

# **SAMI Acid Deposition Assessment**

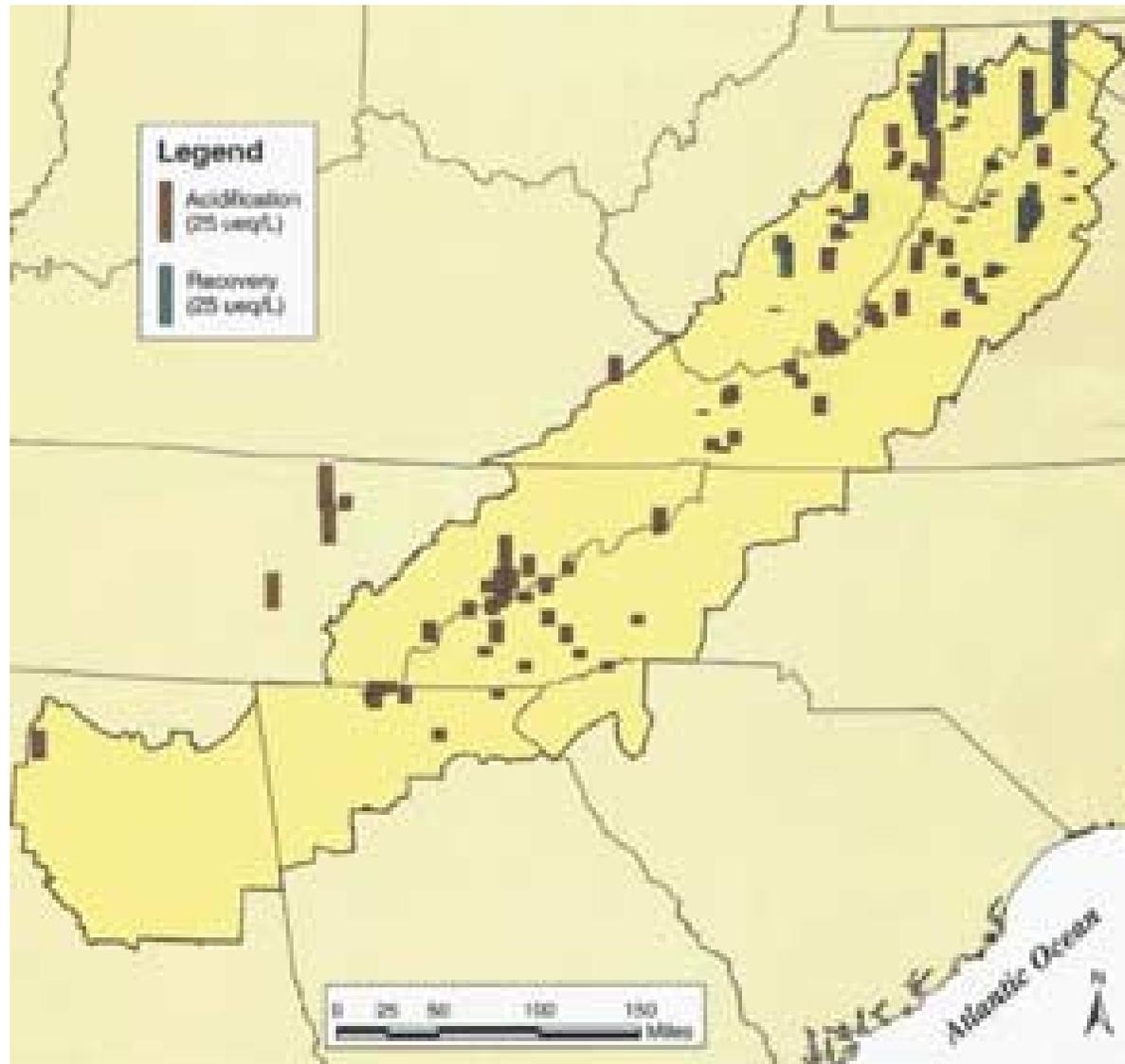


## **Part 2: First Impressions**

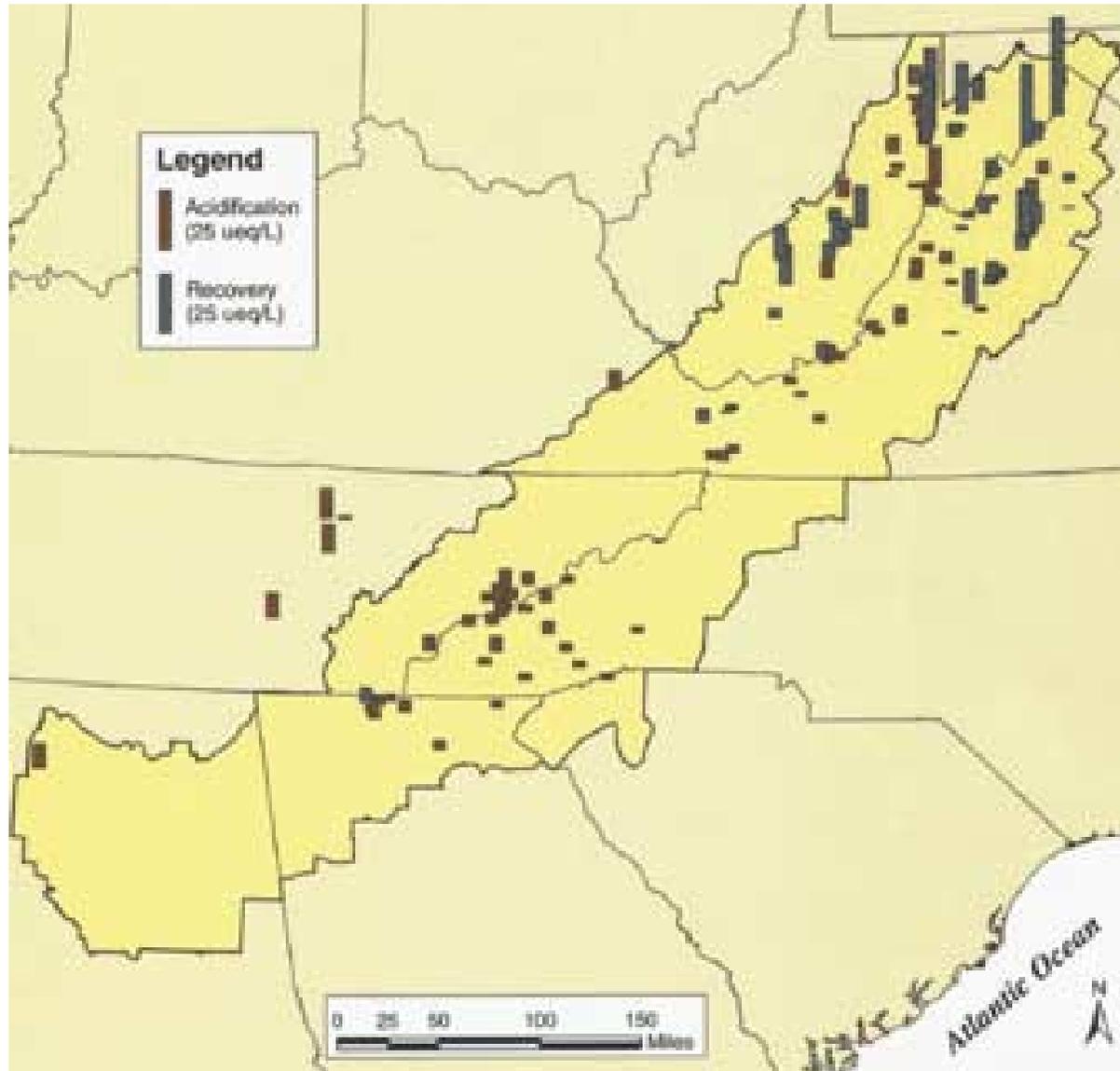
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**Presentation to SAMI Policy, Technical,  
and Operations Committees  
December 5-6, 2001**

# Streamwater ANC Concentration Change between 1991-95 and 2040 Strategy B1



# Streamwater Acid Neutralizing Capacity (ANC) Change between 1991-95 and 2040 Strategy B3

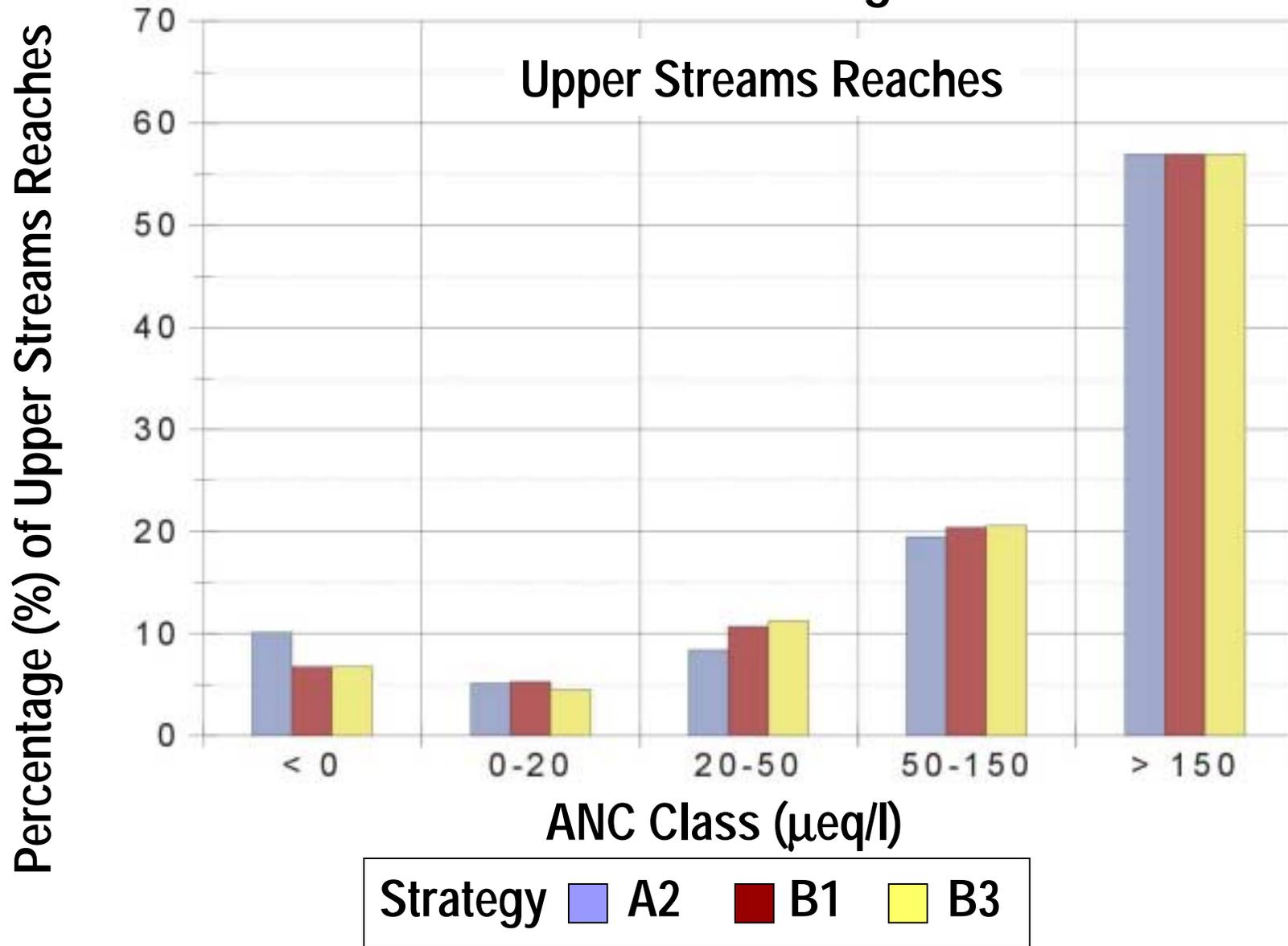


# SAMI Acid Deposition Stream Assessment: Approach

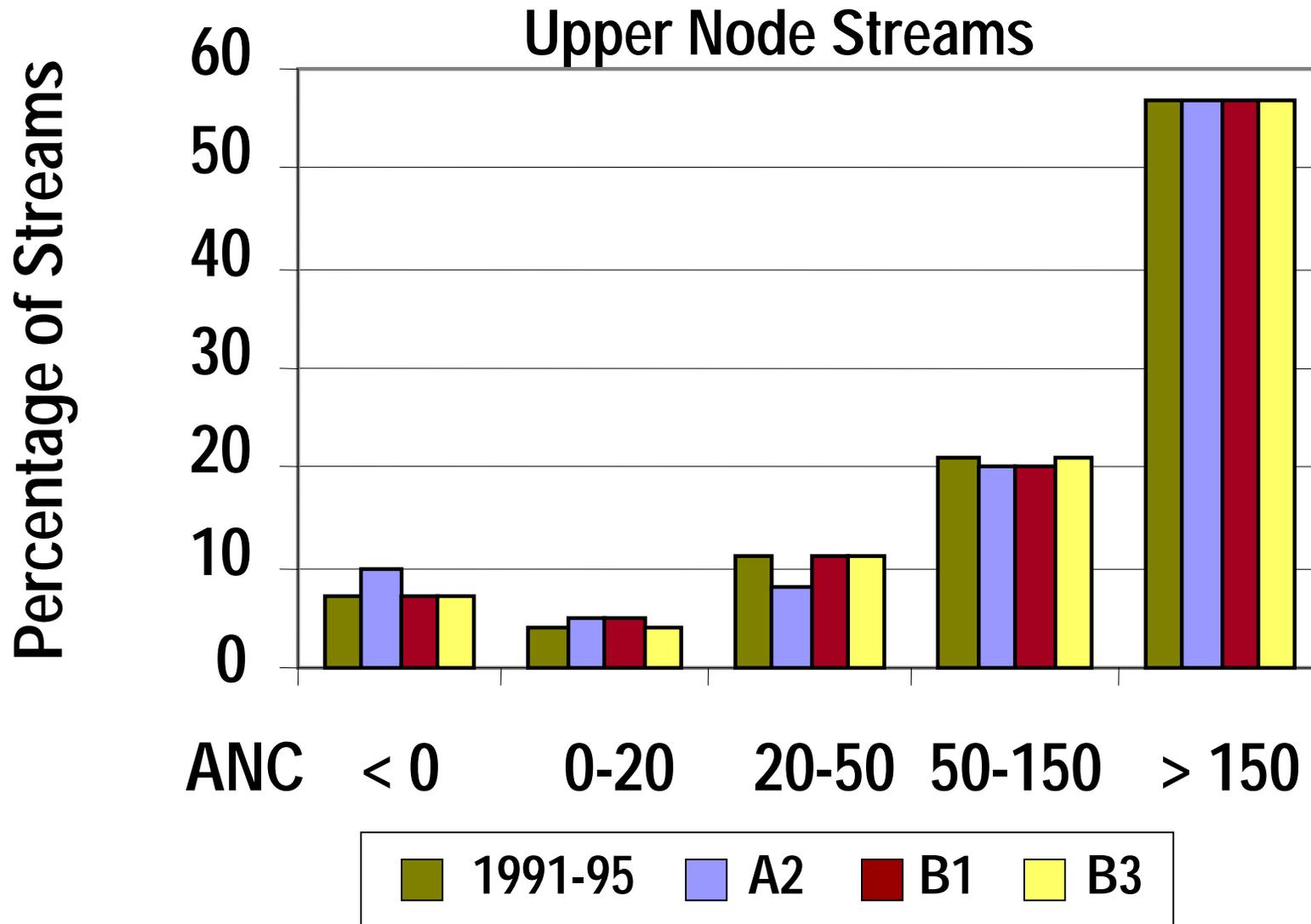


- Extrapolate responses of modeled streams to the SAMI region
- Qualitatively relate stream water quality changes to fish population changes

# Stream Acid Neutralizing Capacity (ANC) in SAMI Region 2040 SAMI Strategies



# Stream Acid Neutralizing Capacity (ANC) in SAMI Region 2040 SAMI Strategies Compared to 1991-95



# Observations on Strategy Responses

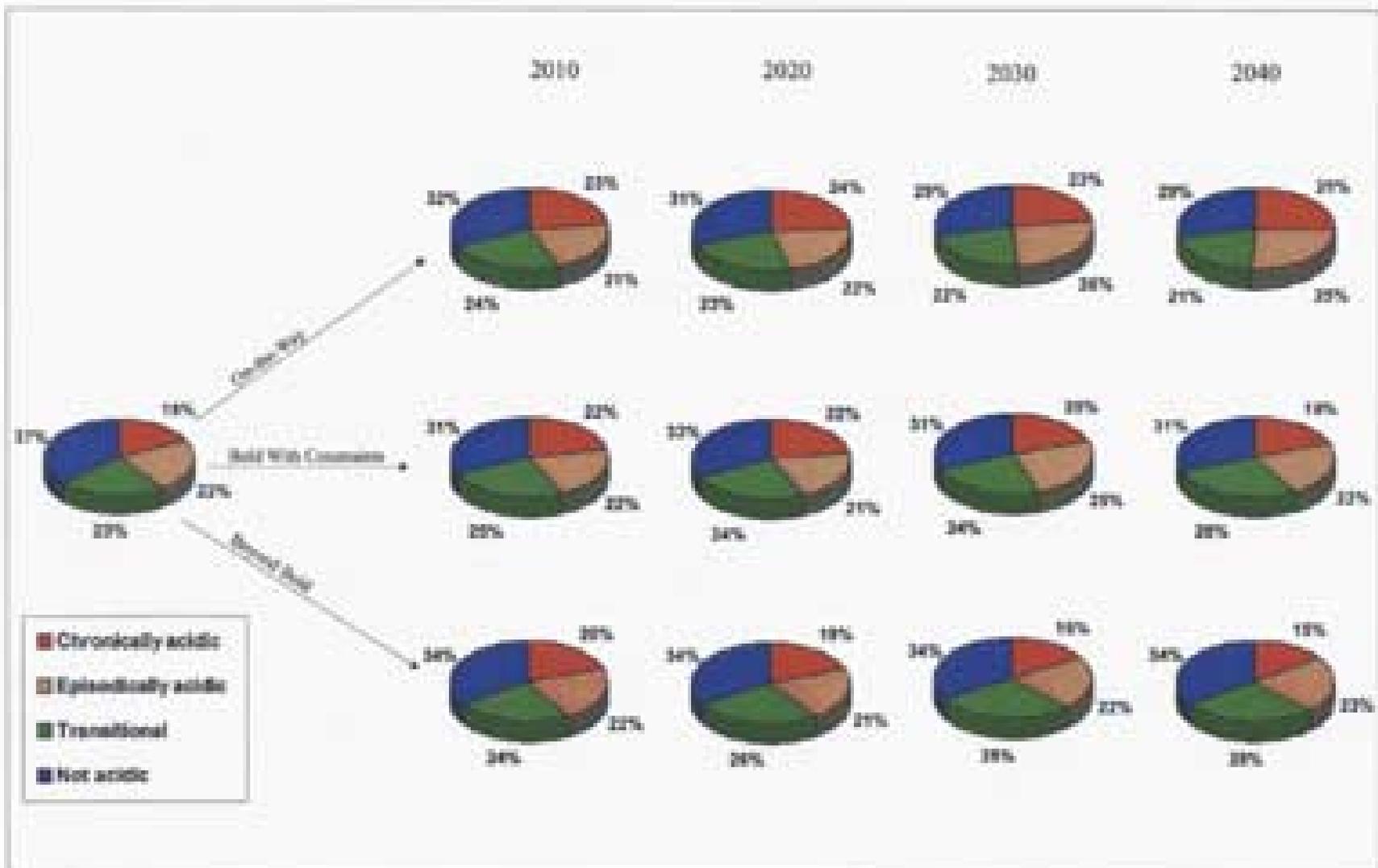
- Few streams change ANC classes by 2040
- Changes are primarily for the lowest ANC classes
  - % streams in lowest ANC class are projected to increase from 1991-95 in strategy A2
  - % stream in lowest ANC classes are to decrease in strategy B3 compared to A2, but same % as in 1991-95

# Change in Class Average ANC in 2040: Upper Stream Reaches

ANC - $\mu\text{eq/l}$	Upper Stream Reaches		
	Strategy A2	Strategy B1	Strategy B3
<0	-5.0	0.5	3.9
<20	-7.9	-3.1	4.8
<50	-5.3	-3.1	-3.5
<150	-5.7	-3.9	-2.4

Changes within ANC classes are small,  
except between B1 and B3 for ANC class 0-20  $\mu\text{eq/l}$

## Percent of Regional Sites in Brook Trout Categories



# Linkage to Socioeconomic Fishing Analyses



- Minor changes in strategies through 2040
- Largest improvement in strategy B3 is in the ANC class  $< 0$
- No noticeable change in other ANC classes in response to SAMI strategies

# Summary



- Possible to trade time for emissions controls
- More low ANC streams in WV and VA
  - largest improvements in ANC in WV and VA low ANC streams
- The mid level (20-50) and highest ANC sites (50-150) are scattered through out the region
  - ANC decreases in these streams but the decreases are not sufficient to shift streams to lower ANC classes

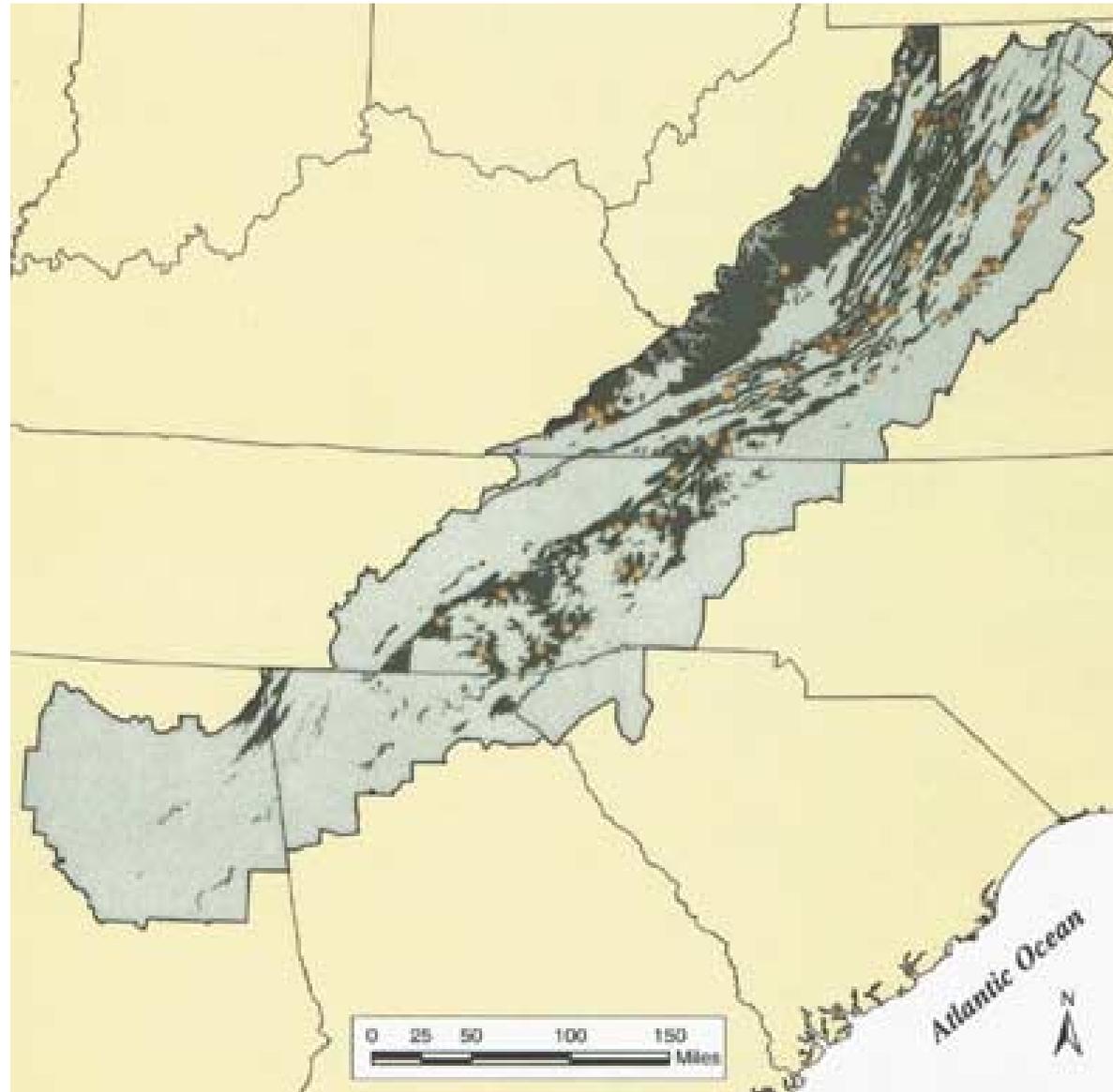
# Assessing Regional Risk for Stream Acidification



- Use geology and elevation to classify areas of highest probability of low ANC streams
- 95% of the streams  $< 0 \mu\text{eq/l}$  and 88% of the streams  $< 20 \mu\text{eq/l}$  were found to occur in the region defined as most likely to have acid sensitive streams

# Area in SAMI region most likely to have low ANC streams

- Streams in  
ANC Class
- $< 0 \mu\text{eq/l}$
  - $0-20 \mu\text{eq/l}$



# Where are acid streams most likely to occur?



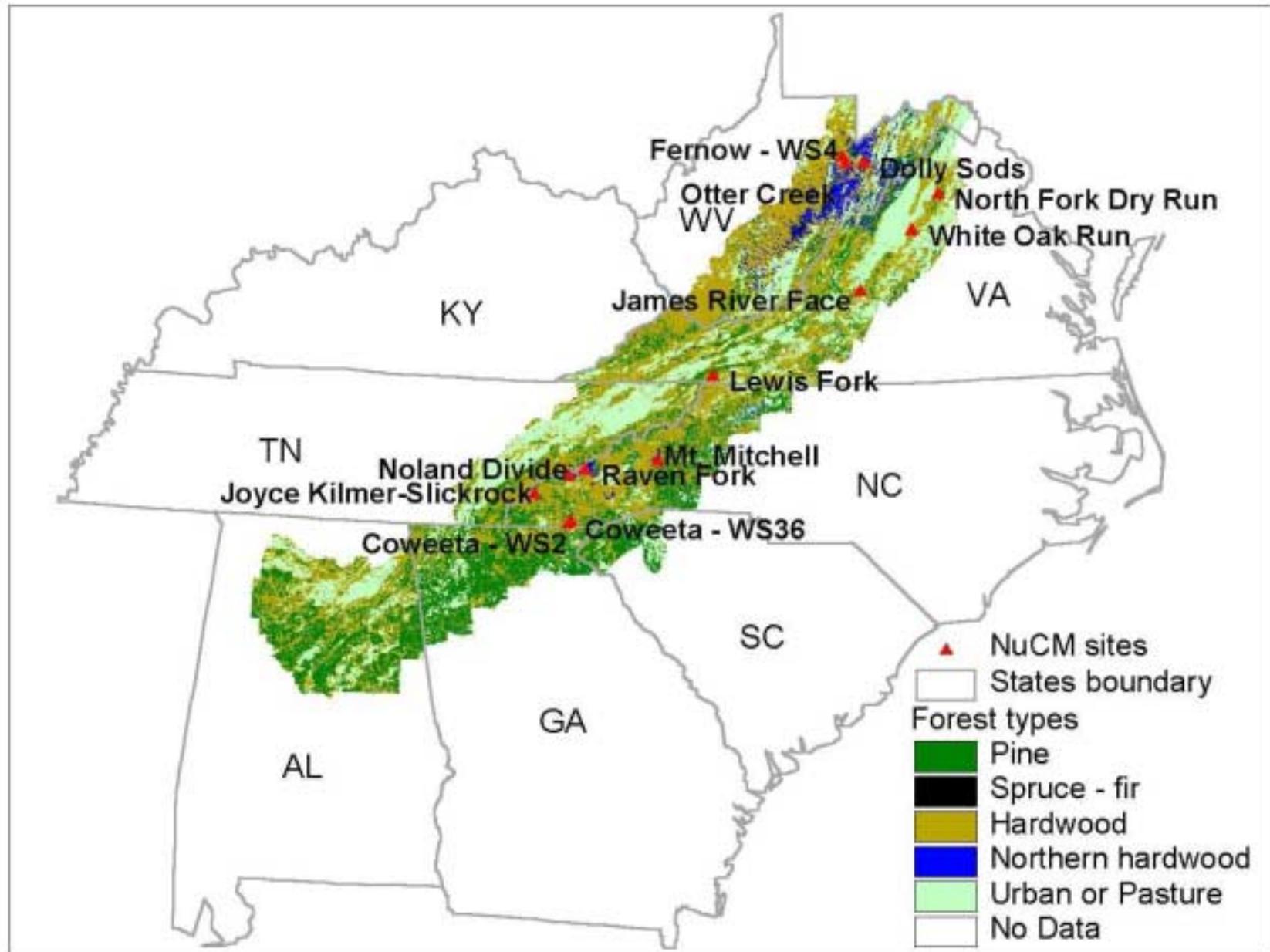
- Highest probability of occurrence of low ANC streams in the area defined by geology and elevation as acid sensitive
- all low ANC candidate streams in this most sensitive area
- also have some high ANC streams in this sensitive area

# SAMI Acid Deposition Forest Assessment: Approach



- Characterize current forest distribution in SAMI region:
  - spruce fir
  - northern hardwood
  - mixed hardwood
- Select 13 representative forests
- Apply NuCM model to project forest nutrient changes in response to SAMI strategies
- Qualitative interpretation of forest health risk

# Forest Distribution and Acid Deposition Effects Sites



# Next steps



- Contractor to deliver to Effects Subcommittee by Dec 7 the stream results for socioeconomic analyses
- Subcommittee to review on conference call Dec 11 and handoff to Socioeconomics workgroup
- Subcommittee complete review and observations
- Draft report peer reviewed - completed in January
- Final project report incorporating subcommittee and peer review comments - February?
- Draft chapter of SAMI Final Report - January?