



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)

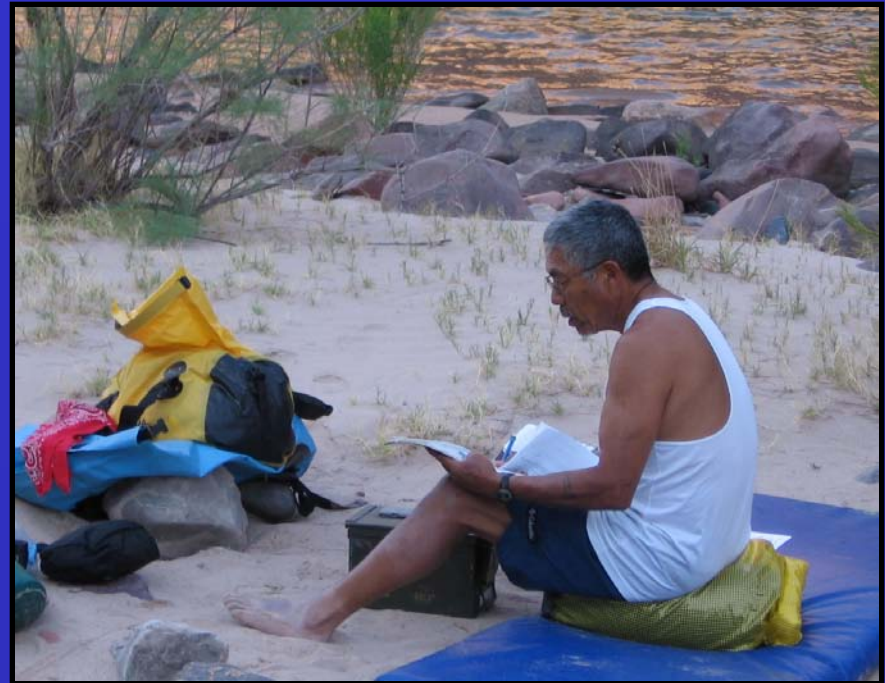
Data Acquisition

- 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

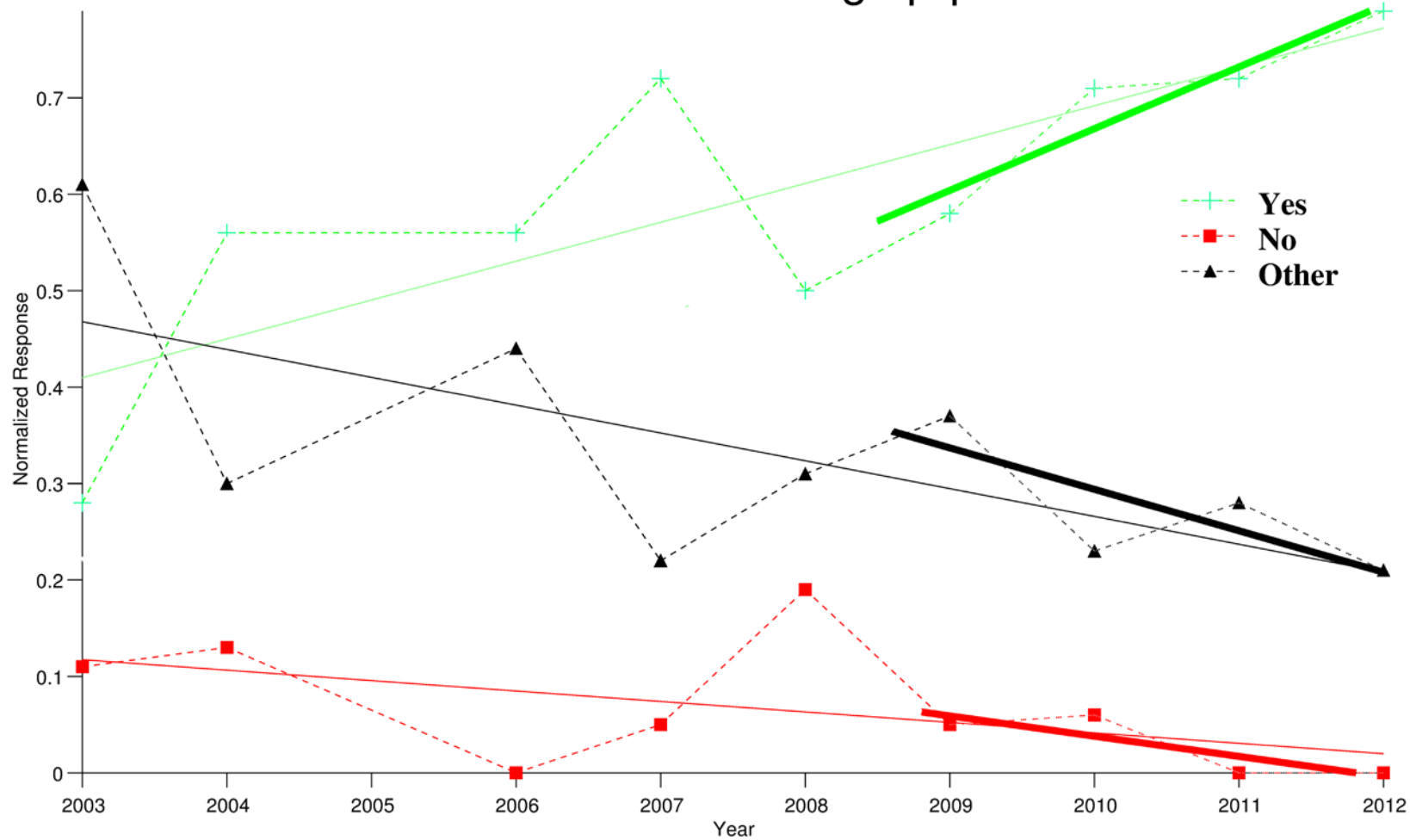
- Cultural
 - Should Hopi be involved in management and monitoring?
 - Is monitoring information important?
 - Relevance of information?
 - Resources
 - Marshes
 - Hopi Salt Mine
 - Native Fish
 - Springs and seeps
 - Birds
 - Willows
 - Snakes
 - Archaeological Sites
 - Animals
 - Insects
 - Management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



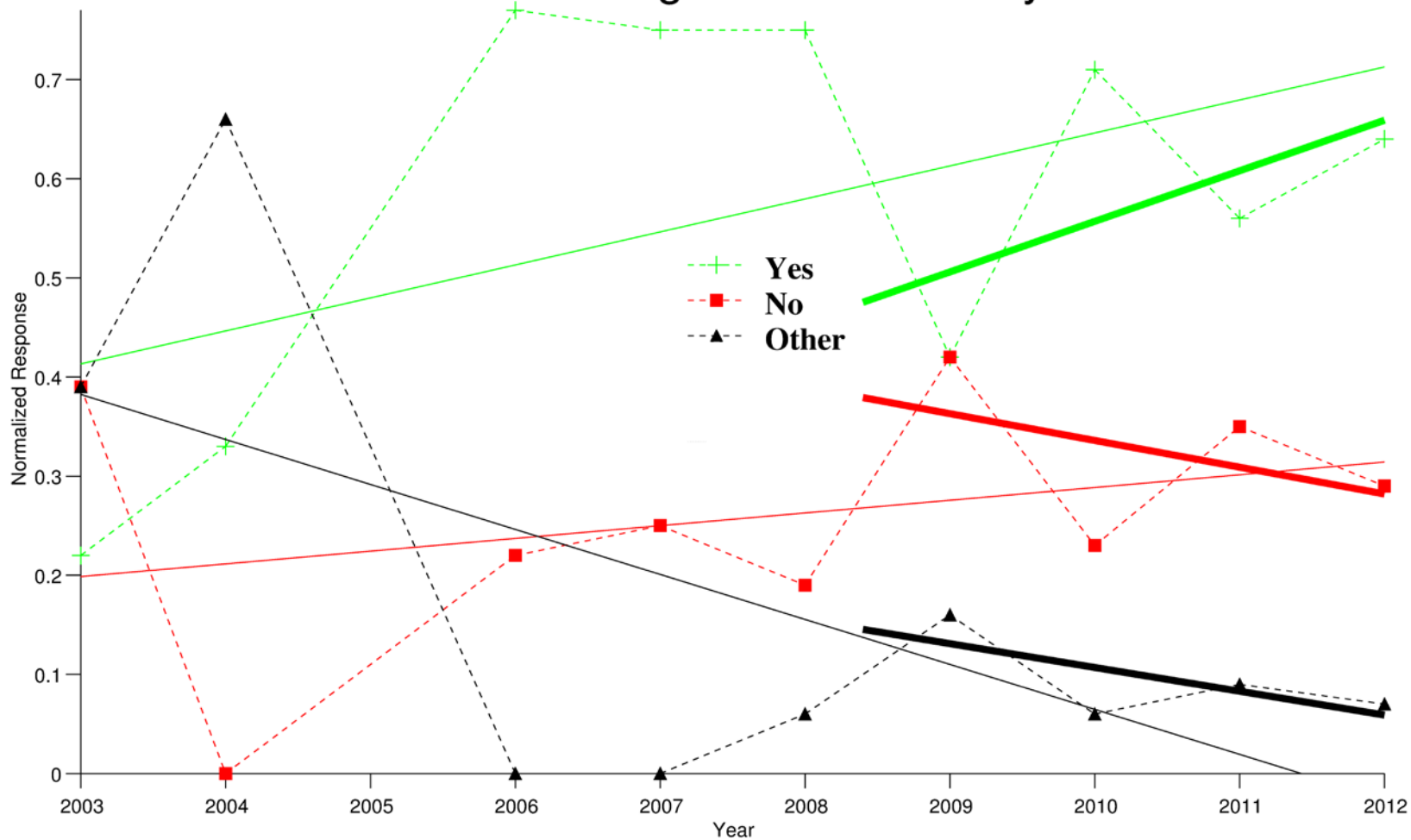
Results To Date

- 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

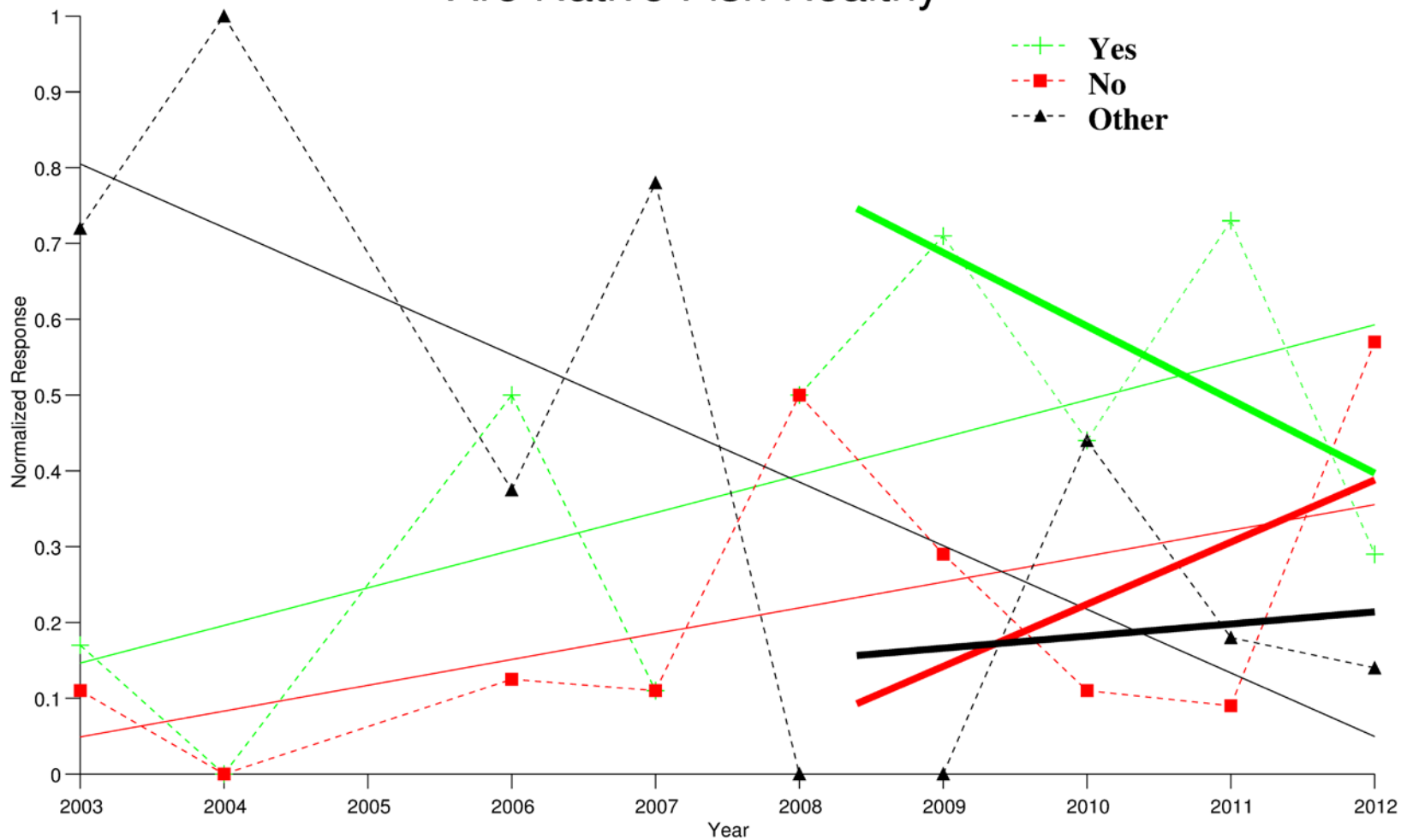
Overall Health of Ongtupqa



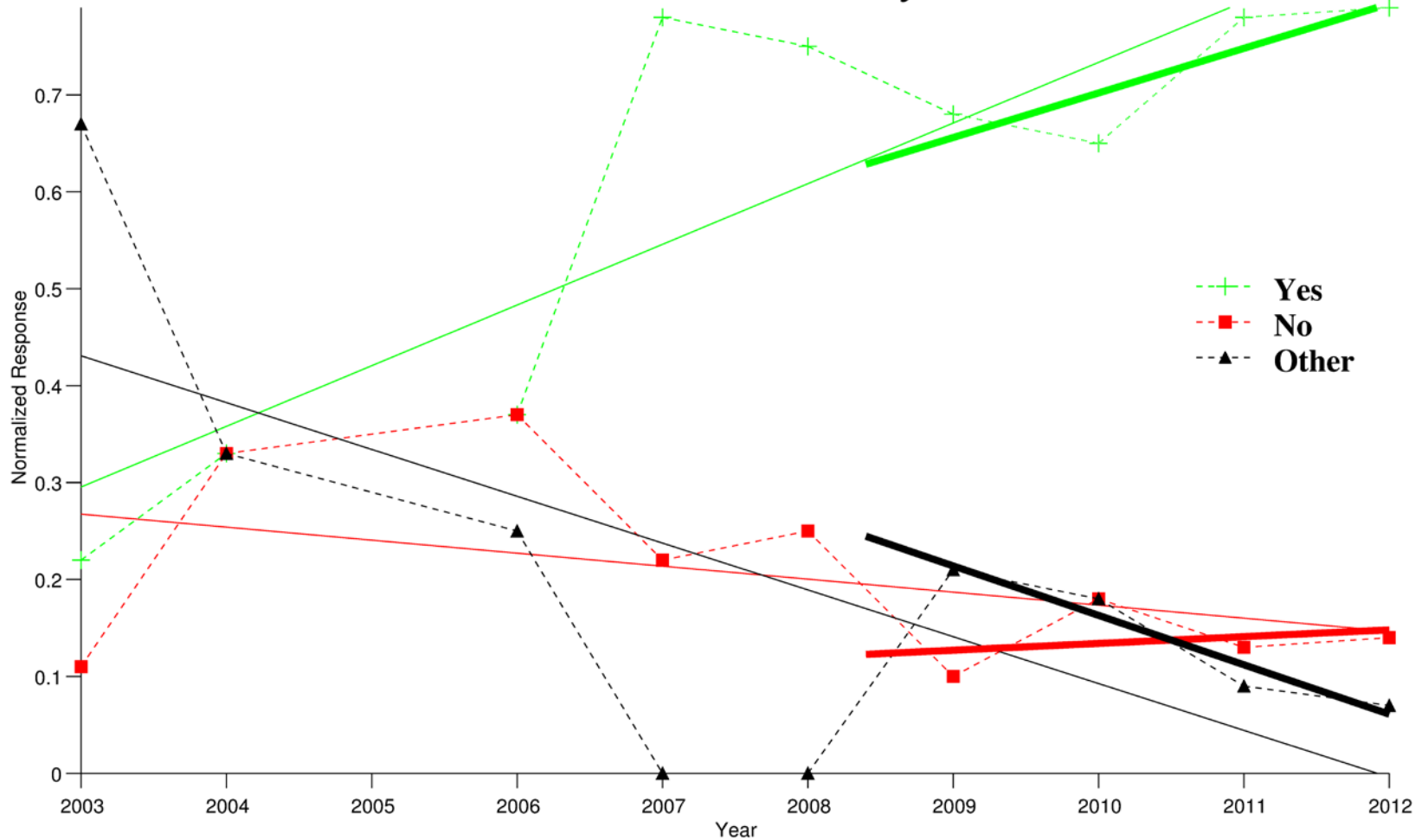
Are Archaeological Sites Healthy



Are Native Fish Healthy

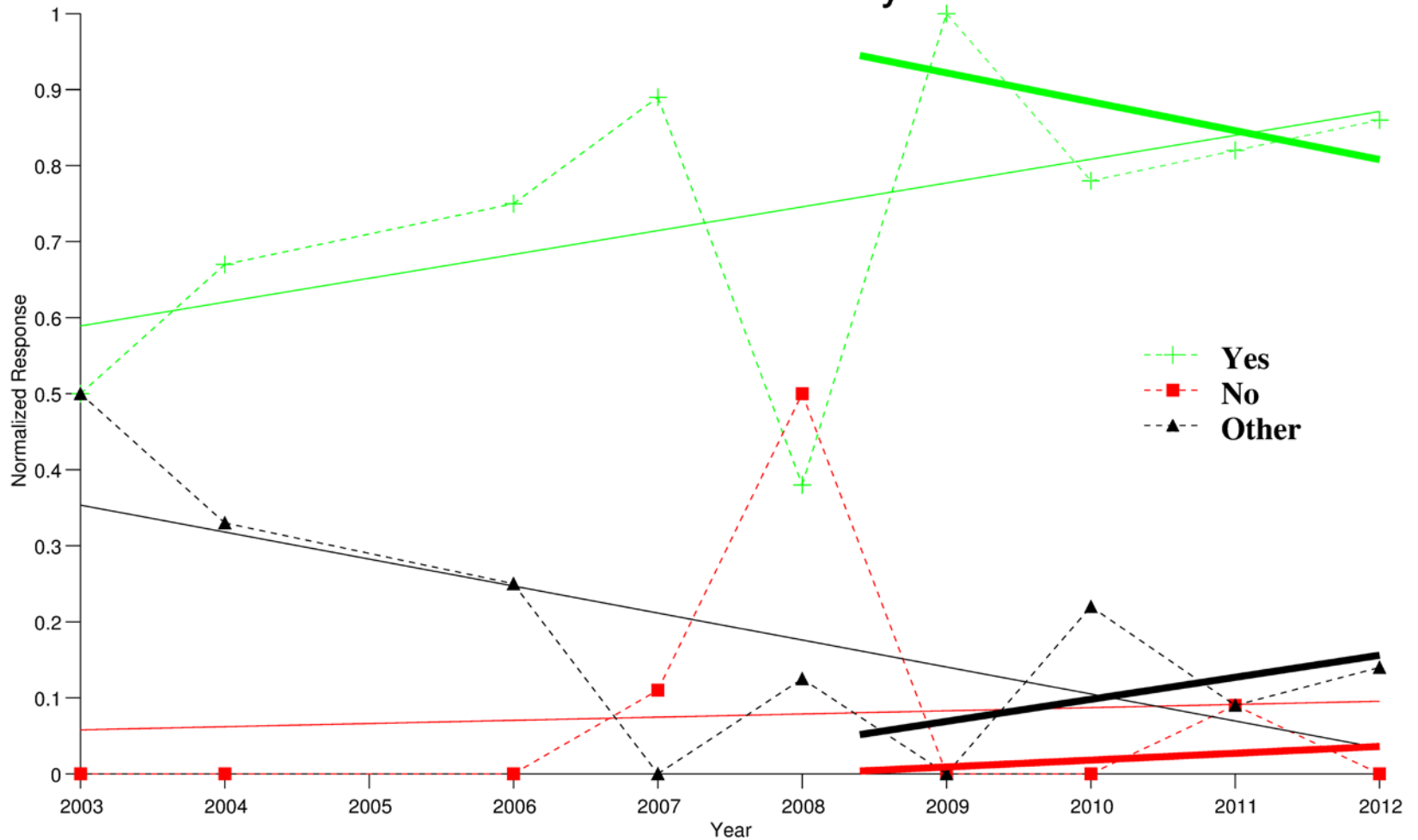


Are Marshes Healthy



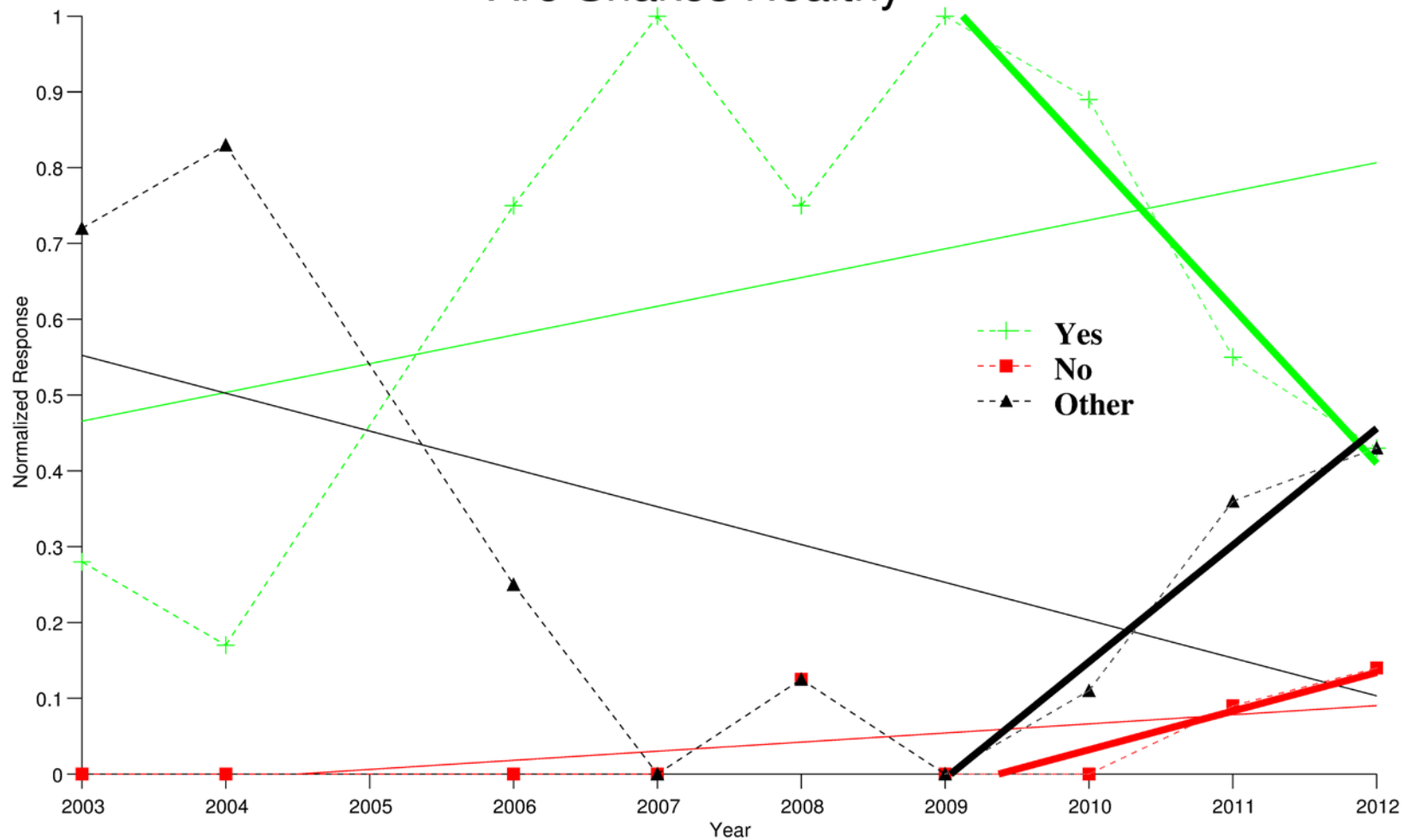
Note: Birds and Hopi Salt Mine follow this same pattern

Are Willows Healthy

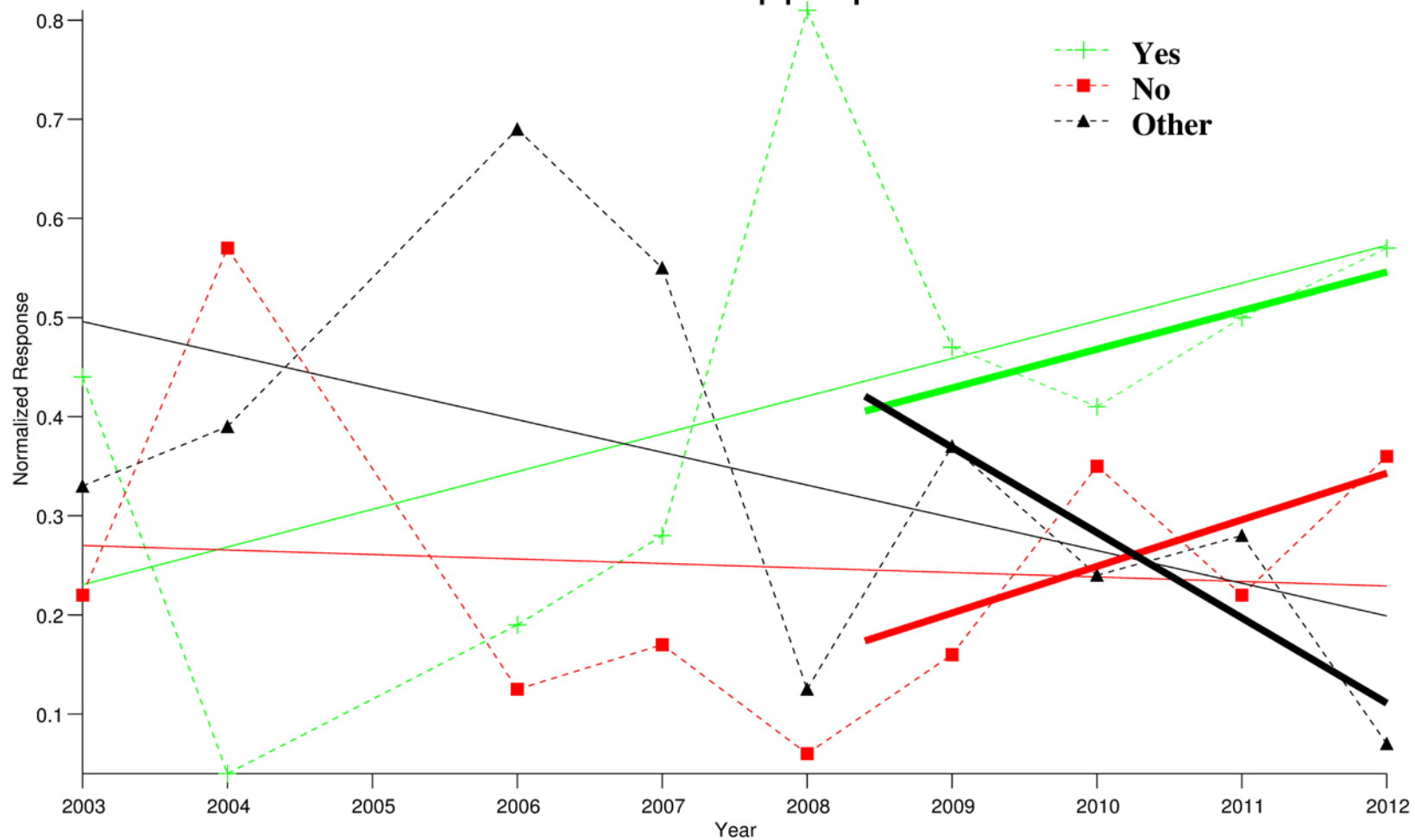


Note: Animals, Insects, and Springs and Seeps all follow this same pattern

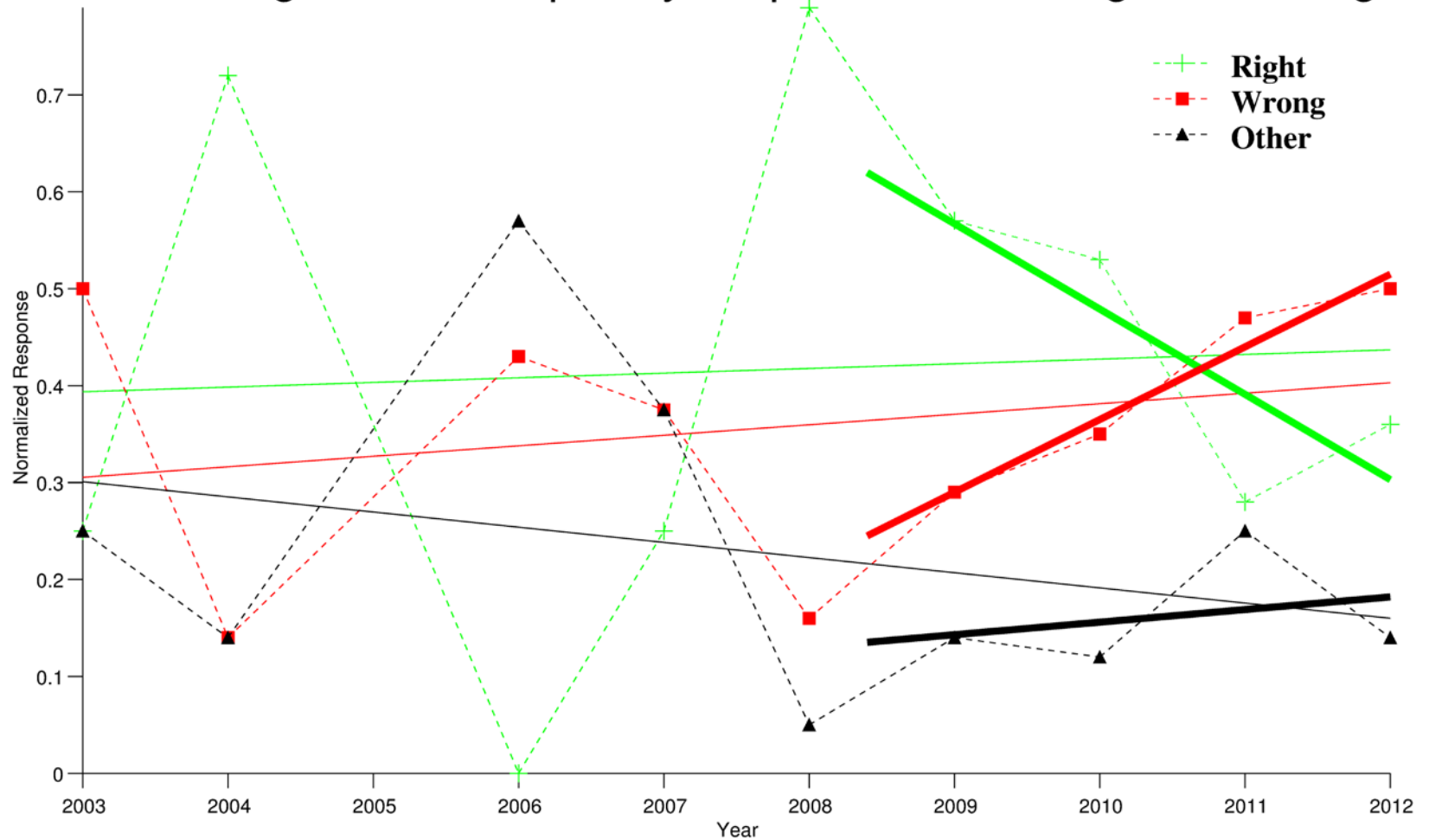
Are Snakes Healthy



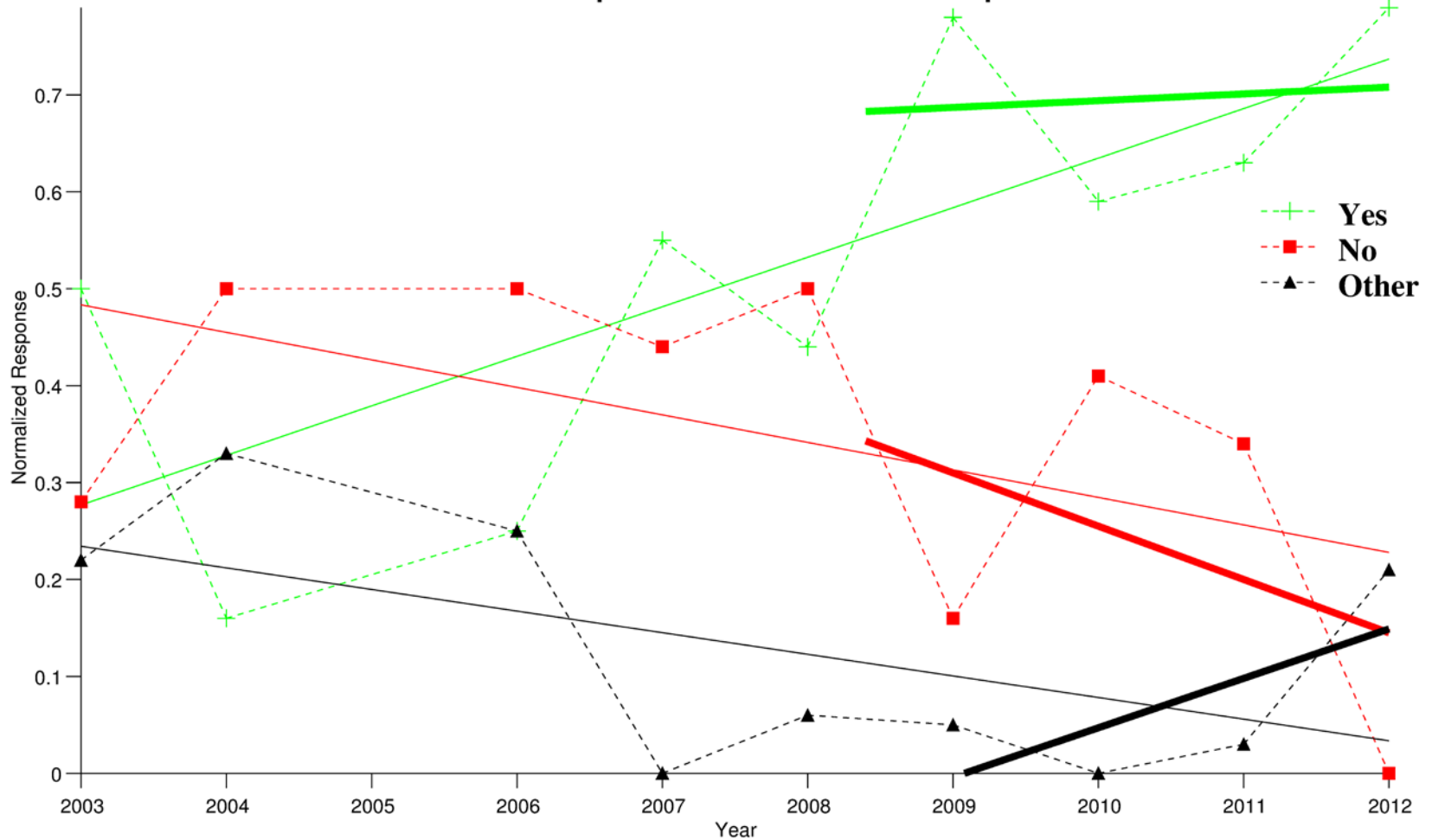
Is Recreation Appropriate



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.