

**Glen Canyon Dam Adaptive Management Work Group**  
**Agenda Item Information**  
**February 24-25, 2016**

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Agenda Item

Hopi Tribe's Monitoring Program

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Action Requested

Information item only; we will answer questions but no action is requested.

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Presenter

Leigh Kuwanwisiwma, Director, Hopi Cultural Preservation Office  
Mike Yeatts, Archaeologist, Hopi Cultural Preservation Office

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Previous Action Taken

N/A

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Relevant Science

N/A

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Summary of Presentation and Background Information

The Hopi Tribe has been involved with the Adaptive Management Program since its inception, and prior to that was a cooperating agency on the EIS for the Operation of Glen Canyon Dam. In 2003, the Hopi Tribe began developing a Long-term Monitoring Program to assess the health of culturally important resources along the Colorado River corridor from a traditional Hopi perspective; this program was approved by the AMP in 2007.

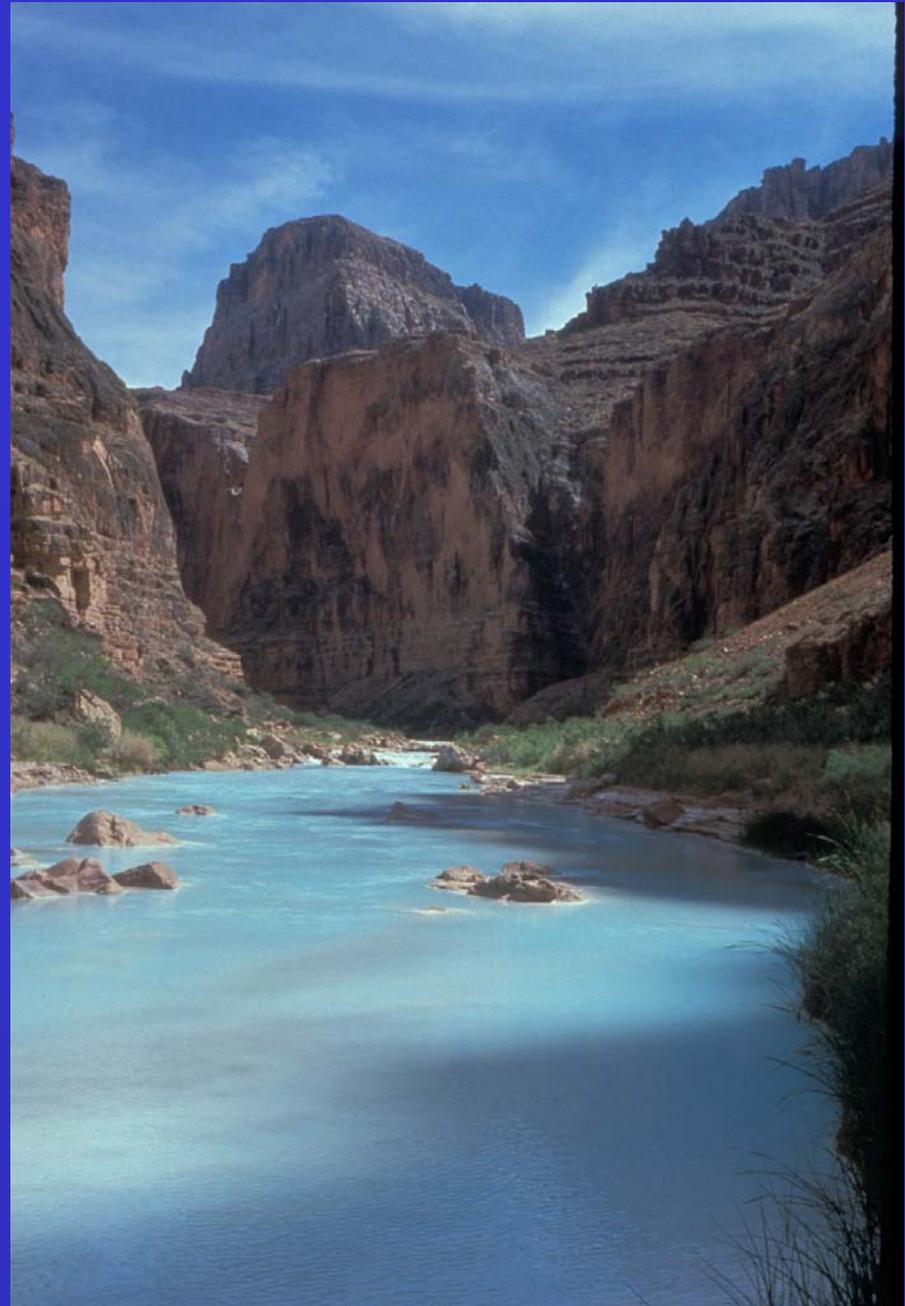
Our presentation will look at the cultural philosophy underlying the Hopi Long-term Monitoring Program, the culturally significant resources that are part of the program, and what has been learned to date.



Hopi Long-term Monitoring  
Program for Öngtupqa

# Origin Location and Final Home

In Hopi tradition, the Grand Canyon holds the origin location of people and is the final destination for Hopis in the afterlife.



# Ceremony and Tradition



## *Wuwutsim*

The initiation ceremony for male Hopis into adulthood. Associated with Salt Pilgrimage.

*Tiyo* -The first person to travel the length of the river. Brought the Snake Ceremony to Hopi.



# Migrations



- Currently 34 clans at Hopi

-At least 19 Hopi clans have ties to the Grand Canyon through their migrations

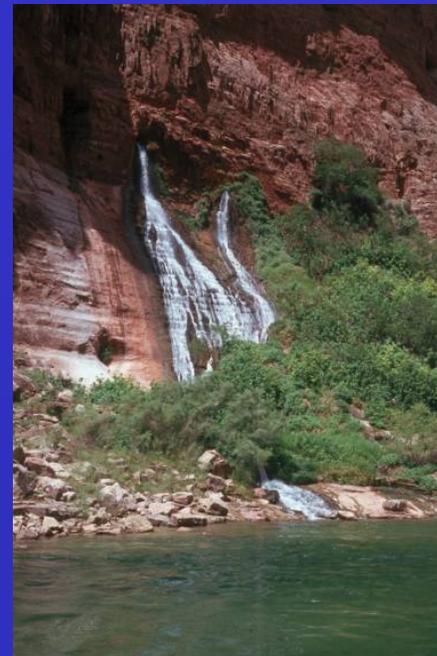
-Archaeological sites, petroglyphs and other remains are viewed as “footprints” left by *Hisat'sinom*. They are considered to be still occupied.

# Hopi Resources

“Cultural” resources---traditional cultural properties (TCPs), archaeological sites, human remains, petroglyphs & pictographs

Biological resources--- plants, birds, mammals, insects, reptiles, fish, springs, side streams

Physical resources---minerals, sand, beaches, water, springs



# 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)



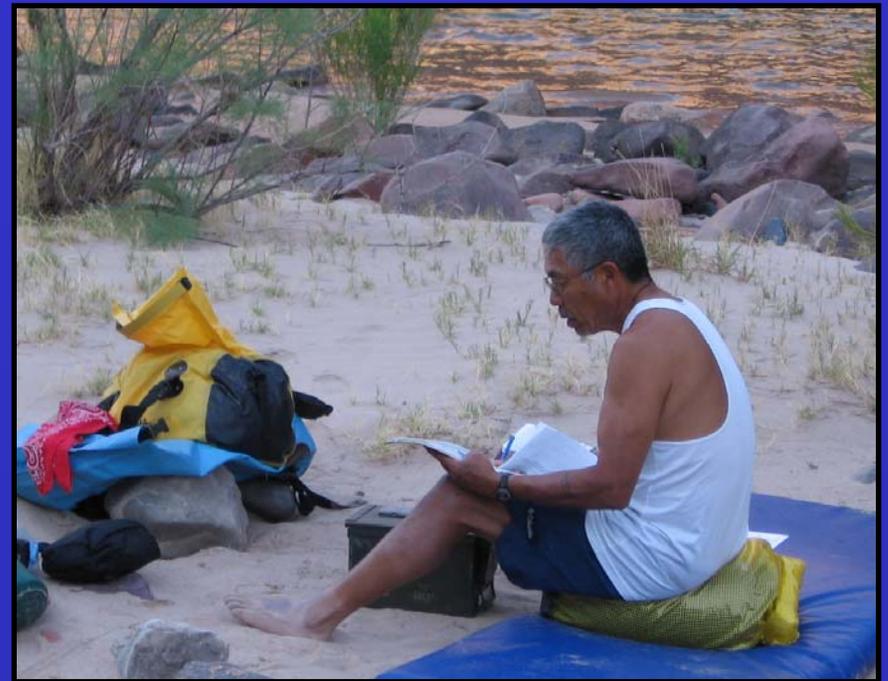
# Data Acquisition

- 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

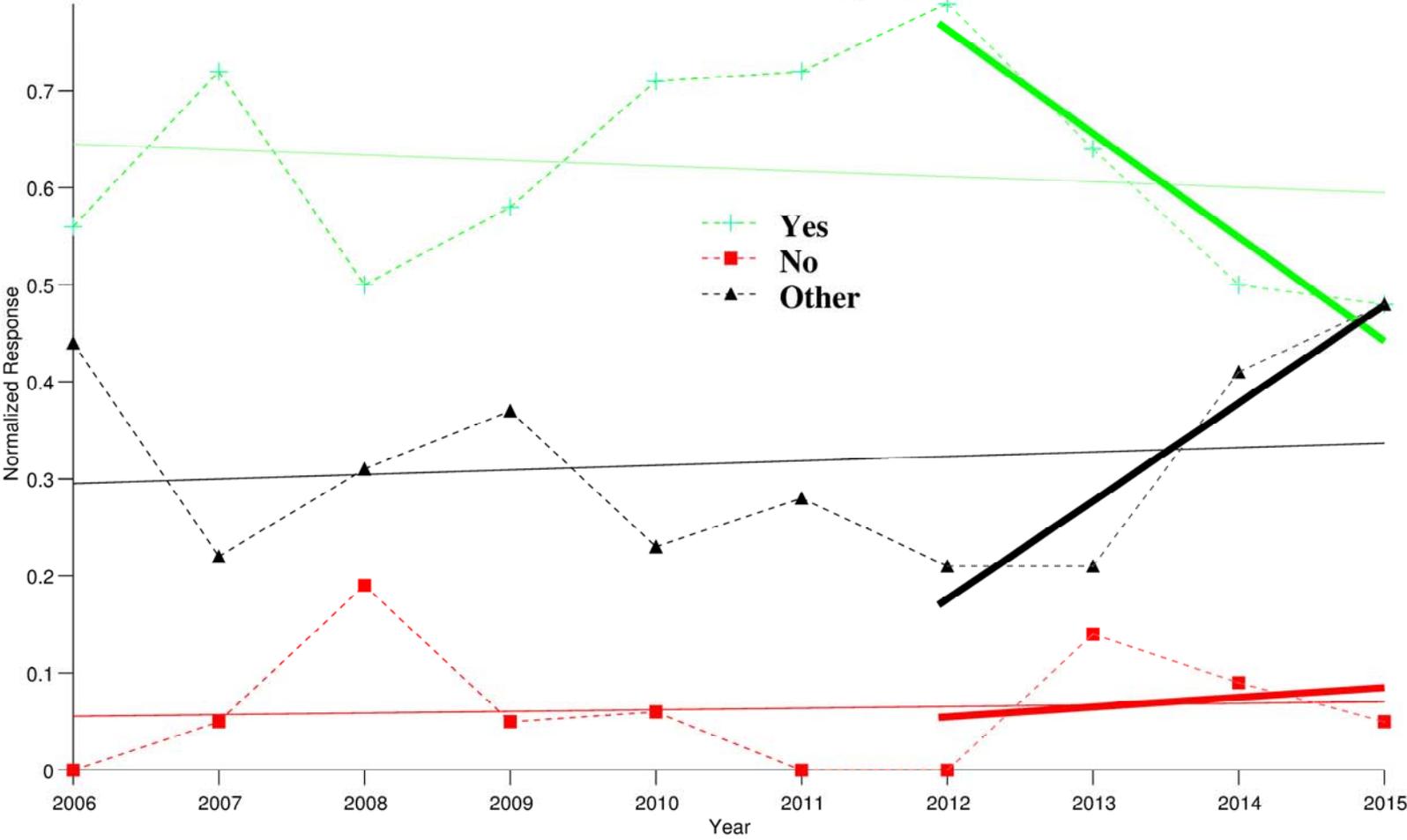
- Cultural
    - Should Hopi be involved in management and monitoring?
    - Is monitoring information important?
    - Relevance of information?
  - Resources
    - Marshes
    - Hopi Salt Mine
    - Native Fish
    - Springs and seeps
    - Birds
    - Willows
    - Snakes
    - Archaeological Sites
    - 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



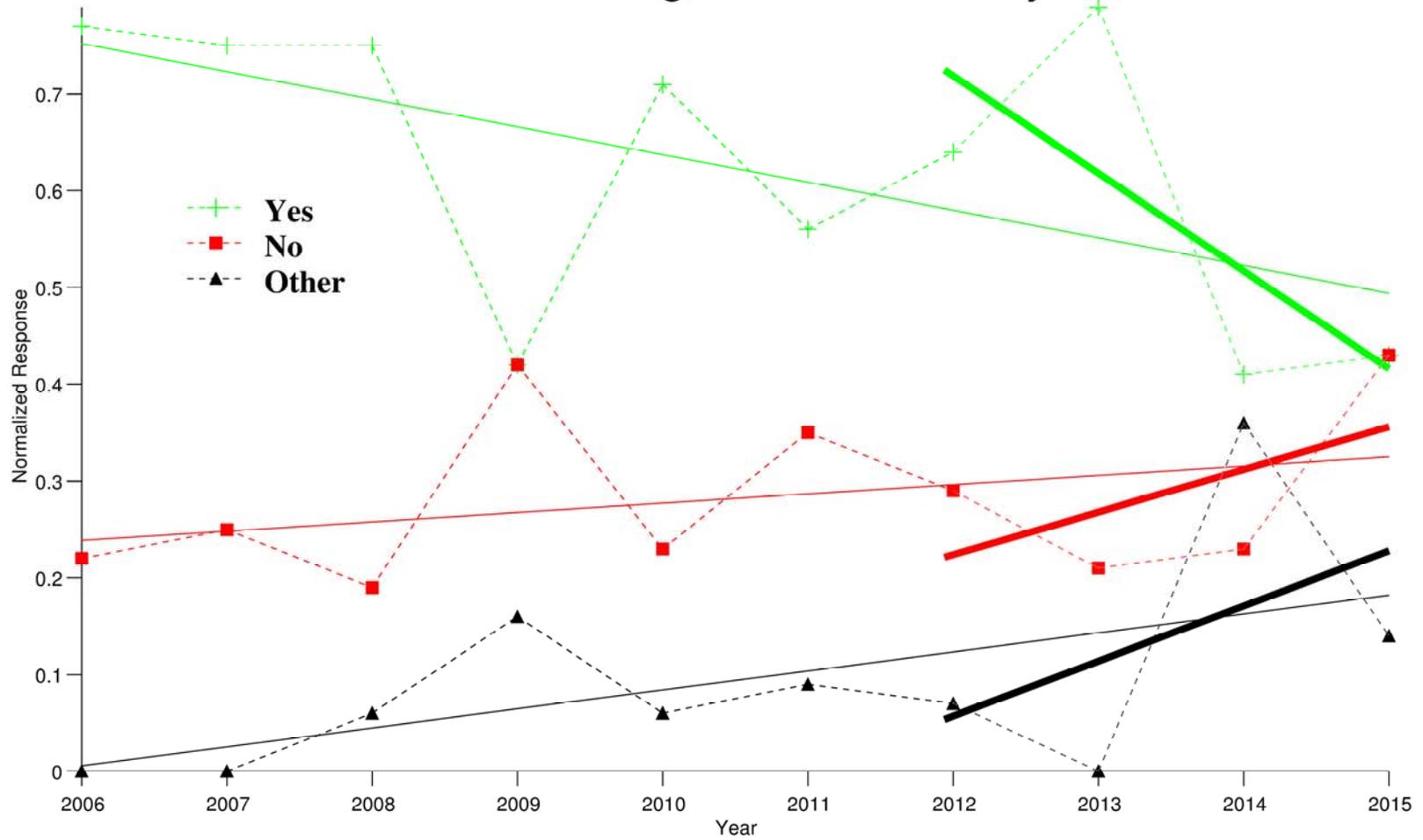
# Results To Date

- Monitoring program “officially” began in 2008; Surveys conducted annually since 2003, with those since 2006 used in current analysis
- 262 surveys have been completed by Hopis
  - represents 148 individual Hopis
- Over all surveys and across all resource categories, 68% of the responses indicate a positive assessment of resource health
- 94% of Hopi respondents feel that Hopi should be involved in the management of the Grand Canyon
- 97% of Hopi respondents feel that the information being collected in the AMP is culturally important.

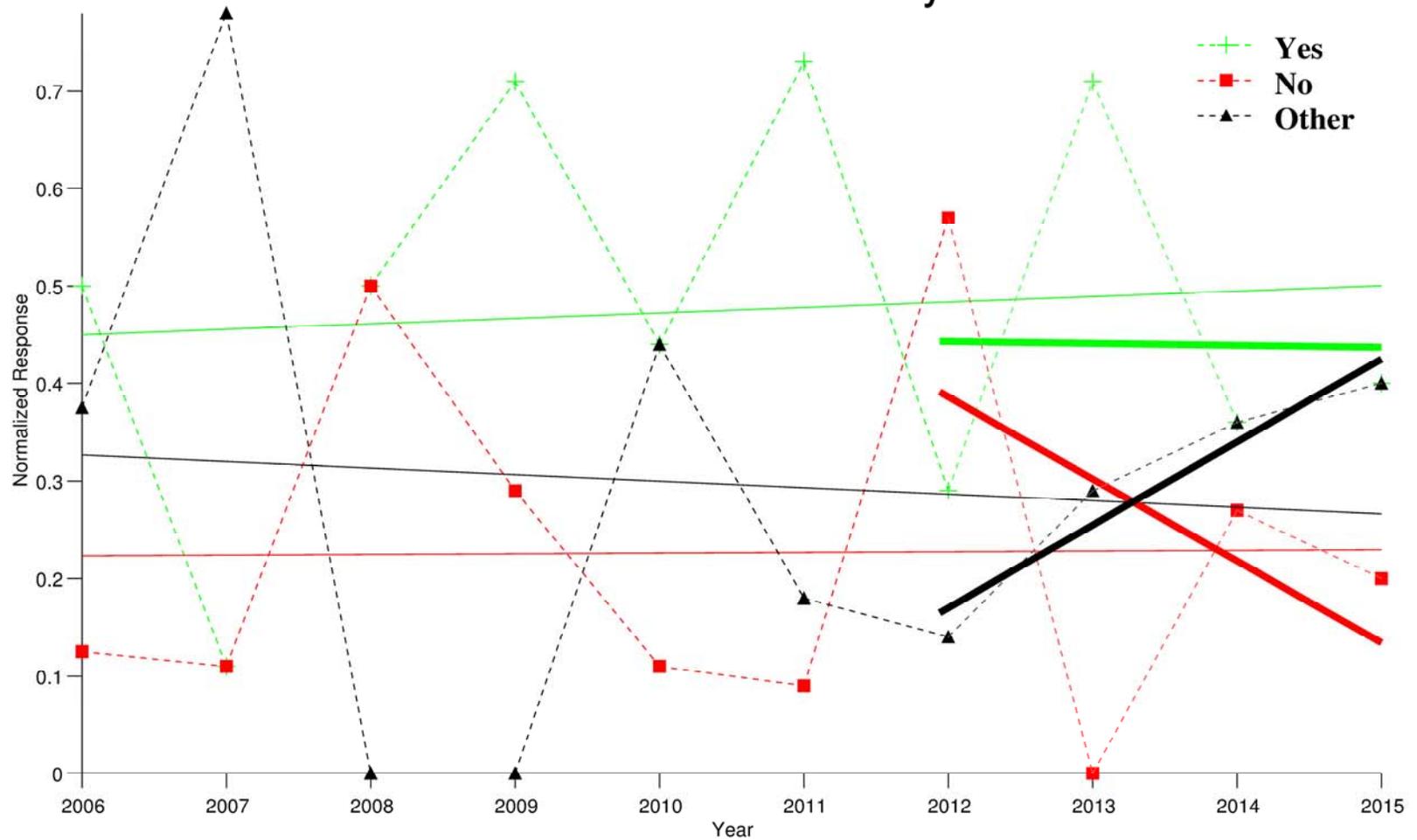
# Overall Health of Öngtupqa



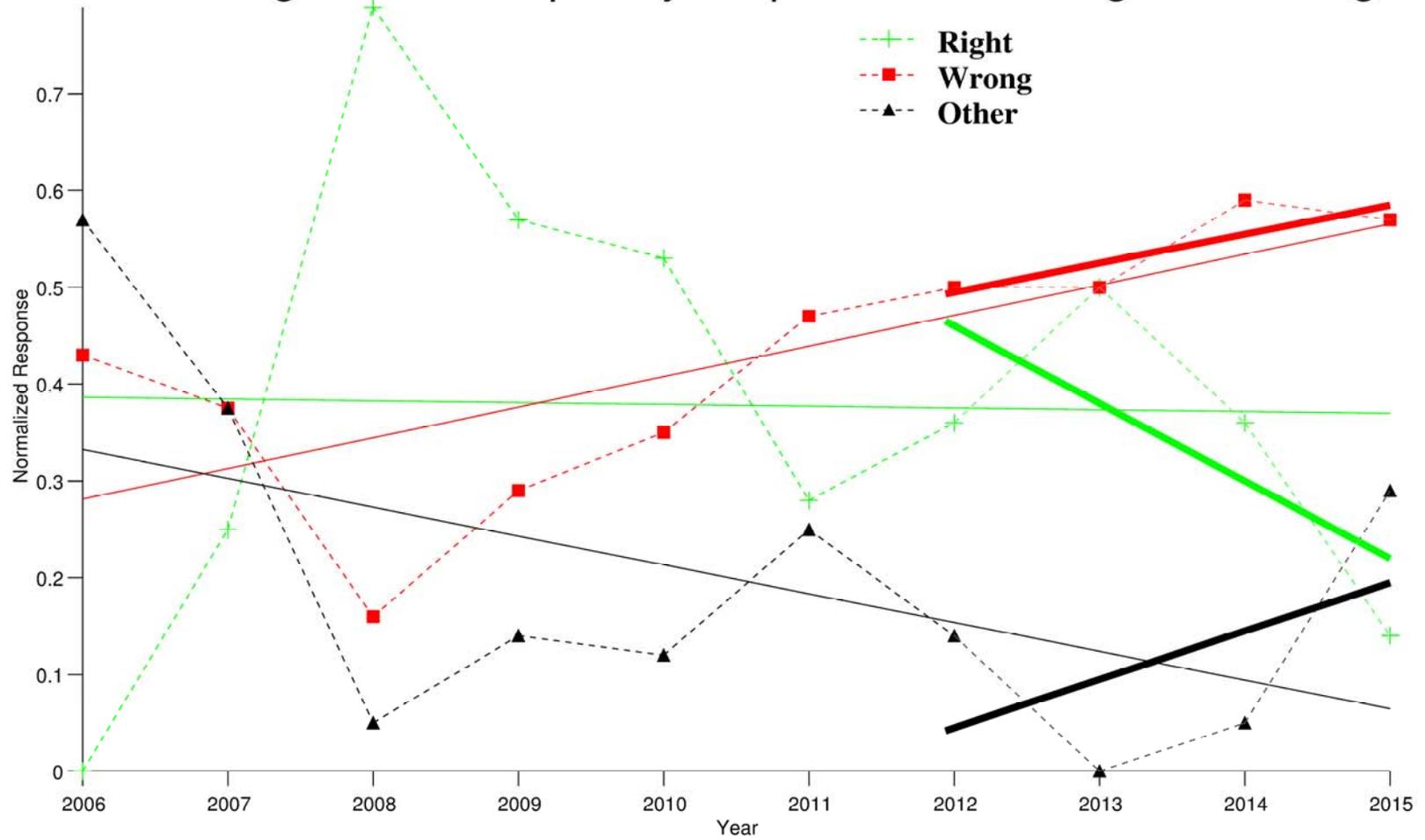
# Are Archaeological Sites Healthy



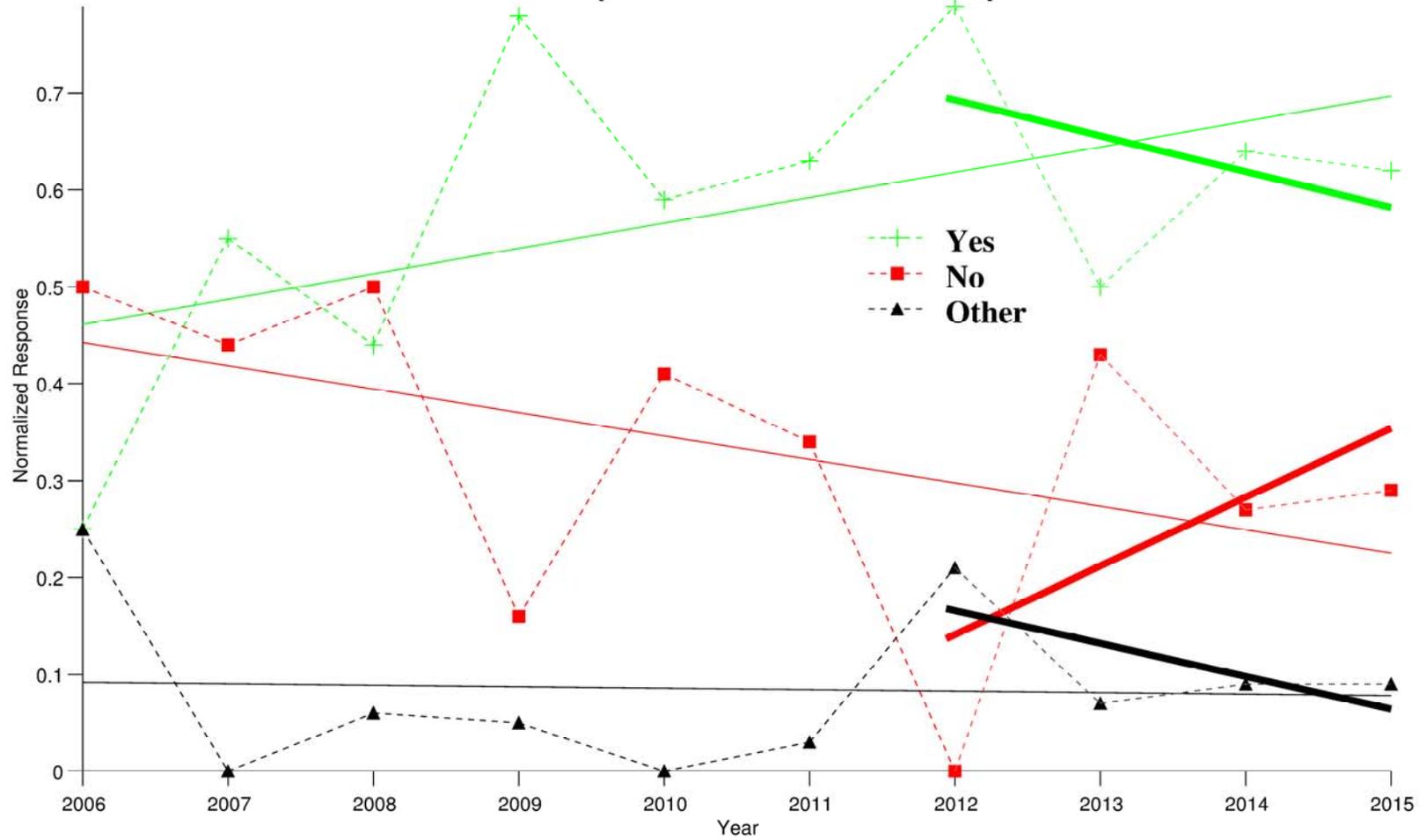
# Are Native Fish Healthy



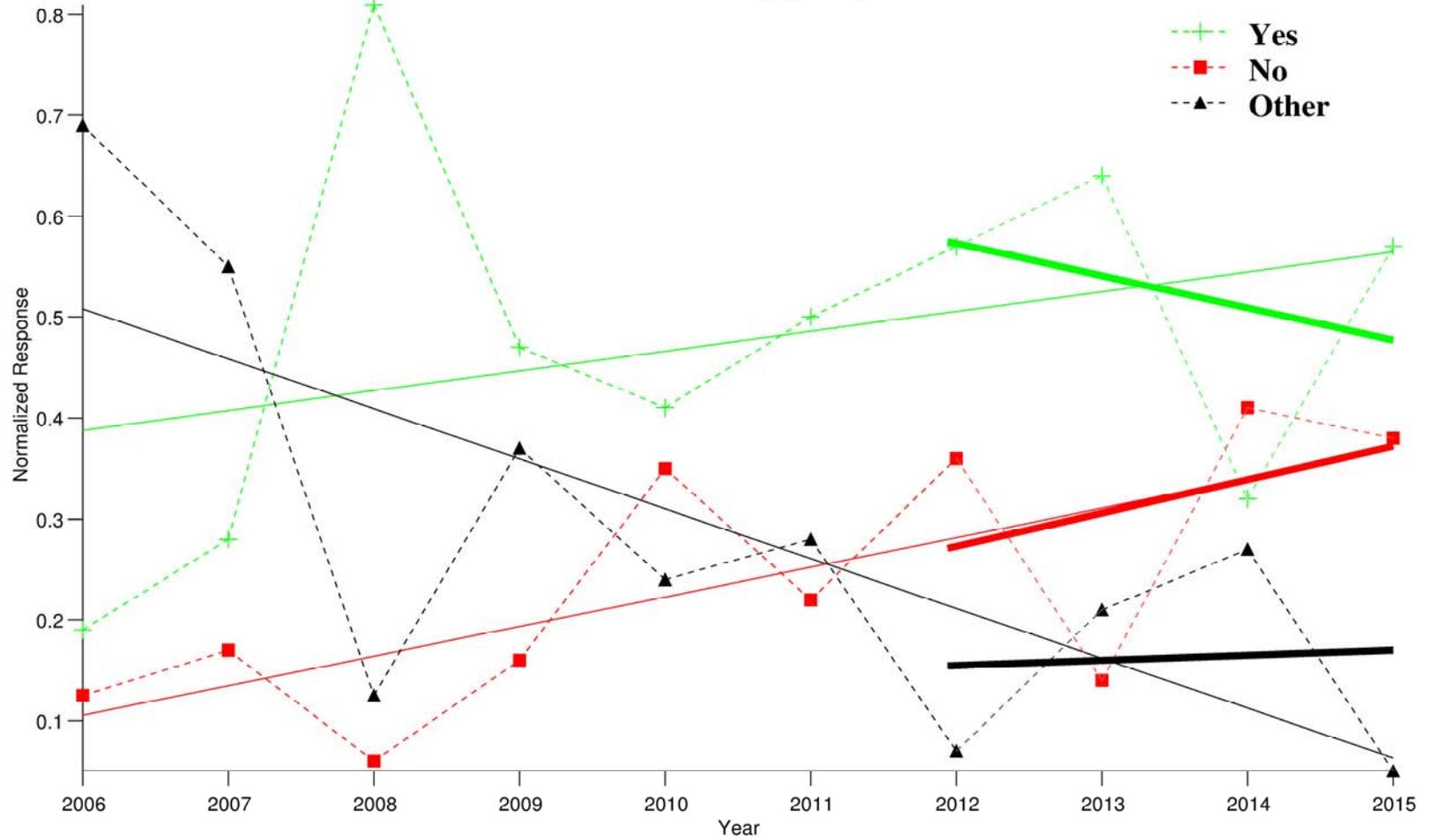
# Is Removing Trout to Hopefully Help Native Fish Right or Wrong



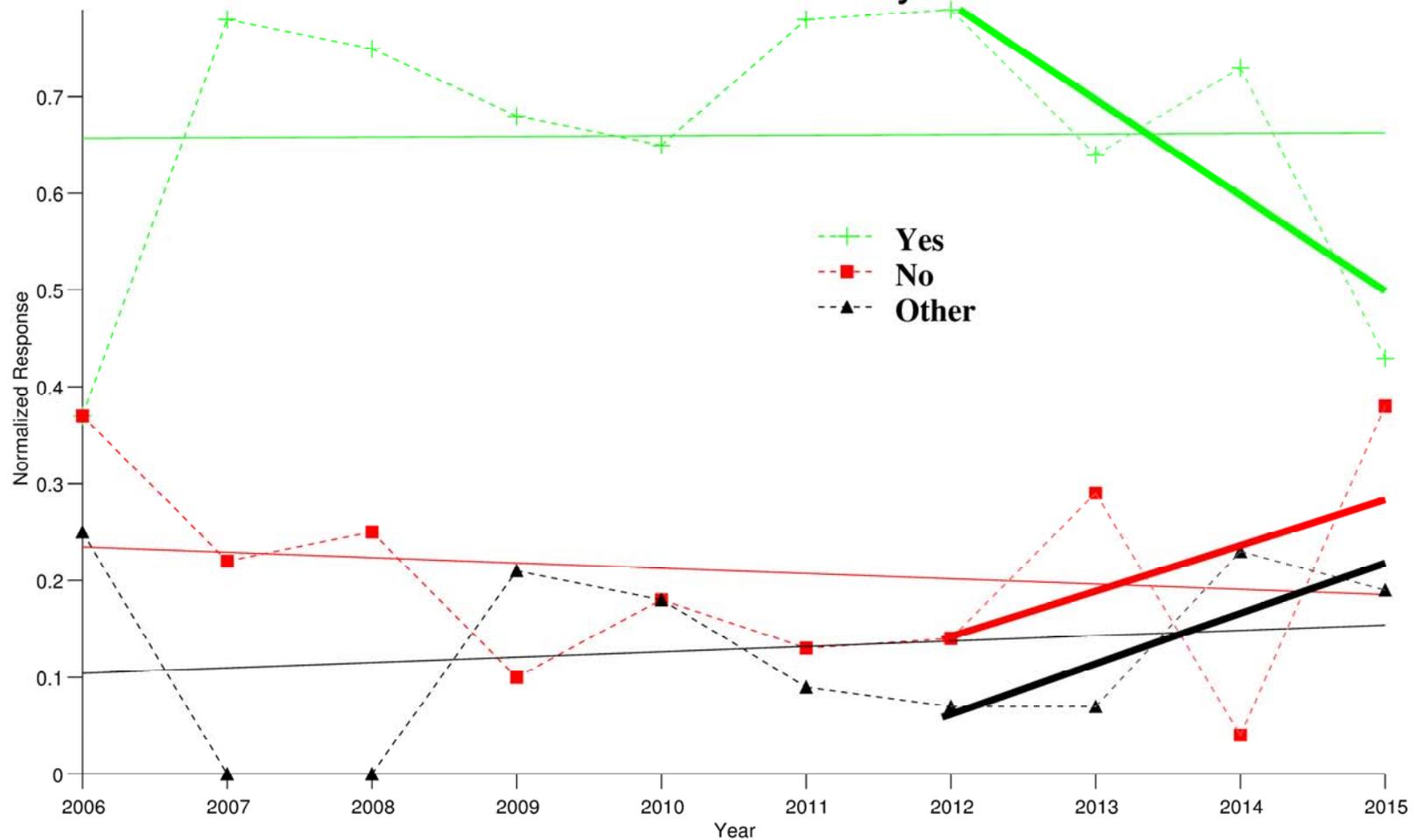
# Do Non-native Species Have an Equal Role



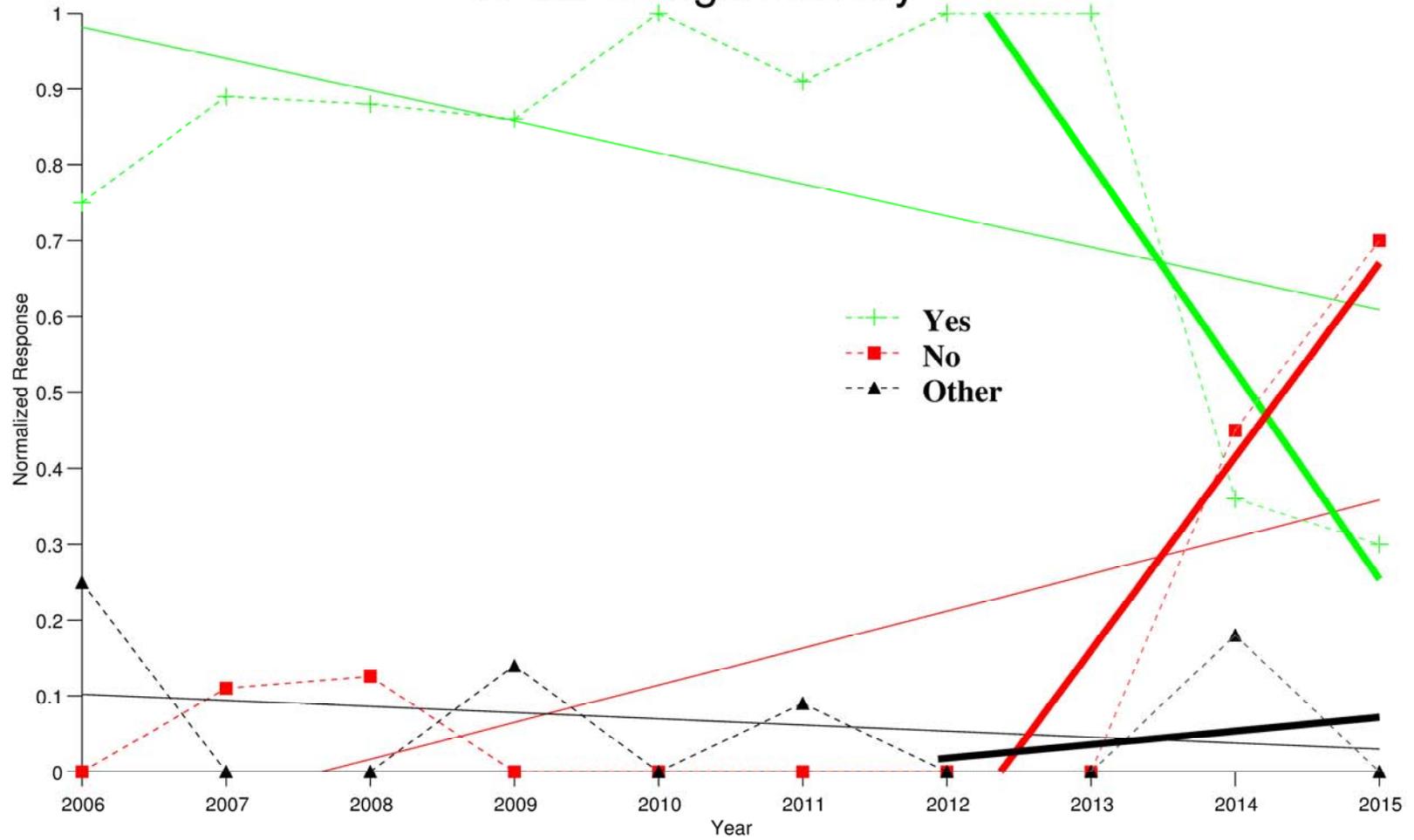
# Is Recreation Appropriate



# Are Marshes Healthy



# Is the Öönga Healthy



# Conclusions and Recommendations

- There is a strong desire by the Hopi Tribe to remain involved in the management of the Grand Canyon.
- Process can be as important as the outcome with regard to desired resource conditions.

- Development of Education resource handbook for use at Hopi

- Need additional input on terrestrial resources:

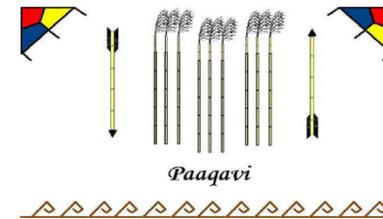
–AMP has not consistently collected information on the status of a number of resource categories that are culturally important to the Hopi Tribe. This includes archaeological sites, vegetation, avifauna, reptiles, insects, and mammals.

village is named for this plant. *Paaqavi* is used in Hopi ceremonies and the hollow stems are used for *tsoongomomyipi* (mouthpiece) in clay pipes, tubular pipes, arrow shafts, weaving rods, *paalena* (flute), and *paksiyu* (cottonwood container game). Because *paaqavi* grows in water, there is added symbolism when prayers involve *paaqavi* pipes. The Hopi creation story tells of the ancestors climbing up to the Fourth World through a reed stem. Hopi people use it for medicinal purposes.



*Paaqavi* grows abundantly along the shoreline of the Colorado River and in many tributaries. Hopi people use it for a variety of cultural purposes. Photograph by Kristin Huisinga

In *Öngtupqa*, *paaqavi* is an abundant plant in *pasiqöliö*, or water zones, both along rivers and in side creeks. Large patches of it, called *paaqap'qöliö*, offer a place for birds and animals to seek cover and food. With excessive groundwater pumping and drought, many *paaqavi* populations are dwindling throughout Hopi lands where there were once healthy springs. Hopi cultural advisors who consult on management in Grand Canyon feel that the maintenance of patches of *paaqavi* is essential for a healthy river system. Its presence in archaeological sites shows that it has been a longtime member of the flora here.



Drawing of *paaqavi* showing its connection to water and its use in making arrows. Drawing by Micah Loma'omvaya.



*Paaqapngyan*, or Reed Clan, signatures recorded by Jesse Waller Fewkes in 1897.