



# Hopi Long-term Monitoring Program for Öngtupqa

# Cultural Importance

- Origin point
- Location for numerous traditional narratives and the home for many deities
- Ancestral home
- Resources
- Final resting place



# Monitoring Methodology

- Goal:
  - Integrate traditional Hopi cultural values into a science-based long-term monitoring program
- Challenges:
  - Restrictions on entry into Öngtupqa
  - Sampling issues
- Survey based approach
  - Premise: it is during the interpretation of data and not necessarily during its collection where cultural values and traditional knowledge are best integrated
  - Developed out of the TEM integration project (2001-2004)

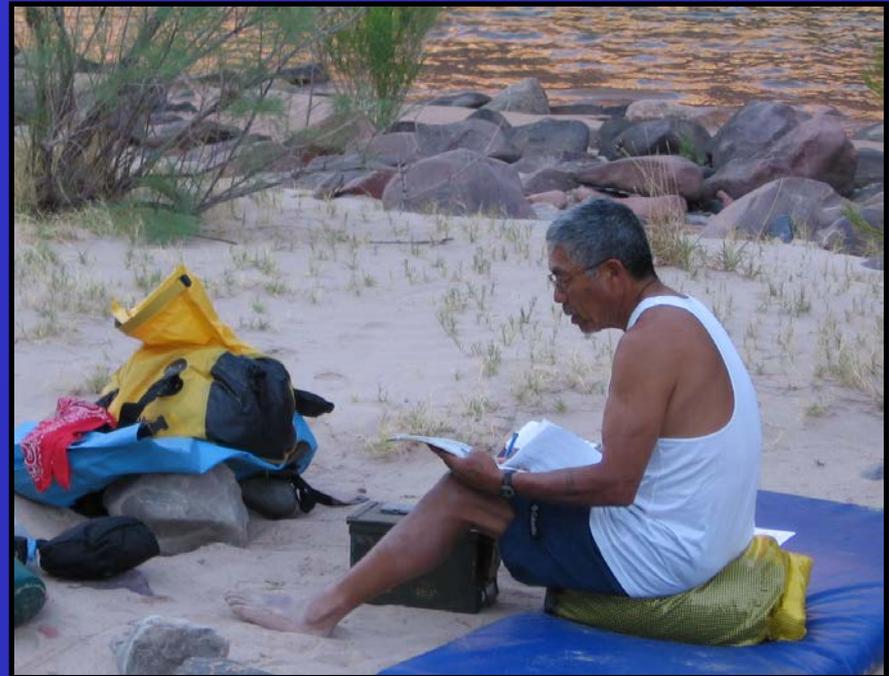
# Data Acquisition

- Relies primarily on data collected by other scientists
- Information converted to Standardized Presentations
  - Data needs to be made relevant; convert into familiar terms or concepts
- Independent observation by limited number of Hopis on river trips
  - Repeat visits to specific sites
  - Locations with culturally important resources
  - Repeat photography
  - Voucher specimens



# Surveys

- “General” survey (13 questions)
- River Trip participant survey (20 questions)
- River Trip participants address resource health for a wider suite of resources
- Both cover
  - General cultural questions
  - Resource health questions
  - Management questions



# Survey Categories

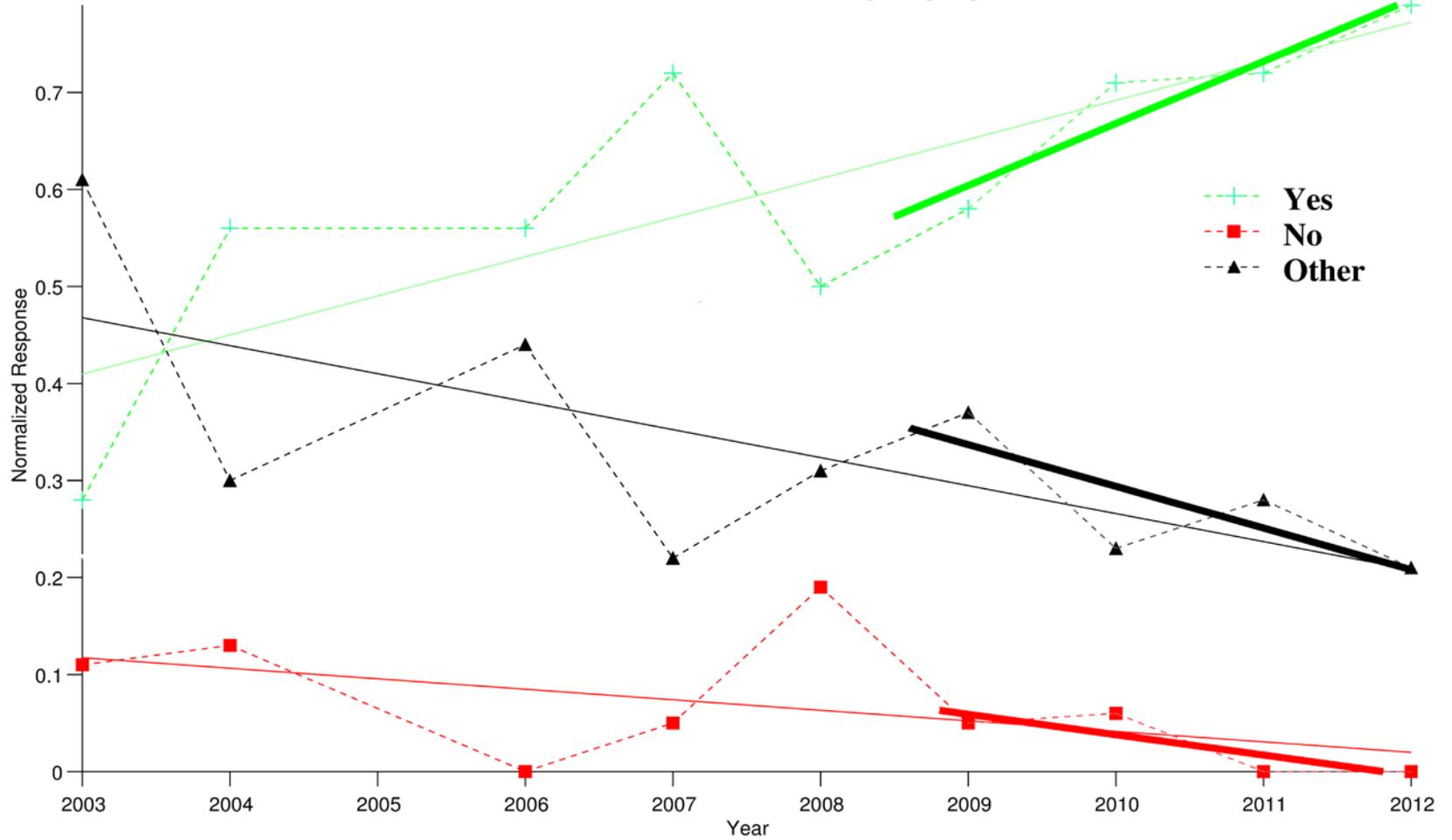
- Cultural
    - Should Hopi be involved in management and monitoring?
    - Is monitoring information important?
    - Relevance of information?
  - Resources
    - Marshes
    - Hopi Salt Mine
    - Native Fish
    - Springs and seeps
    - Birds
    - Willows
    - Snakes
    - Archaeological Sites
    - Animals
    - Insects
  - Management
    - Is recreation appropriate?
    - Should trout be removed?
    - Do non-native species have a role?
    - Treatment of Archaeological Sites?
- Yes/No and Narrative response options



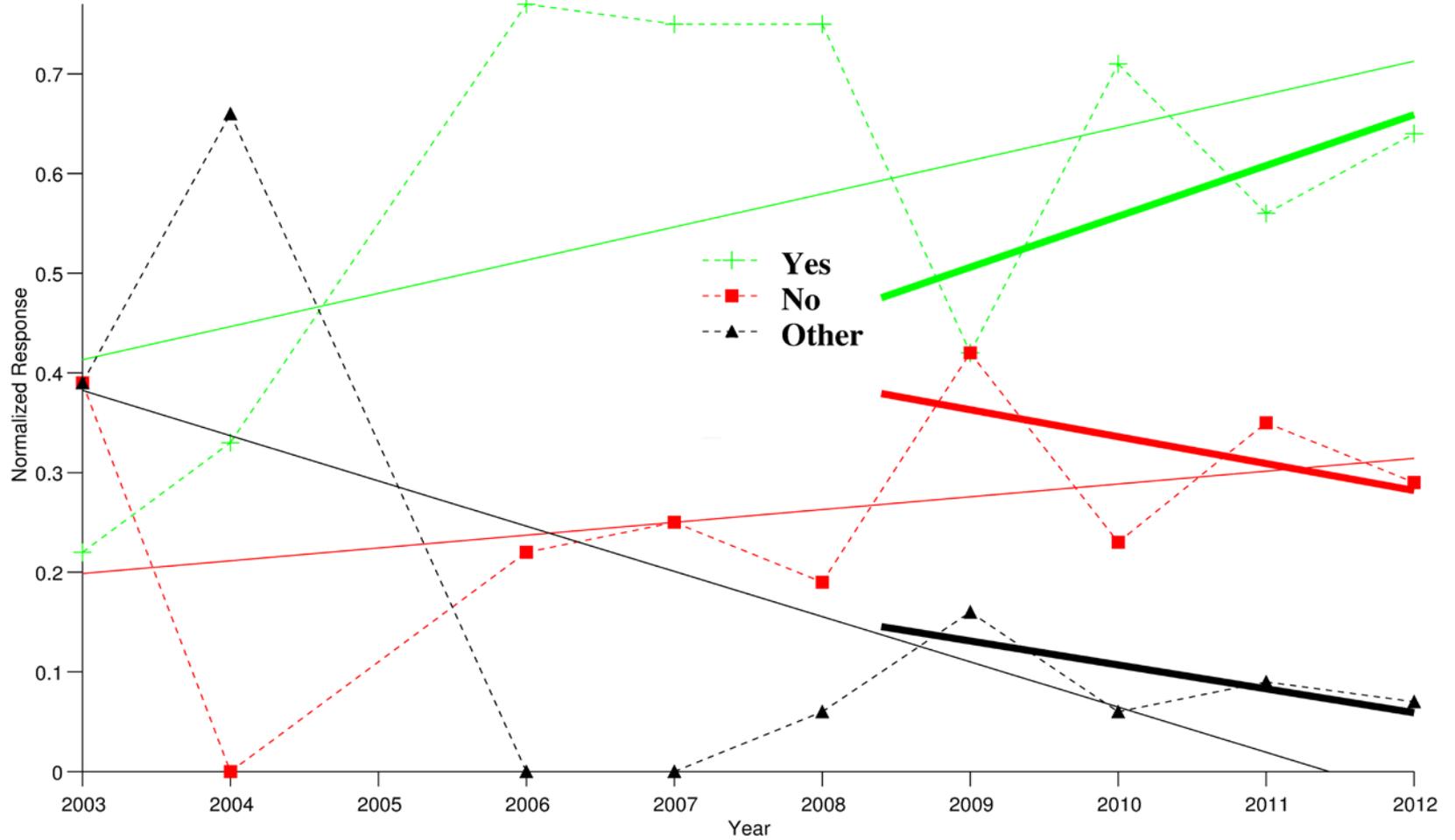
# Results To Date

- Monitoring program “officially” begun in 2008; Surveys conducted annually since 2003
- 182 surveys have been completed by Hopis
  - represents 111 individual Hopis
- Response pattern same for people who take river trips and those who don't
- Response pattern same for participation on a single river trip or multiple river trips
- Response pattern same for men and women
- Over all surveys and across all resource categories, 68% of the responses indicate a positive assessment of resource health

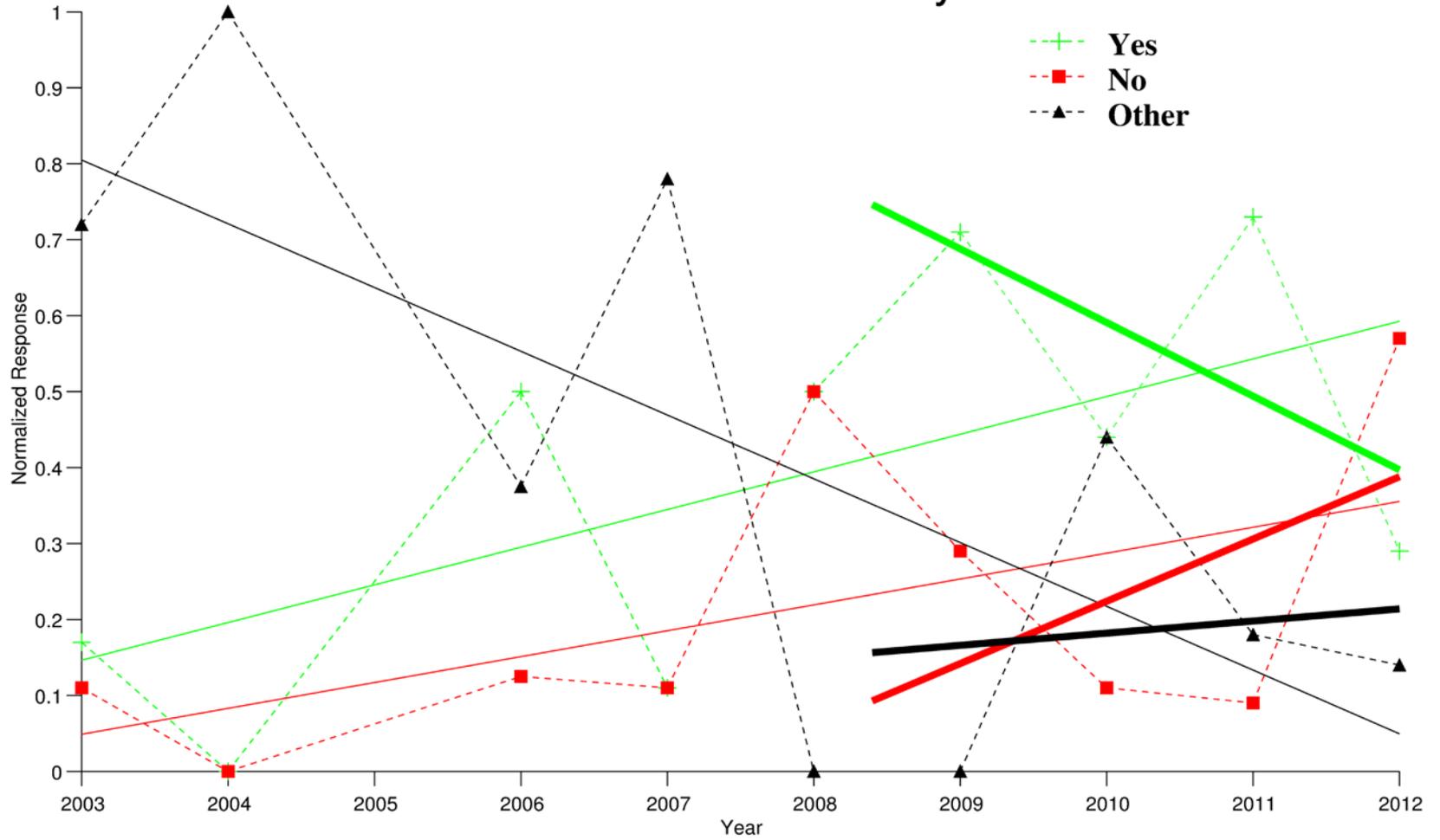
# Overall Health of Ongtupqa



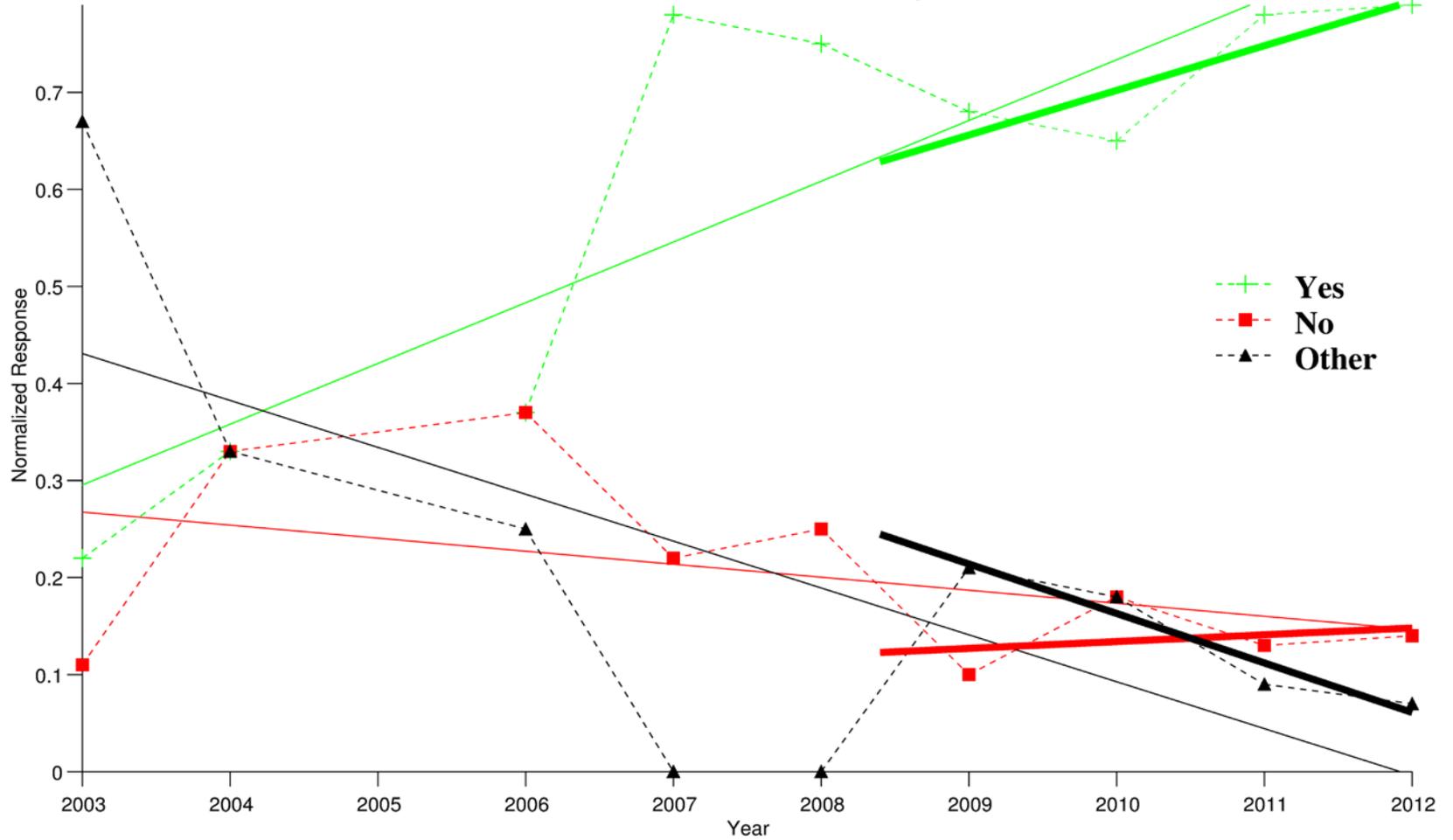
# Are Archaeological Sites Healthy



# Are Native Fish Healthy

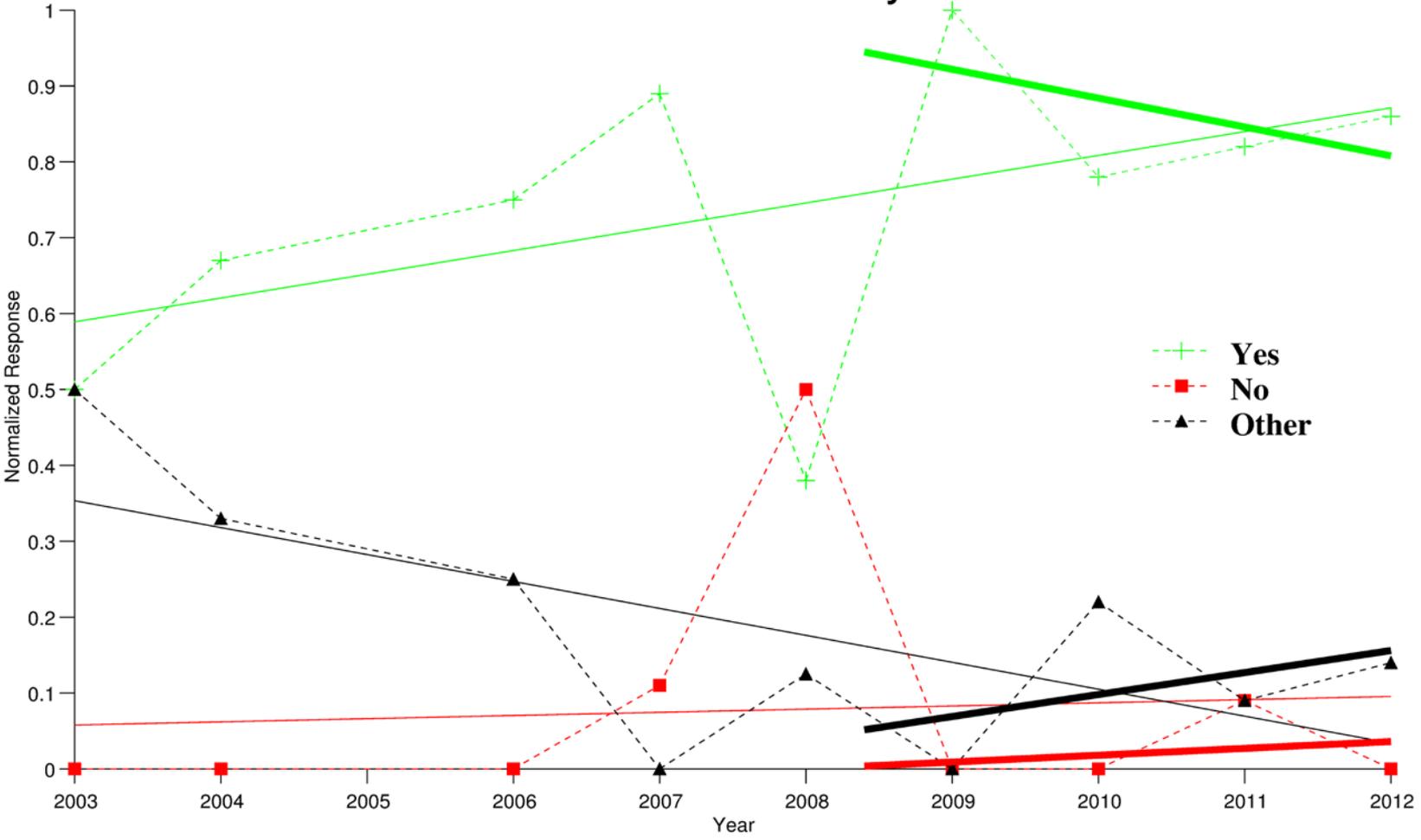


# Are Marshes Healthy



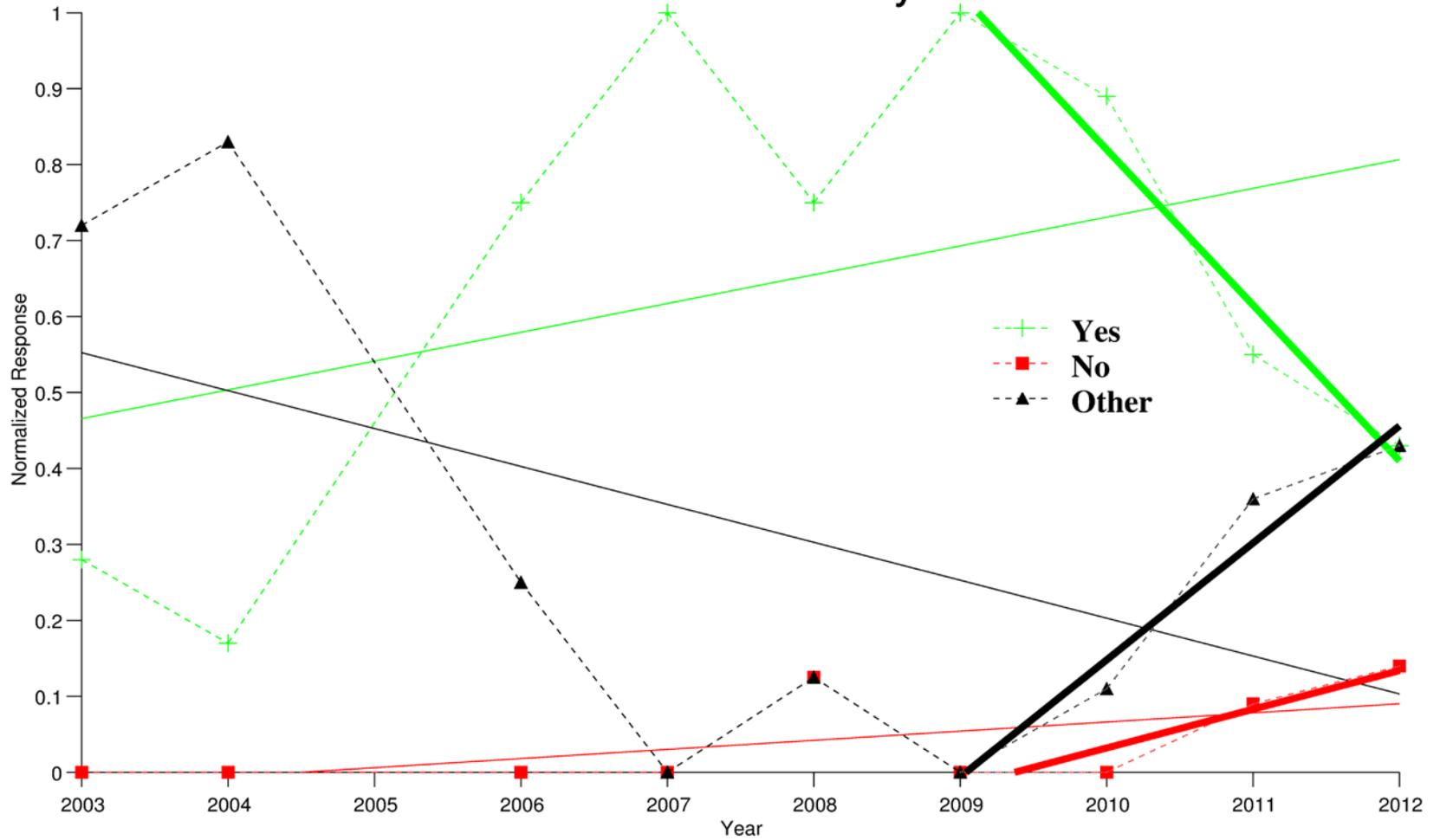
Note: Birds and Hopi Salt Mine follow this same pattern

# Are Willows Healthy

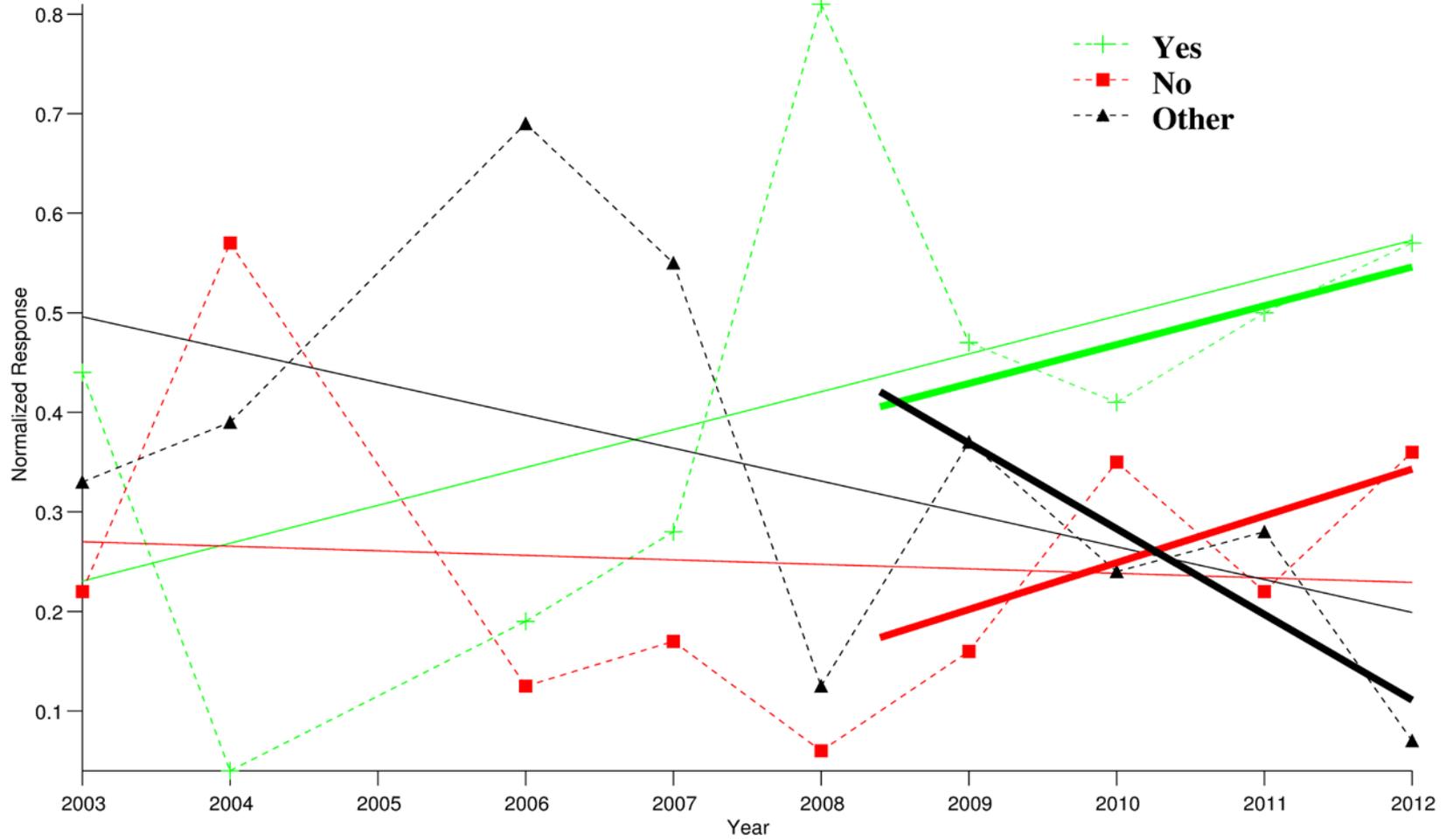


Note: Animals, Insects, and Springs and Seeps all follow this same pattern

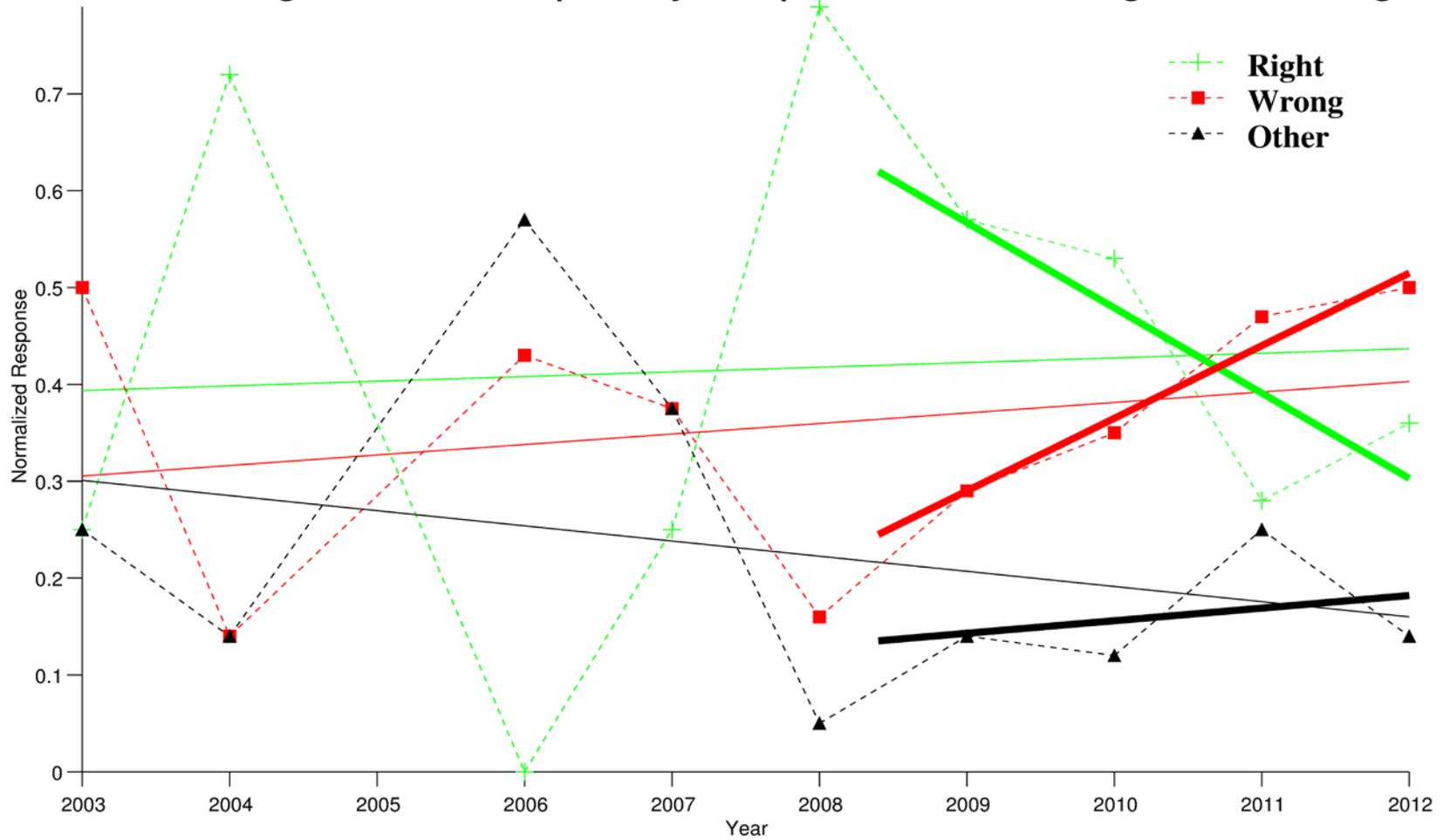
# Are Snakes Healthy



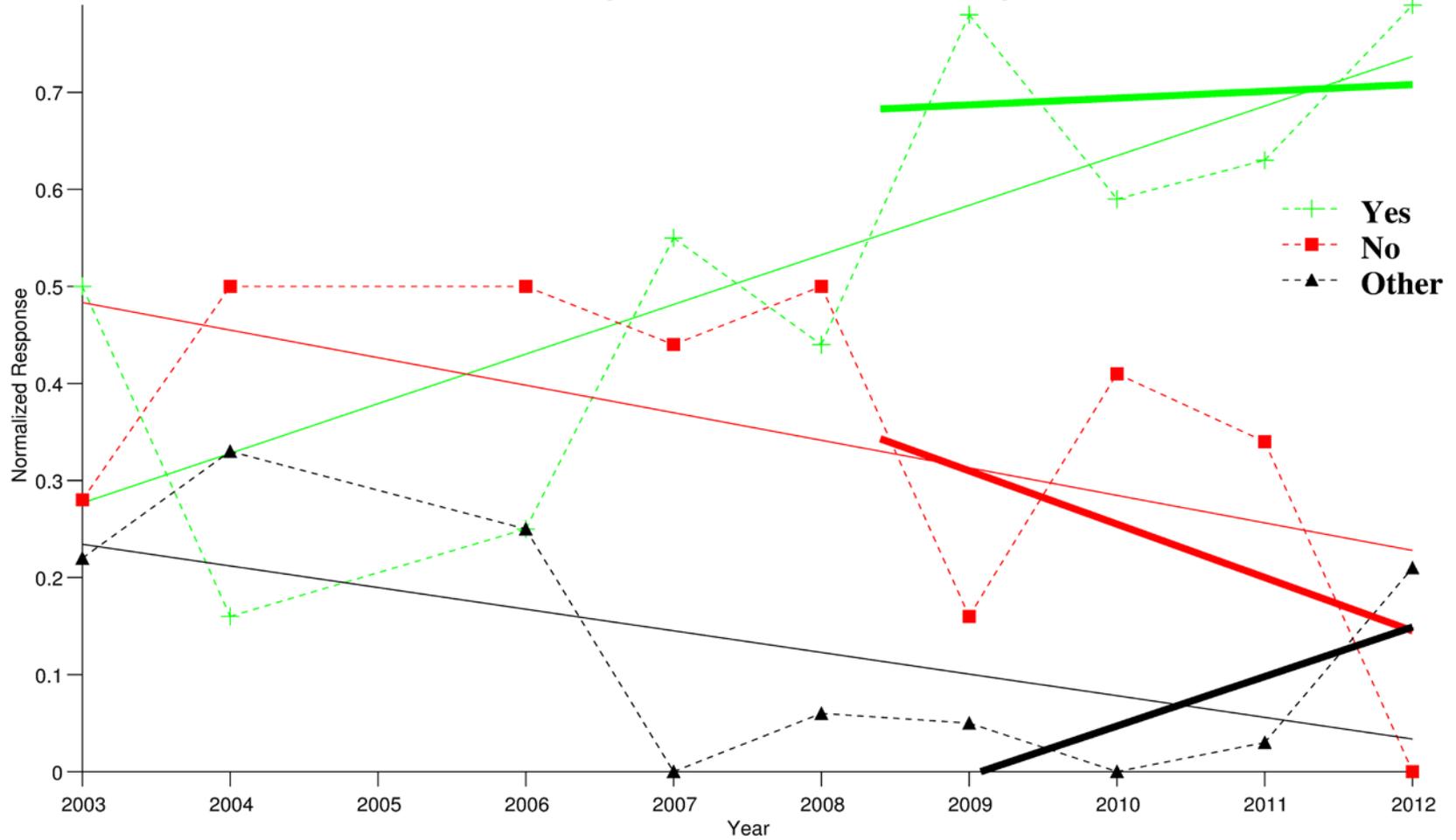
# Is Recreation Appropriate



# Is Removing Trout to Hopefully Help Native Fish Right or Wrong



# Do Non-native Species Have an Equal Role



# Archaeological Site Treatment

- Generic eroding site:

- 38% Excavate

- 26% Rebury

- 6% Other

- 31% Let Erode

64% Intervention

- Human-caused erosion:

- 36% Excavate

- 38% Rebury

- 9% Other

- 16% Let Erode

75% Intervention

# Conclusions and Recommendations

- Work to date demonstrate the feasibility of this approach to capturing Hopi assessment of resource health
- Larger sample size is needed:
  - Longer temporal duration
  - More annual participation
- Need additional input on terrestrial resources:
  - AMP has not consistently collected information on the status of a number of resource categories that are culturally important to the Hopi Tribe. This includes archaeological sites, vegetation, avifauna, reptiles, insects, and mammals.