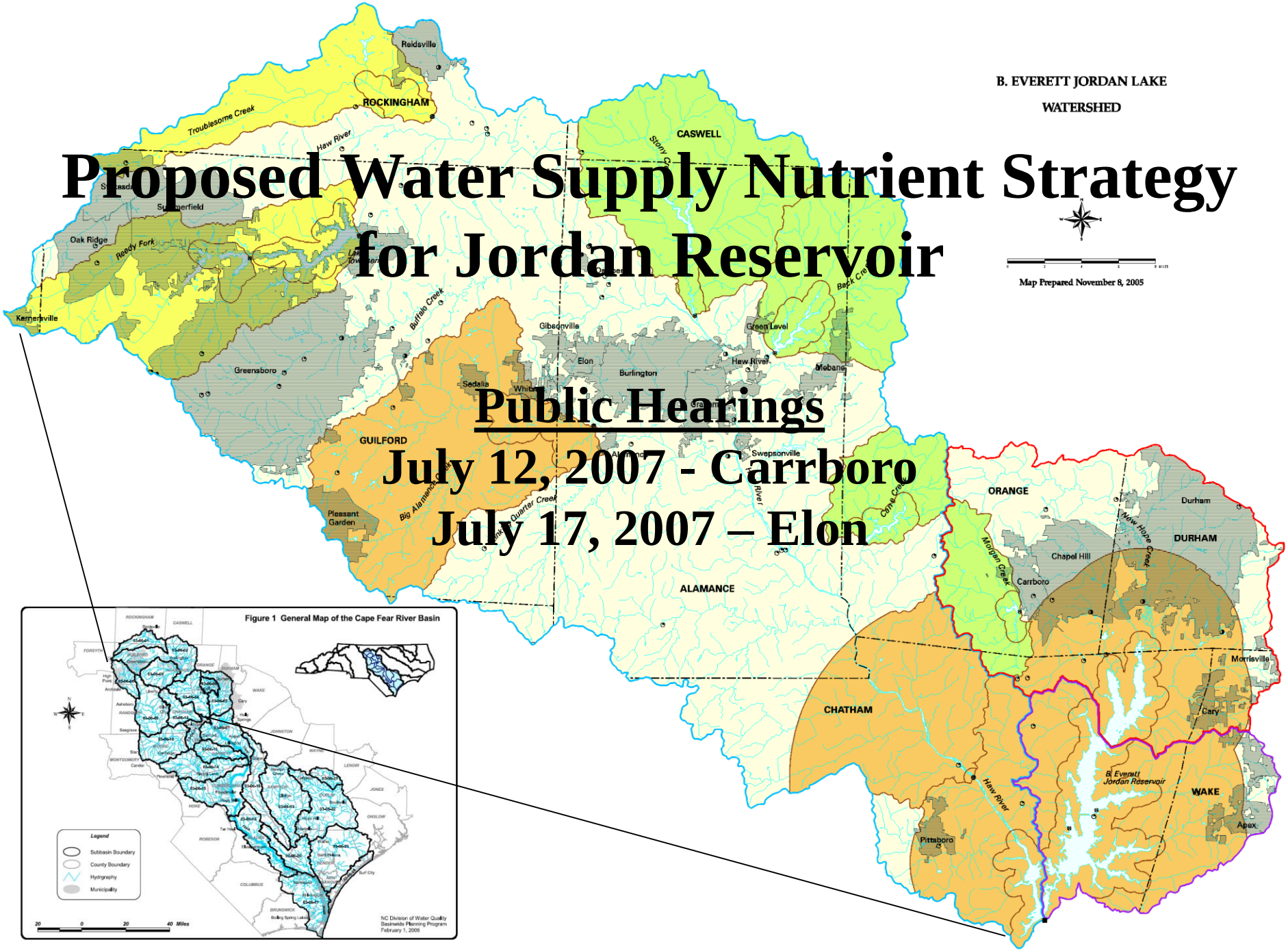
Proposed Water Supply Nutrient Strategy for Jordan Reservoir



Public Hearings

July 12, 2007 - Carrboro

July 17, 2007 – Elon

Outline of Talk

- Need for Rules
- Fairness to Haw Local Governments
- Rules, Options, Costs
- Responsiveness to Comments

Why Is the Environmental Management Commission Proposing these Rules?

- Entire Jordan Reservoir not meeting water quality standards – excessive nutrients
- EMC required to act -
  - 143B-282 – Protect water quality, make rules
  - Federal Clean Water Act
    - Requires states address impaired waters
  - Clean Water Responsibility Act of 1997
    - Set goals for Nutrient Sensitive Waters
    - Requires discharge concentration limits
    - "Fair, reasonable, and proportionate"

Nutrient Conditions

Oligotrophic vs. Eutrophic

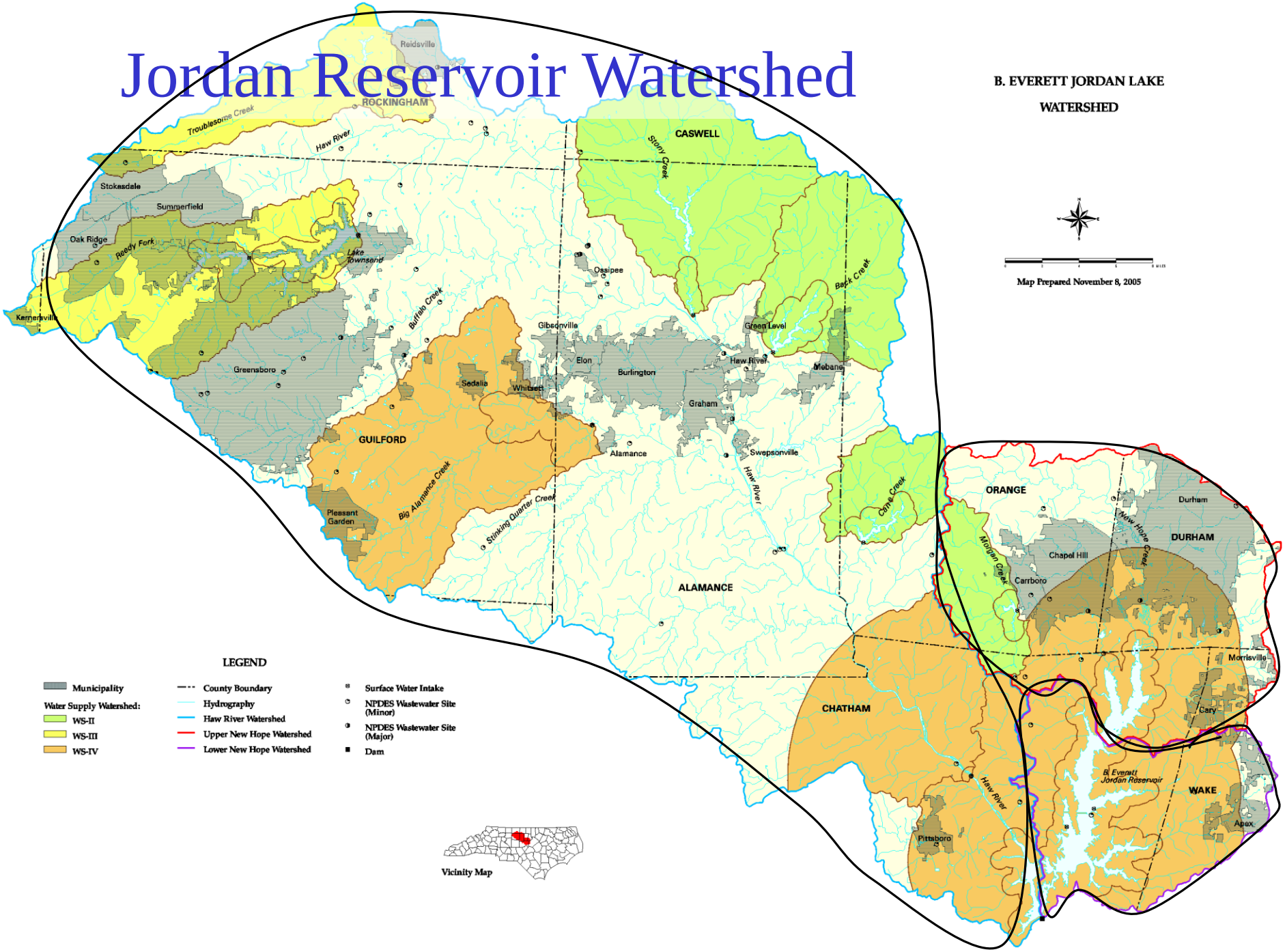
Phelps Lake in July 2005

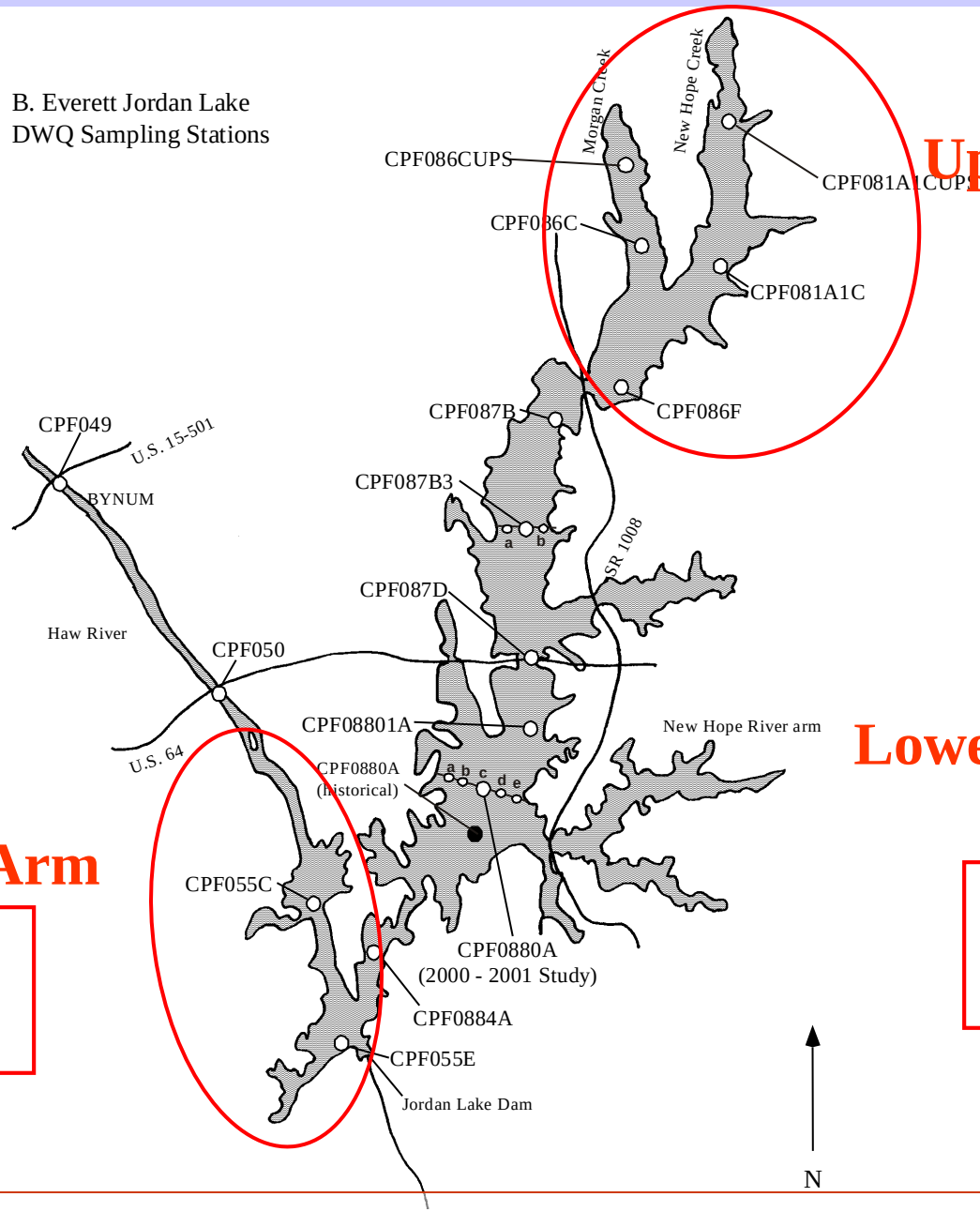
Haw River Arm in August 2005

Public Comments

- Why are Triad local governments being burdened over a problem they don't contribute to?
- Aren't the requirements on local governments *disproportionate* to their contributions to the problem?
- Under adaptive management, why not let Phase II play out, see if that restores the lake?

Jordan Reservoir Watershed





Upper New Hope Arm

35% N
5% P

Lower New Hope Arm

0% N
0% P

Haw River Arm

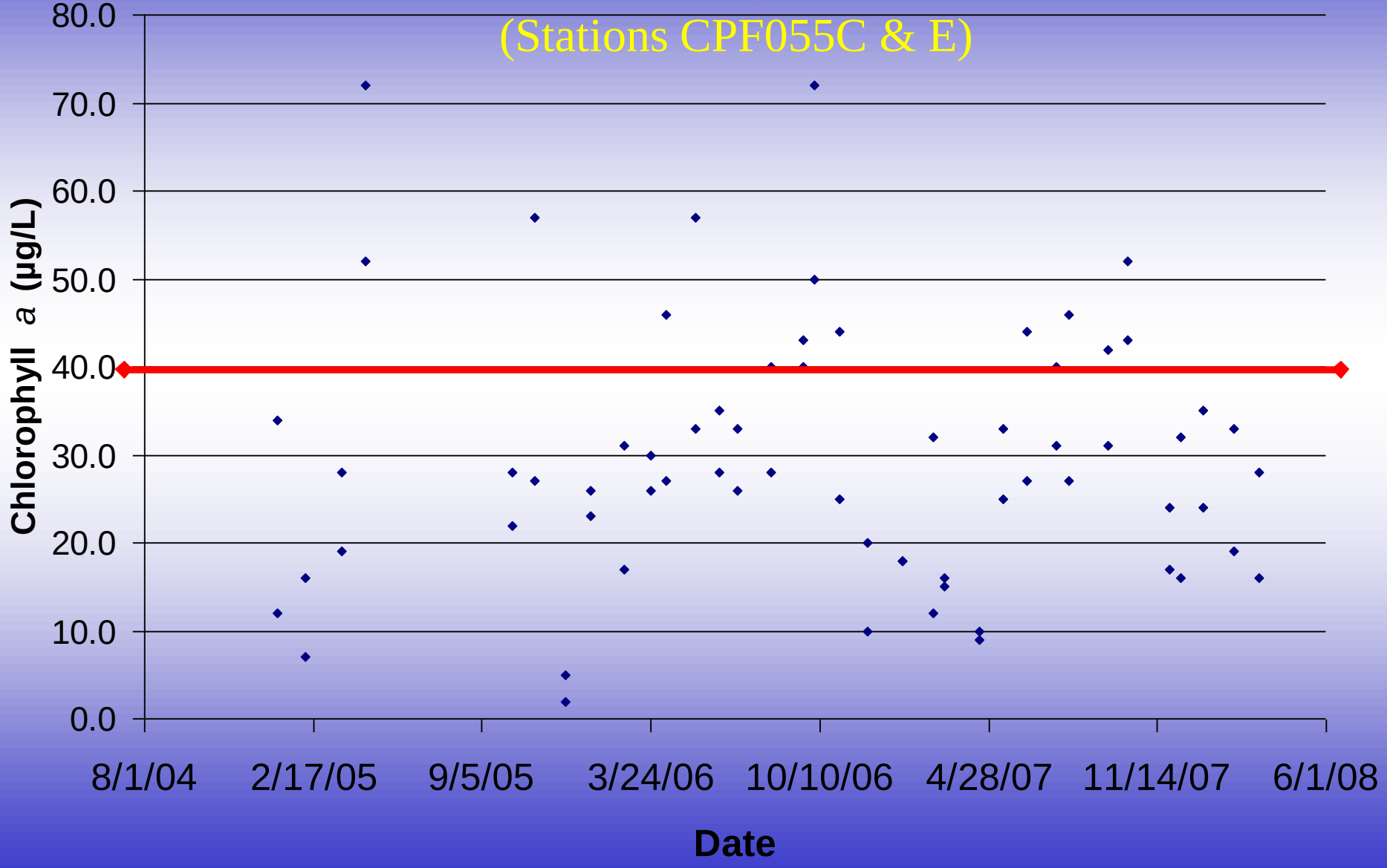
8% N
5% P

Goals are relative to a baseline period ending 2001

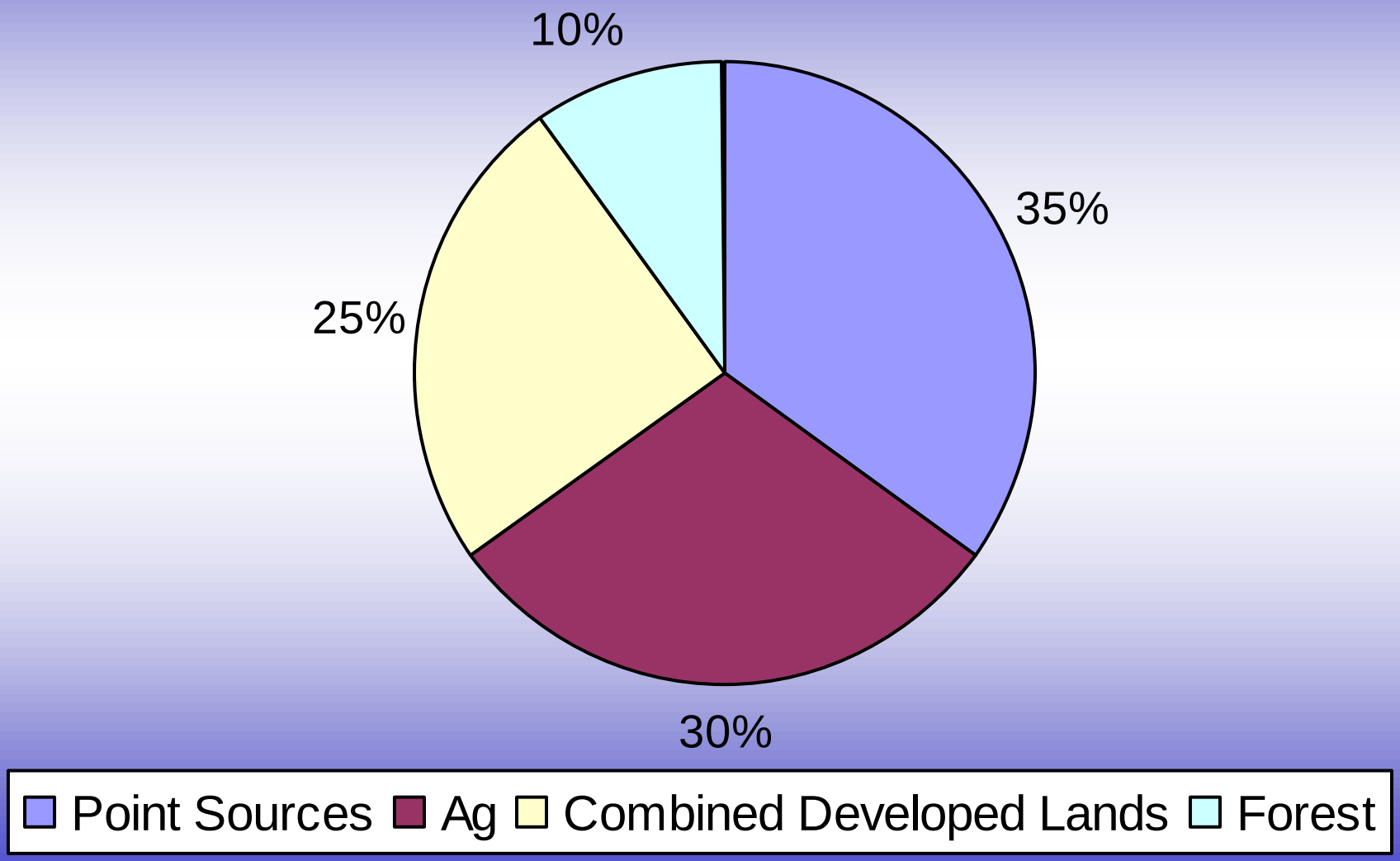
© 2000 - 2001 DWQ Staff

Chlorophyll *a*, Haw River Arm of Jordan Reservoir, 2005 – Mar 2008

(Stations CPF055C & E)



Haw Arm Nitrogen Loading to Jordan Lake



Proposed Jordan Nutrient Rules

15A NCAC 2B

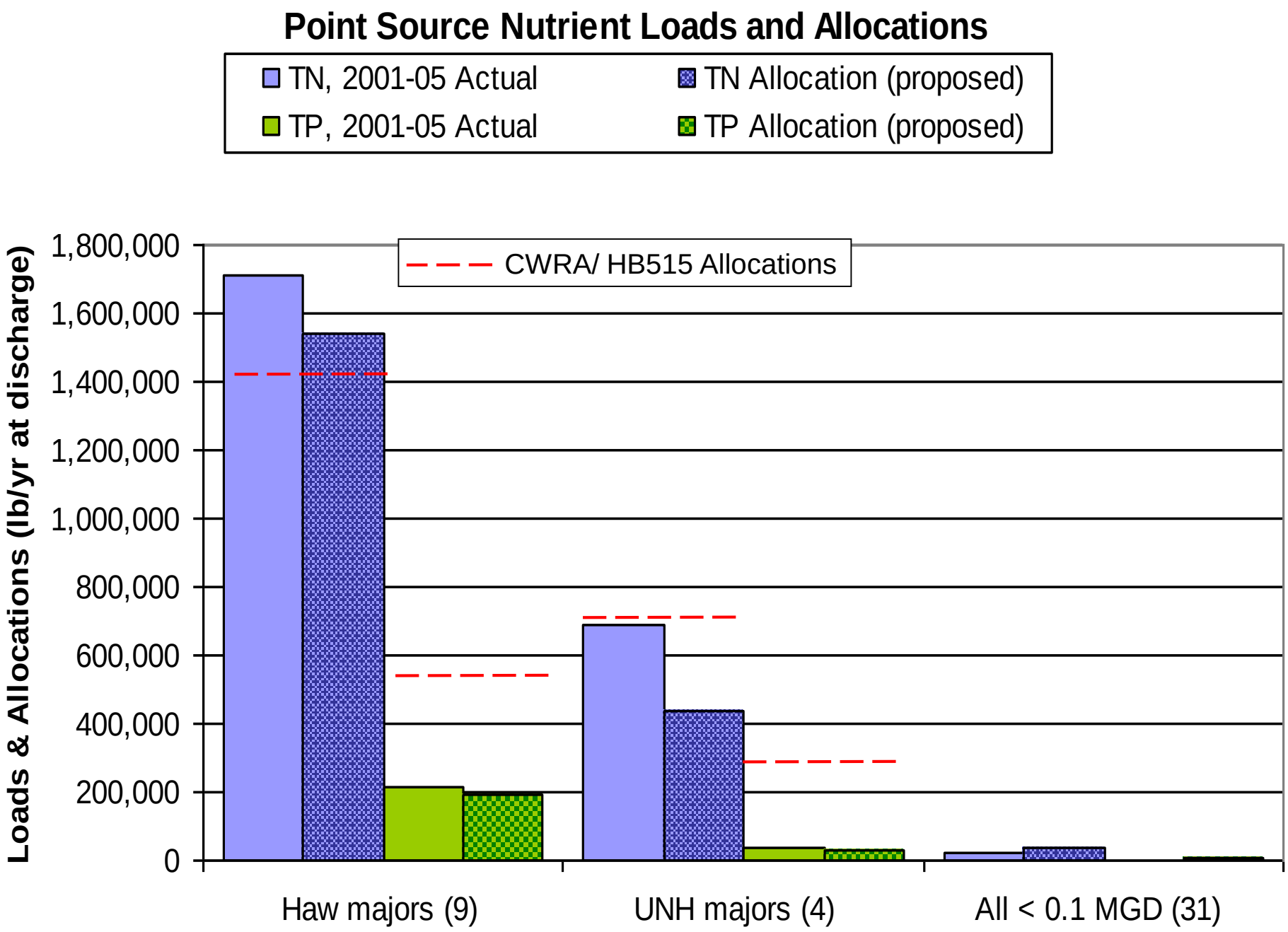
- **.0262** Goals
- **.0263** Nutrient Management
- **.0264** Agriculture
- **.0265** Stormwater - New Development
- **.0266** Stormwater - Existing Development
- **.0267, .0268, .0272** Riparian Buffer Protection
- **.0269** Trading
- **.0270** Wastewater Discharges
- **.0271** Stormwater - State and Federal Entities

Discharger Allocations

- Equivalent Concentrations
  - **Haw majors (9):** **5.29 mg/L N** 0.66 mg/L P
  - **UNH majors (4):** **3.04 mg/L N** 0.23 mg/L P
  - LNH major (1): 5.35 mg/L N 0.37 mg/L P

  - All < 0.1 MGD (31): 12.0 mg/L N 2.0 mg/L P

  For comparison:
  - **CWRA – by 2003: 5.5 mg/L N 2.0 mg/L P**


Point Source Nutrient Loads and Allocations
TN, 2001-05 Actual
TN Allocation (proposed)
TP, 2001-05 Actual
TP Allocation (proposed)
CWRA/ HB515 Allocations
Loads & Allocations (lb/yr at discharge)
1,800,000
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
Haw majors (9)
UNH majors (4)
All < 0.1 MGD (31)

What Can We Do on Existing Development Besides Retrofits?

- Stormwater
  - Source control – fertilizer, pet waste
  - Street sweeping
  - Stormwater capture & reuse
  - Improve existing ponds
  - Buffer, stream restoration
  - Require treatment redevelopment
  - Require over-treatment new development
  - Remove existing impervious cover
- Wastewater
  - Over-treat, regionalize
  - Connect onsite ww where appropriate

Will the rules cost Haw local governments $900 million in the next 5 yrs?

- Absolutely not. Original estimates:
  - Existing Dev. - $530m, worst-case retrofits, entire Jordan watershed, decades, Haw < ¼ cost New Hope
  - Wastewater - $250 million to Jordan watershed
  - New Dev/Buffers - $375,000/yr to Jordan watershed
- Revised estimate, Existing Development:
  - Worst case clearly avoidable
  - Speculative beyond first several years
  - Range of options
  - Low end – a staff position

Have the Hearing Officers Listened?

- Posted all public comments
- Reviewed all comments closely, detailed replies
- Added flexibility to Existing Development rule –
  - Monitoring option
  - Additional alternative practices
  - More specific review criteria
- Shifted some buffer responsibilities to State
- Added private trading options throughout rules
- Propose EMC funding resolution to General Assembly
- More information:

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

What Input Has Burlington Had and Where Is the Rulemaking Process?

‘03-’04	1½ yrs	22 stakeholder meetings - Set goals, rule concepts
2005	May-Jun	Public meetings & comment period on conceptual strategy
2006		27 stakeholder technical meetings – Revised rules
2007	Jun-Sep	Public hearings, formal comment period
	Sep-Apr	Hearing Officers deliberate over comments
2008	May 8th	Request EMC adopt rules
	Jun-Nov	RRC
2009	January	General Assembly review
	Summer	Rules effective

Rules Compliance Timeframes
(years after effective date)

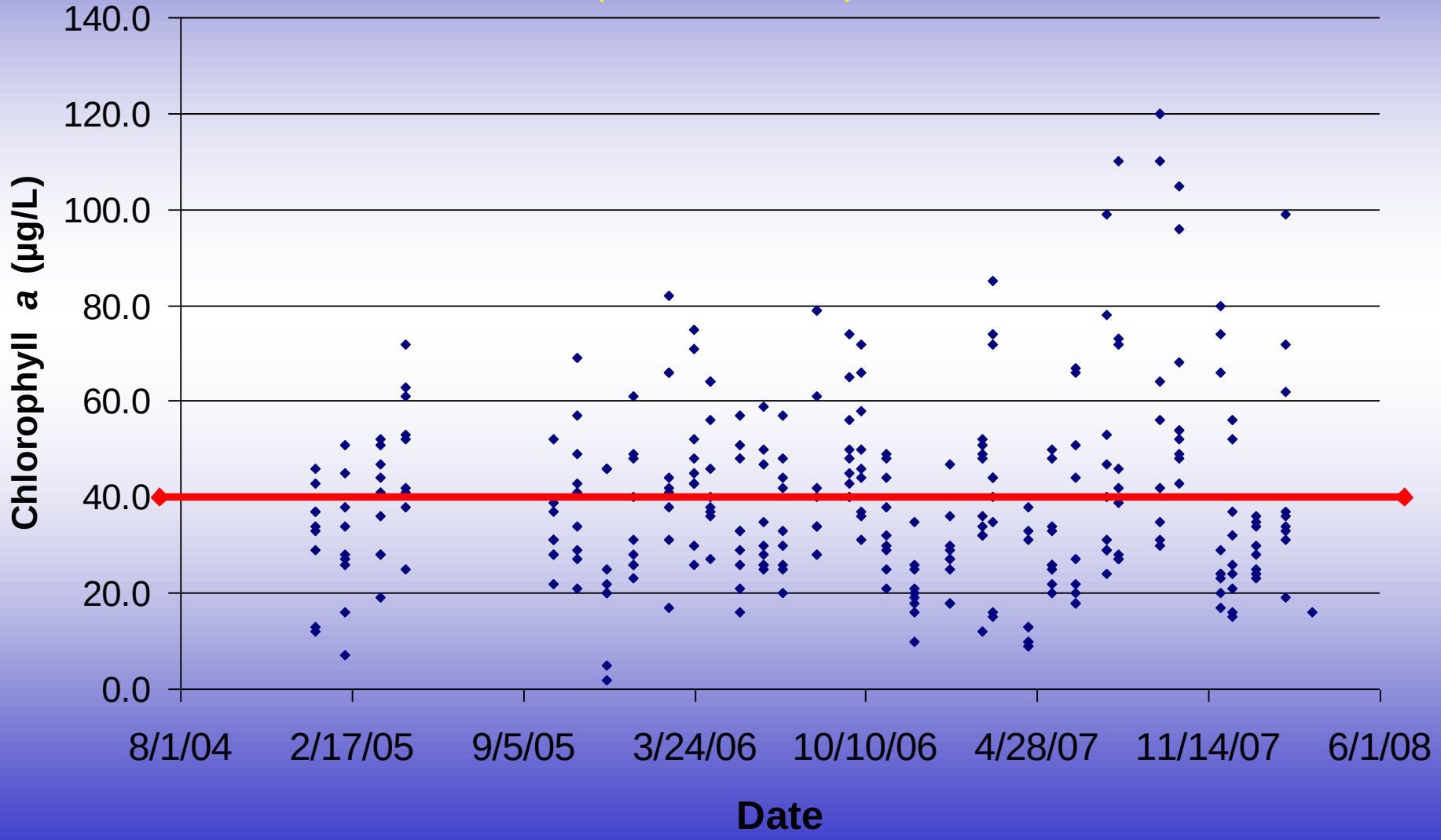
- Local Governments:
  - Buffers – 1 yr
  - New Development Stormwater – 3 yrs
  - Existing Development – begin 5th yr, propose compliance date
  - Wastewater Nitrogen – 5th yr
  - Wastewater Phosphorus – 1st yr
- Agriculture – full reductions 6-9 yrs
- Nutrient Management – 3 yrs

Benefits of Jordan Reservoir

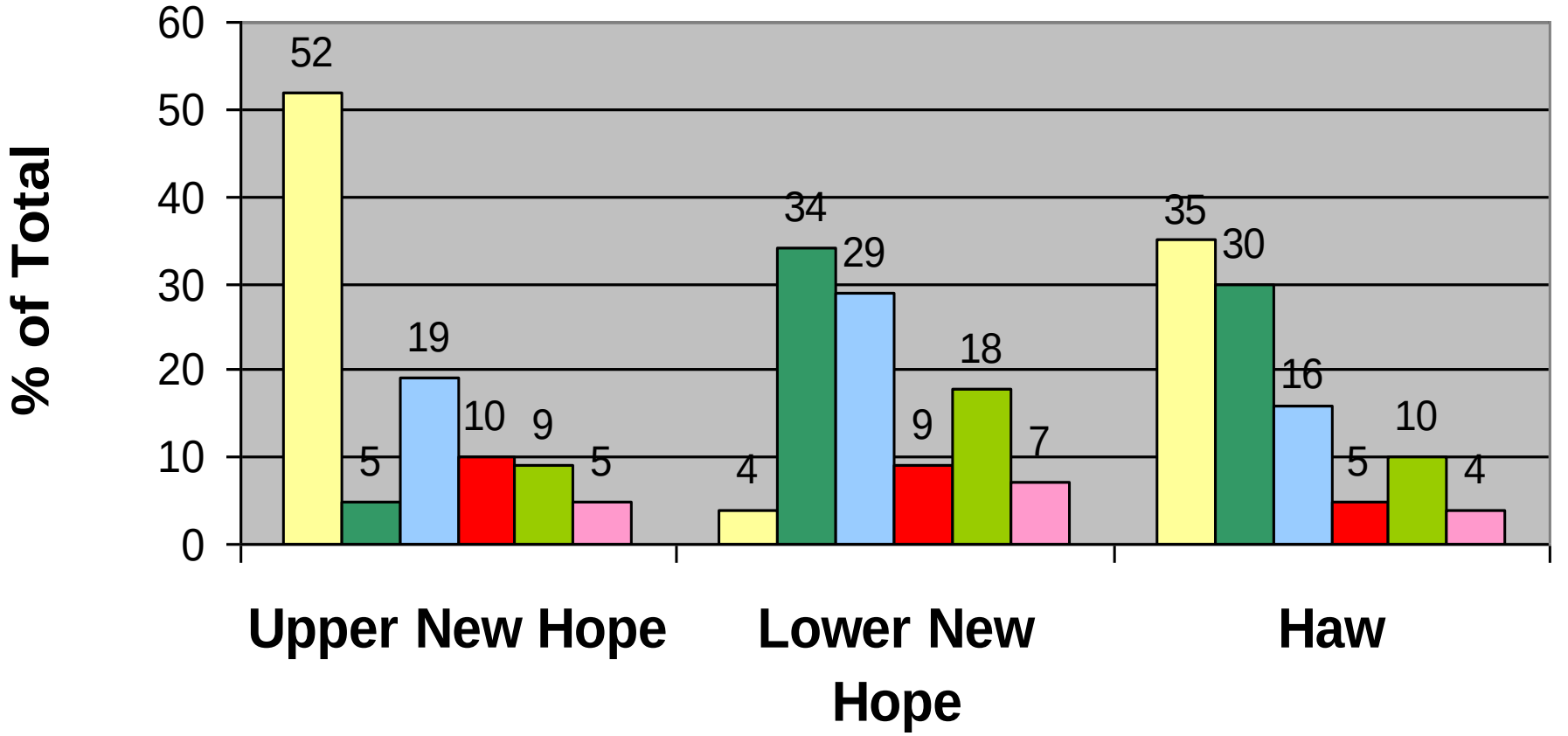
- Recreation 1.1 – 1.5 million visitors / yr.
- Drinking Water – 460,000 people, 6 communities
- Habitat – aquatic and water-dependent
- Boon to local economy and property values

Chlorophyll *a*, Jordan Reservoir, 2005 – Mar 2008

(All Stations)

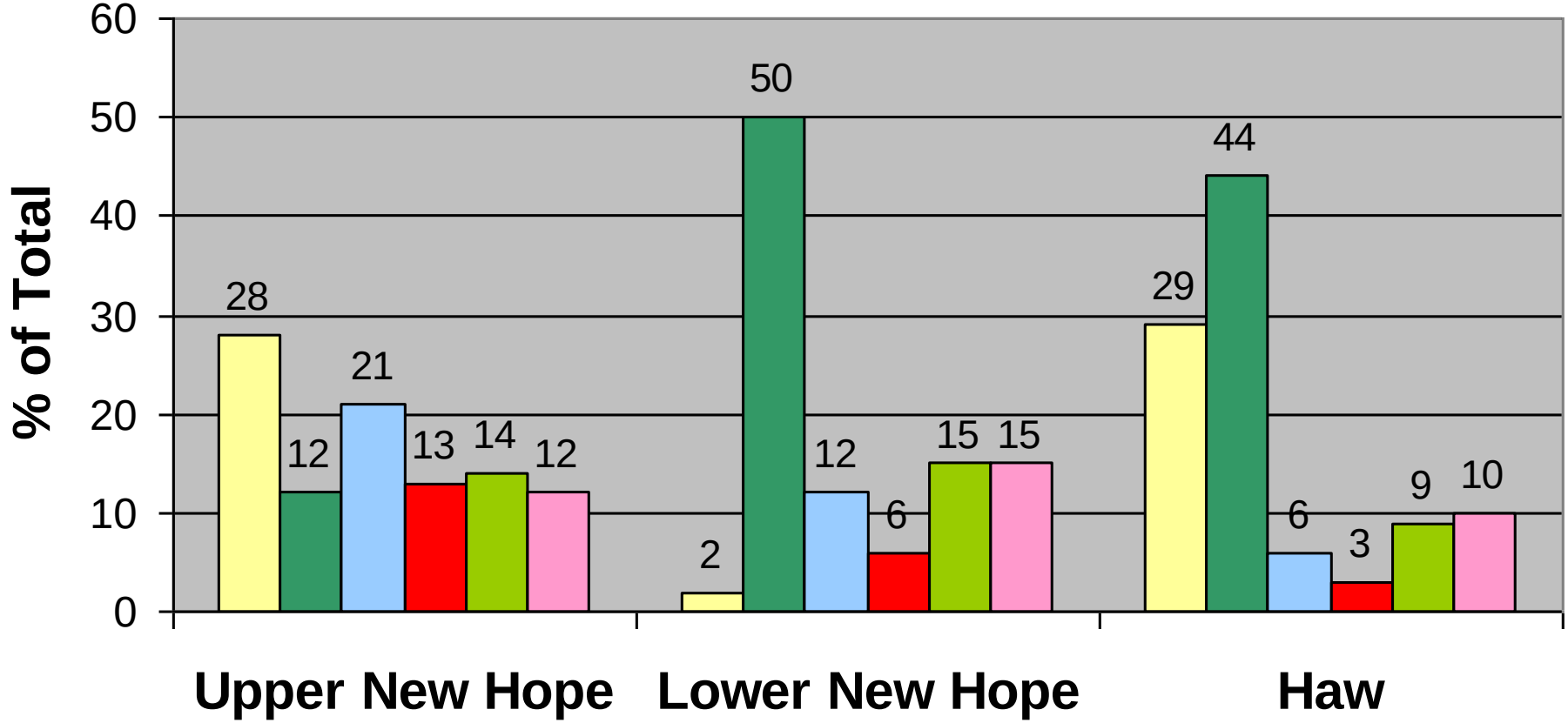


Sources of Nitrogen to Jordan Reservoir



- Point Sources
- Agriculture
- Residential
- Commercial / Industrial
- Forest
- Other Non-Point Sources

Sources of Phosphorus to Jordan Reservoir



- Point Sources
- Agriculture
- Residential
- Commercial / Industrial
- Forest
- Other Non-Point Sources

New Development Rate Targets

Sub-w'shed	Nutrient	New Dev Rate (lb/ac-yr)	Offsite Rate Thresholds (all sub-watersheds)
UNH	**N**	**2.2**	
	P	0.82	
LNH	**N**	**4.4**	**Residential** 4.0 lb N/ac-yr
	P	0.78	
Haw	**N**	**3.8**	**Comm/Indust** 8.0 lb N/ac-yr
	P	1.43	