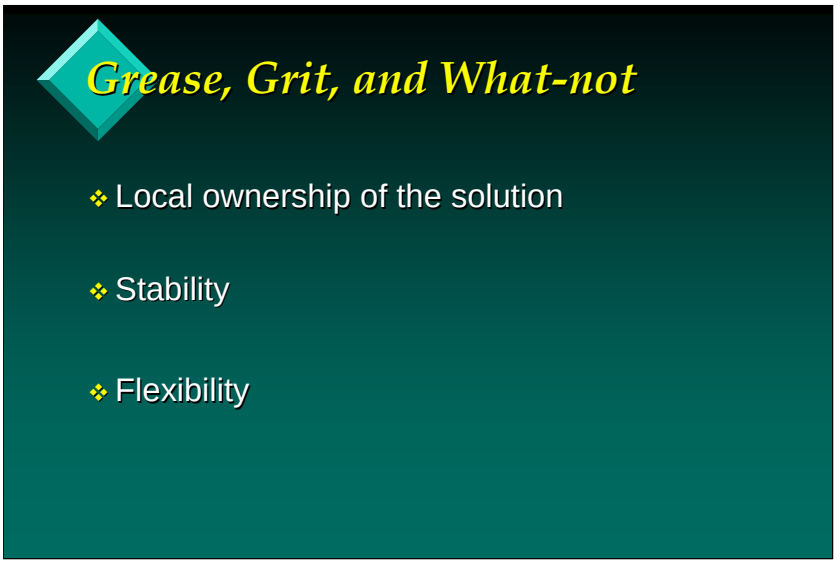
Avoid building a Tower of Babel



Critical to distinguish between the two at all times

It becomes especially critical when dealing with group compliance and with movement of allocation

Which is a convenient segue to the group compliance option

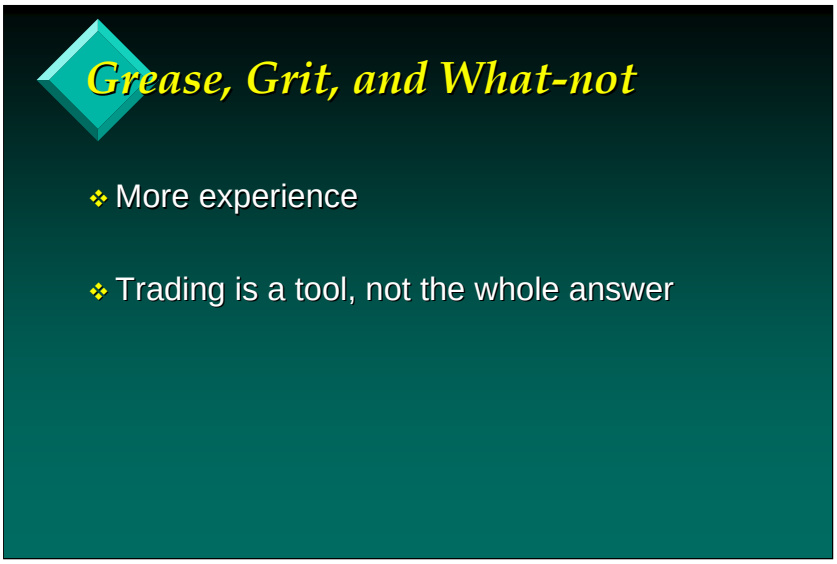


Stability

e.g., strong framework, clear requirements

Grease, Grit, and What-not

- More options for trading
  - Limited options in Neuse & Tar-Pamlico
- More tools
  - e.g., to predict or track NPS reductions based on BMPs (NLEW works for TN, not TP)



The same was true for MBO, TQM, and the rest.
It buys us some time til we get to the really hard part.

Watersheds w/ nutrient impairments, require TMDLs & mgmt action in future.

Tar-Pamlico Nutrient Strategy

http://h2o.enr.state.nc.us/nps/tarpam.htm

john.huisman@ncmail.net, 919-733-5083 x572

Neuse Nutrient Strategy

http://h2o.enr.state.nc.us/nps/Neuse_NSW_Rules.htm

Draft Jordan Lake Nutrient Strategy

http://h2o.enr.state.nc.us/admin/

Trading Grant Project:

http://www.cfra-nc.org/projact.html

rich.gannon@ncmail.net, 919-733-5083 x 356

mike.templeton@ncmail.net, 919-733-5083 x 541