

Christopher Edwards, Jennifer S. Rehage

Florida International University, Department of Earth and Environment, Miami, FL, USA, cedwa008@fiu.edu

## Recreational Fishing in the Everglades Canals

- Florida is known as "The Fishing Capital of the World" because of its many saltwater and freshwater recreational fisheries opportunities.
- In 2006, Florida attracted more out-of-state recreational anglers than any other state, over 885,000, and boasted the highest number of resident anglers, over 1.9 million (NWF, 2006).
- Freshwater fishing by itself provides recreation for over 1.4 million anglers, and brought in over 1.4 billion dollars in revenue in 2006 (NWF, 2006).
- Within the state, the Everglades provide many freshwater fishing opportunities. The total economic output of the Everglades Region freshwater fishing was estimated to be \$352.5 million in 2007 (Fedler, 2009).

There are two management issues that may impact the recreational experience of anglers and generations of anglers to come. 1.) Nonnative fish 2.) Mercury content of fish

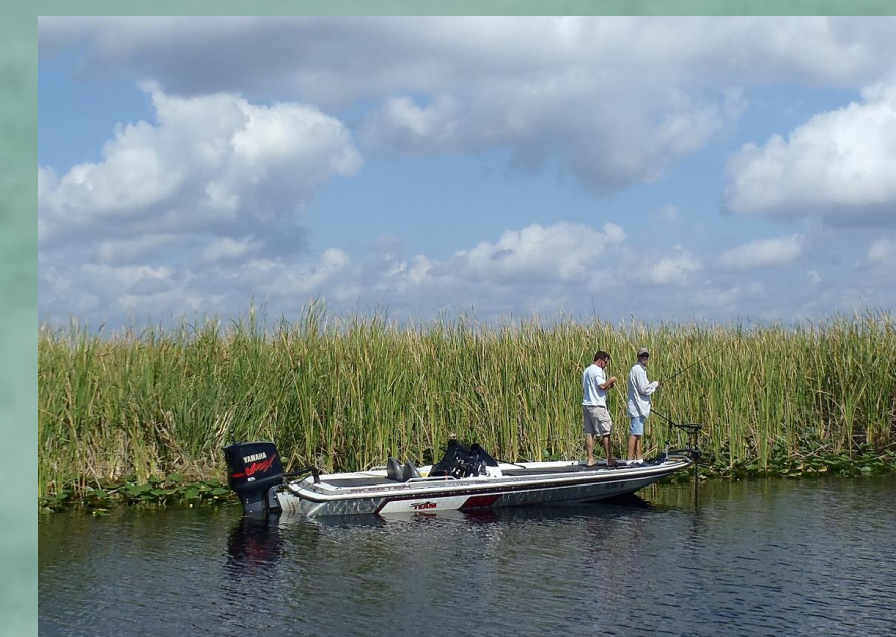
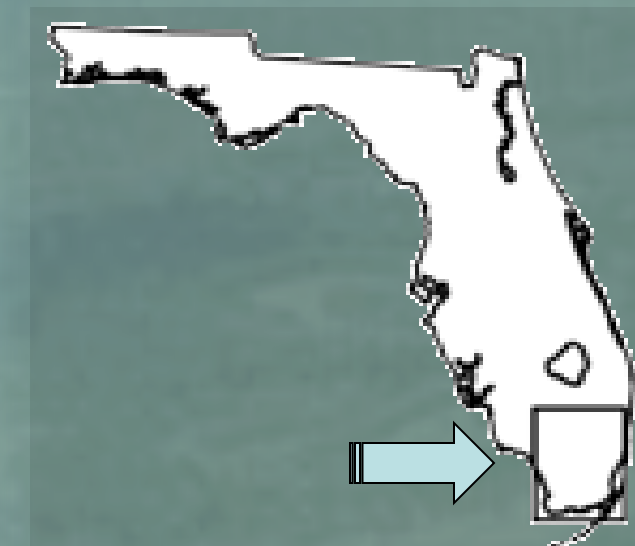
Are recreational anglers aware of nonnative fish species and do they value native species more?  
Are recreational anglers aware of mercury advisories and are they concerned by them?

## Assessing Stakeholder Awareness and Values

A personal survey with 500 land and boat anglers in 2 popular canals will:

- Assess angler preferences for fish species and fishing habits
- Evaluate angler awareness on the issues of nonnative fish and mercury advisories
- Assess support for conservation of native species and improved water quality
- Inform participants

### Survey Sample Territory



## References & Acknowledgements

- National Wildlife Federation, F.W. (2006). An Unfavorable Tide: Global Warming, Coastal Habitats and Sport Fishing in Florida. National Wildlife Federation.
- The Florida Fish and Wildlife Conservation Commission, Barron Moody and Vance Crain.
- Everglades National Park and Jason Osborne.

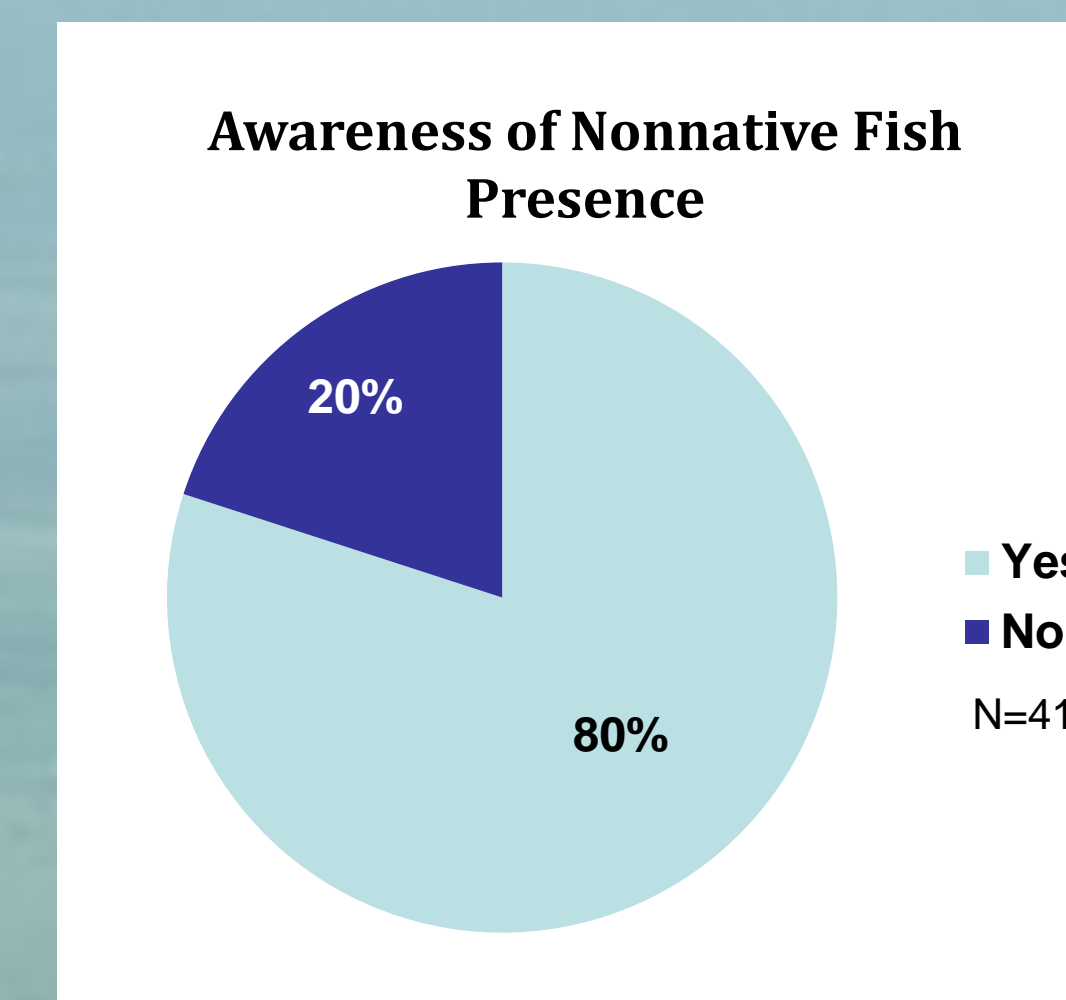
## Overall Hypothesis:

Everglades canal anglers prefer native fish species and safe fish-mercury levels, and perceive a benefit from management decisions that conserve native species and improve water quality.

## Preliminary Results for Nonnative Species Perspectives

### Are anglers aware of the nonnative fish species in their fishery?

I hypothesize that anglers are generally unaware of and unable to identify nonnative species.

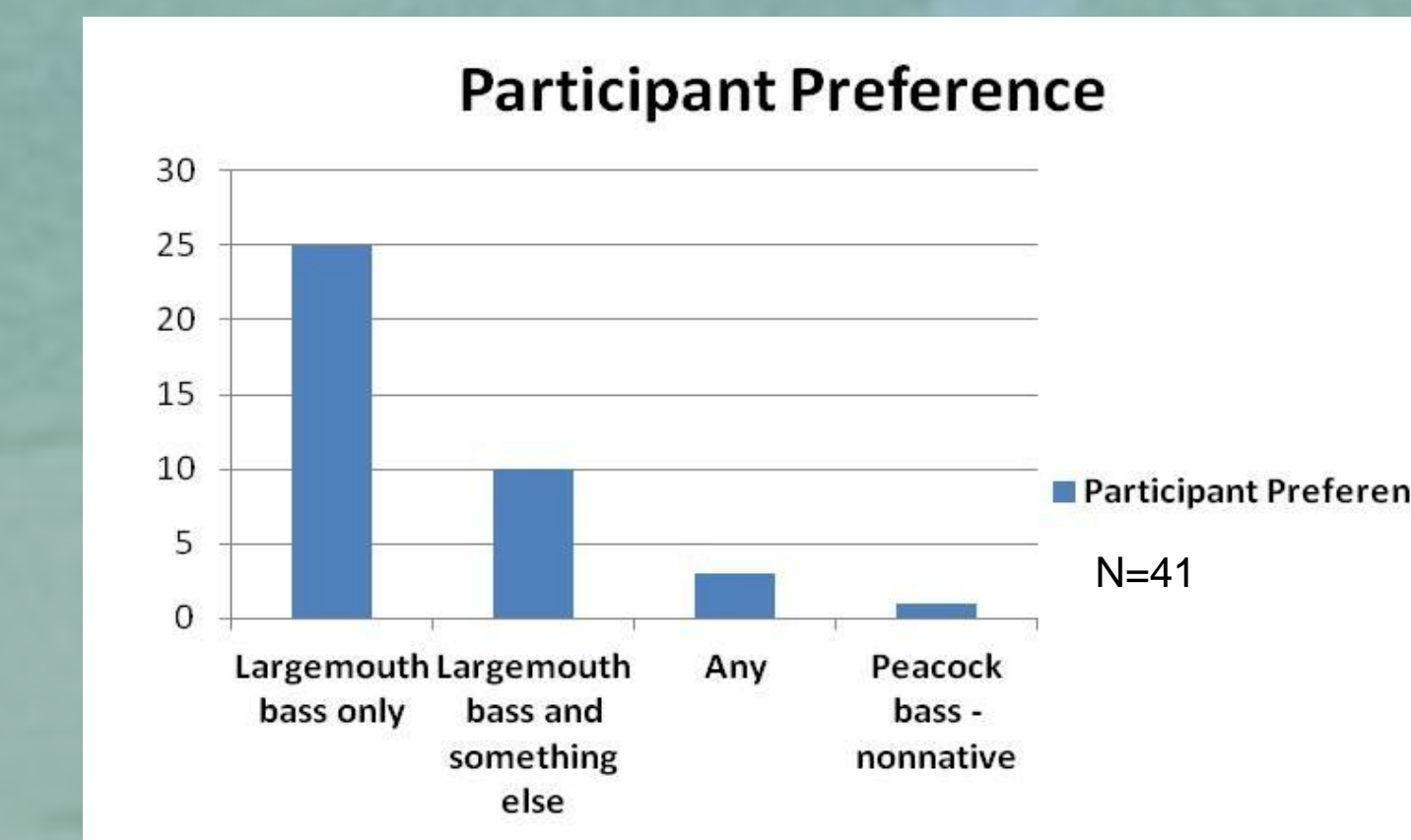


### Popular Recreational Fish

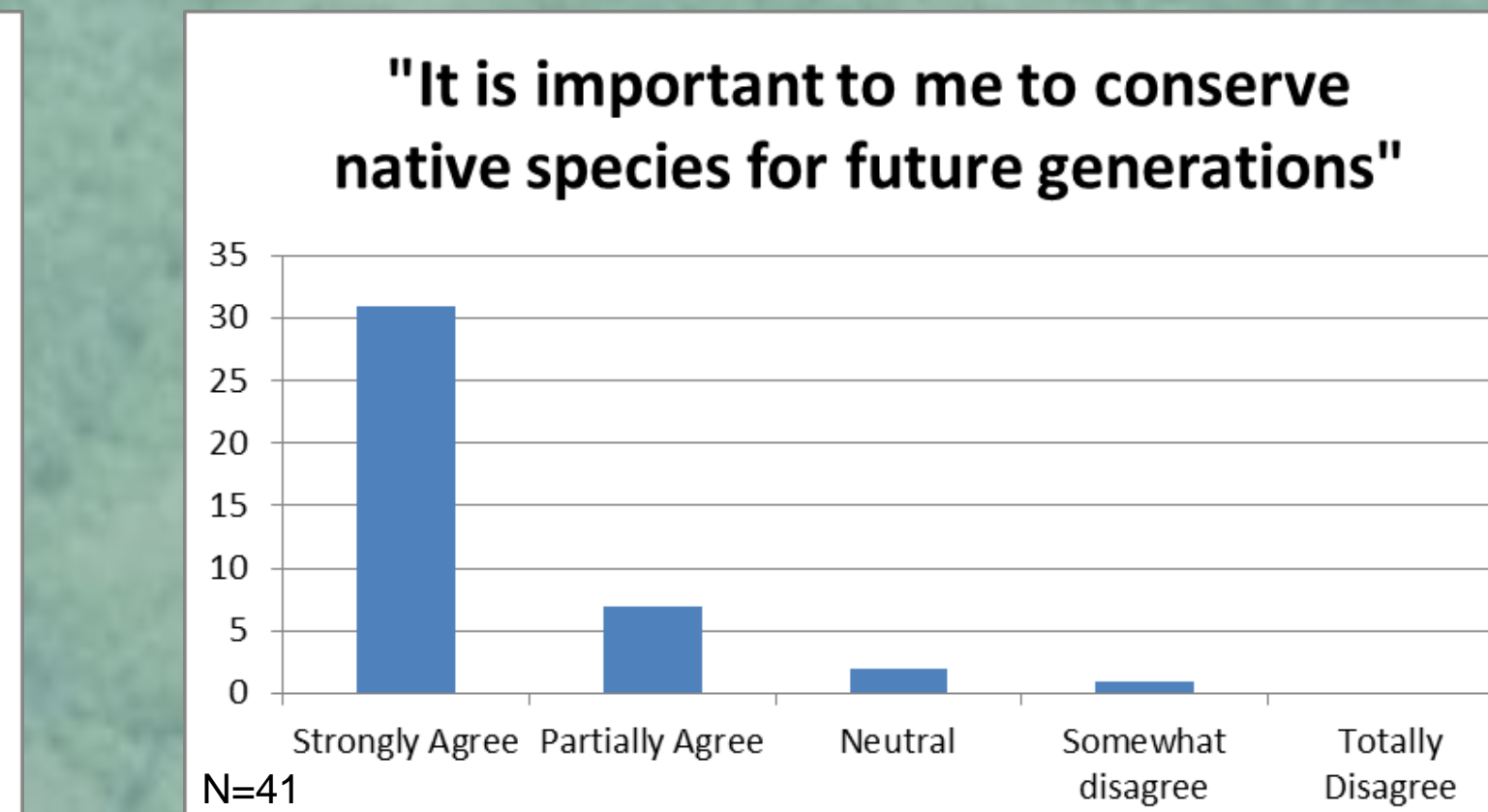
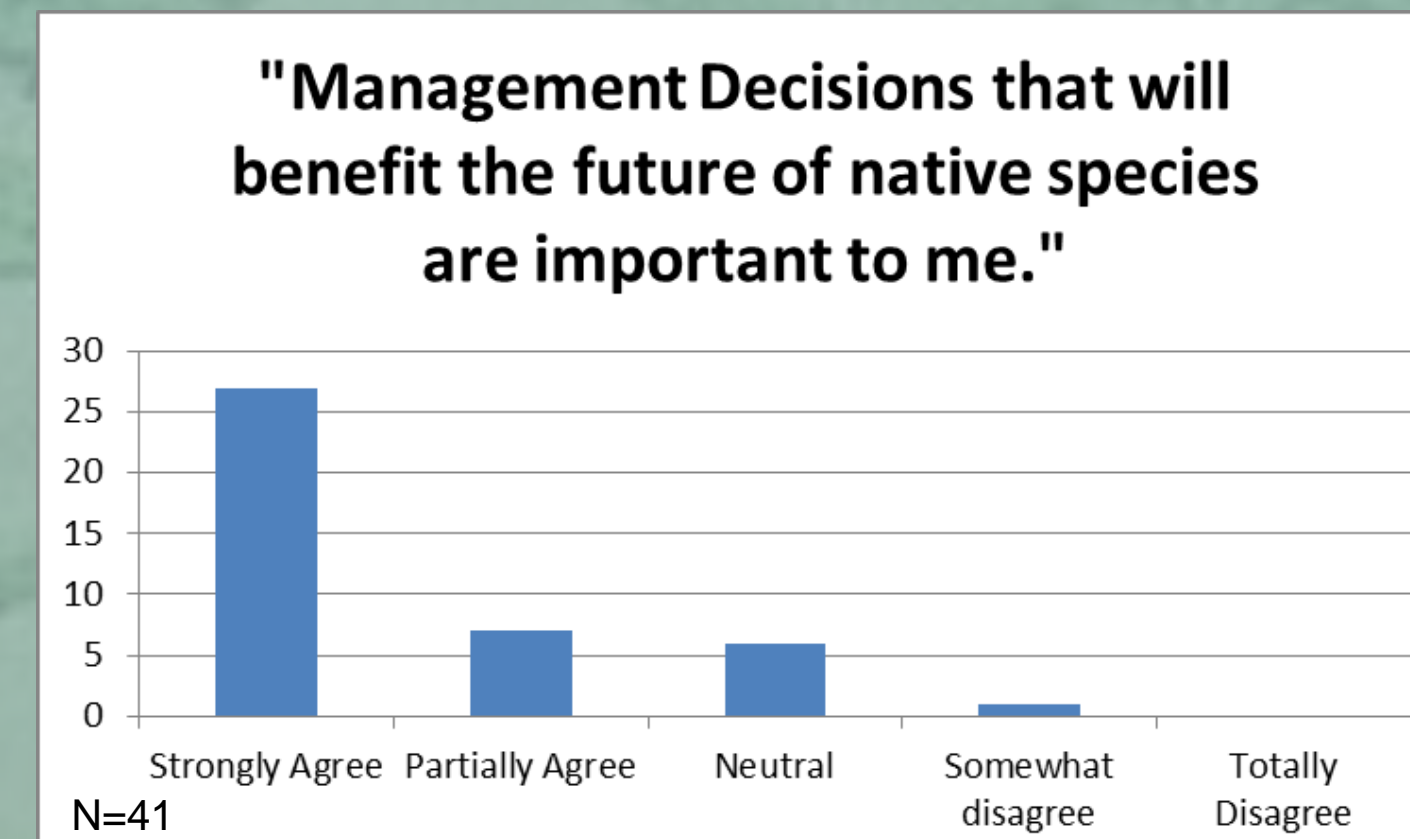


### Do anglers target nonnative species?

I hypothesize that native largemouth bass is the most highly prized and targeted recreational fish in Everglades' canals.



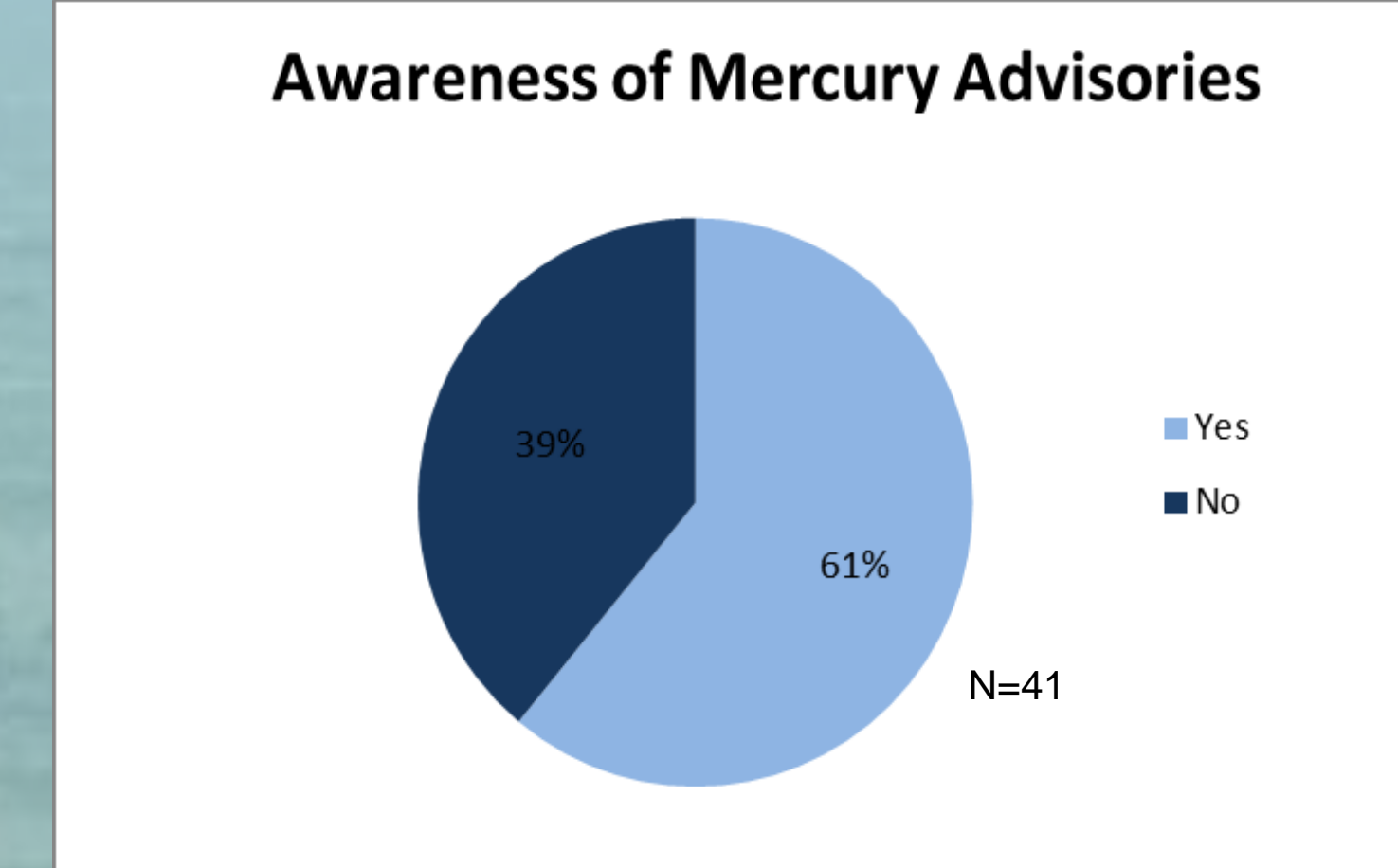
### Do anglers want to conserve native species? After establishing awareness and a short brief on the topic of nonnative fish species, respondents were asked if they feel:



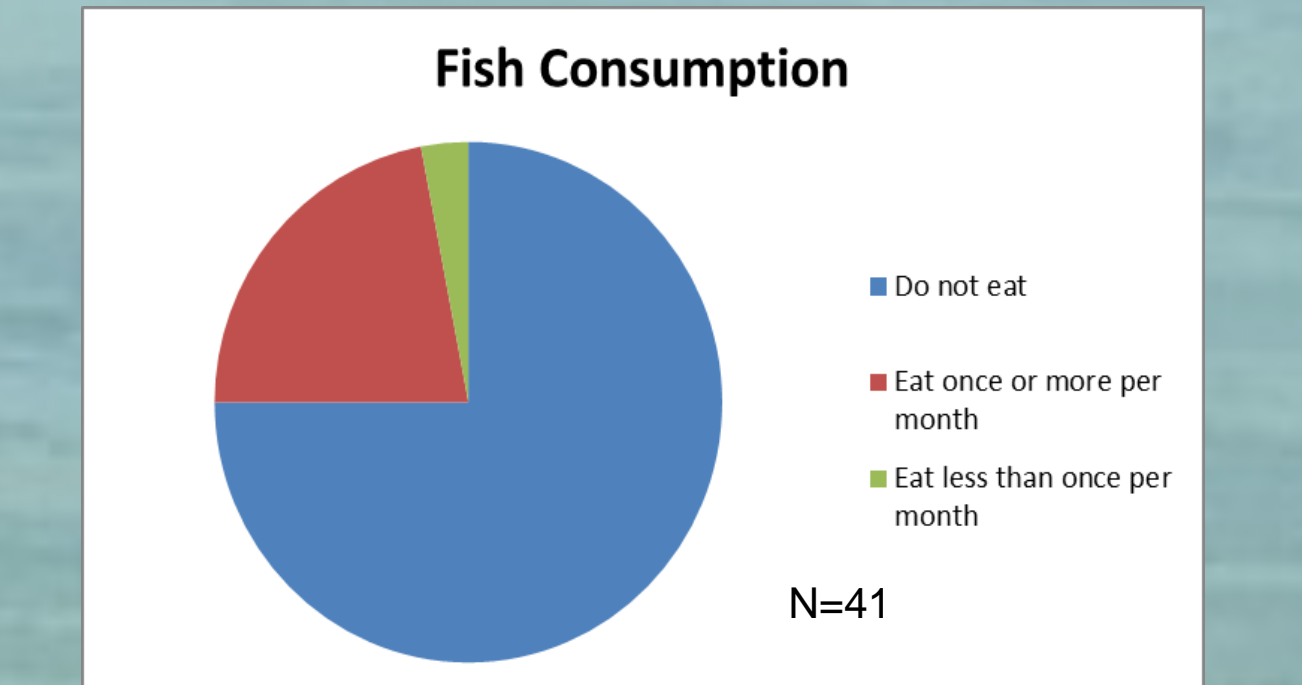
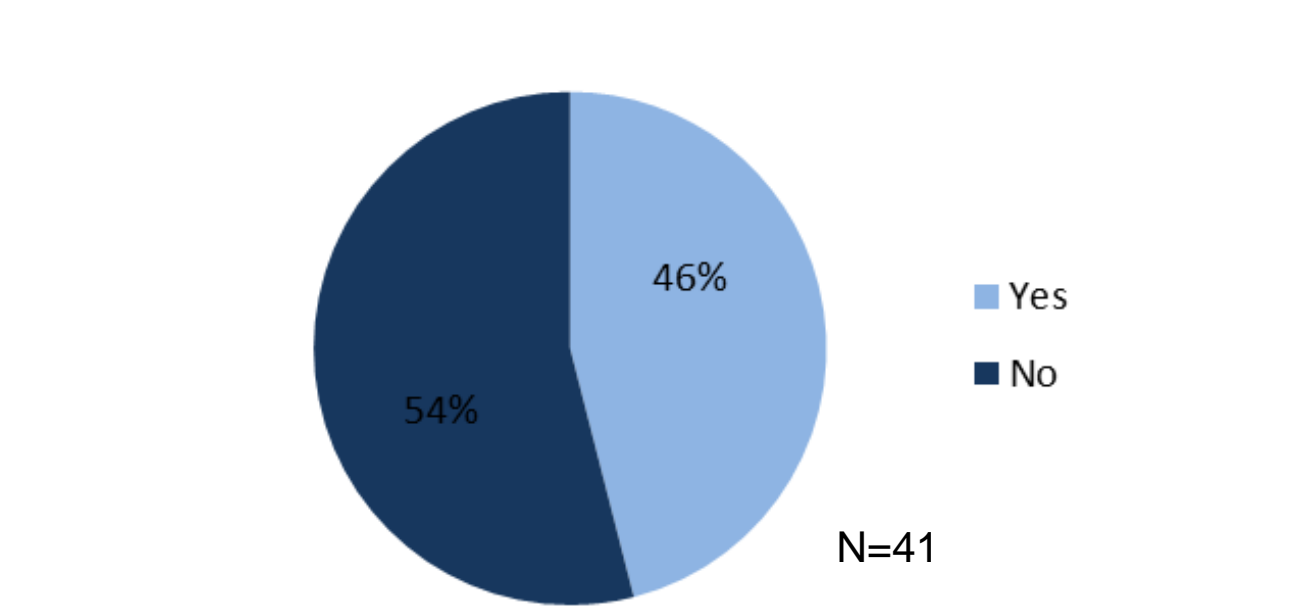
## Preliminary Results for Mercury Advisory Perspectives

### Are anglers aware of mercury advisories on consuming fish?

I hypothesize that anglers do not perceive mercury warnings as a threat and do not follow fish consumption advisories as recommended.



### Do advisories cause you to eat less fish from this area?

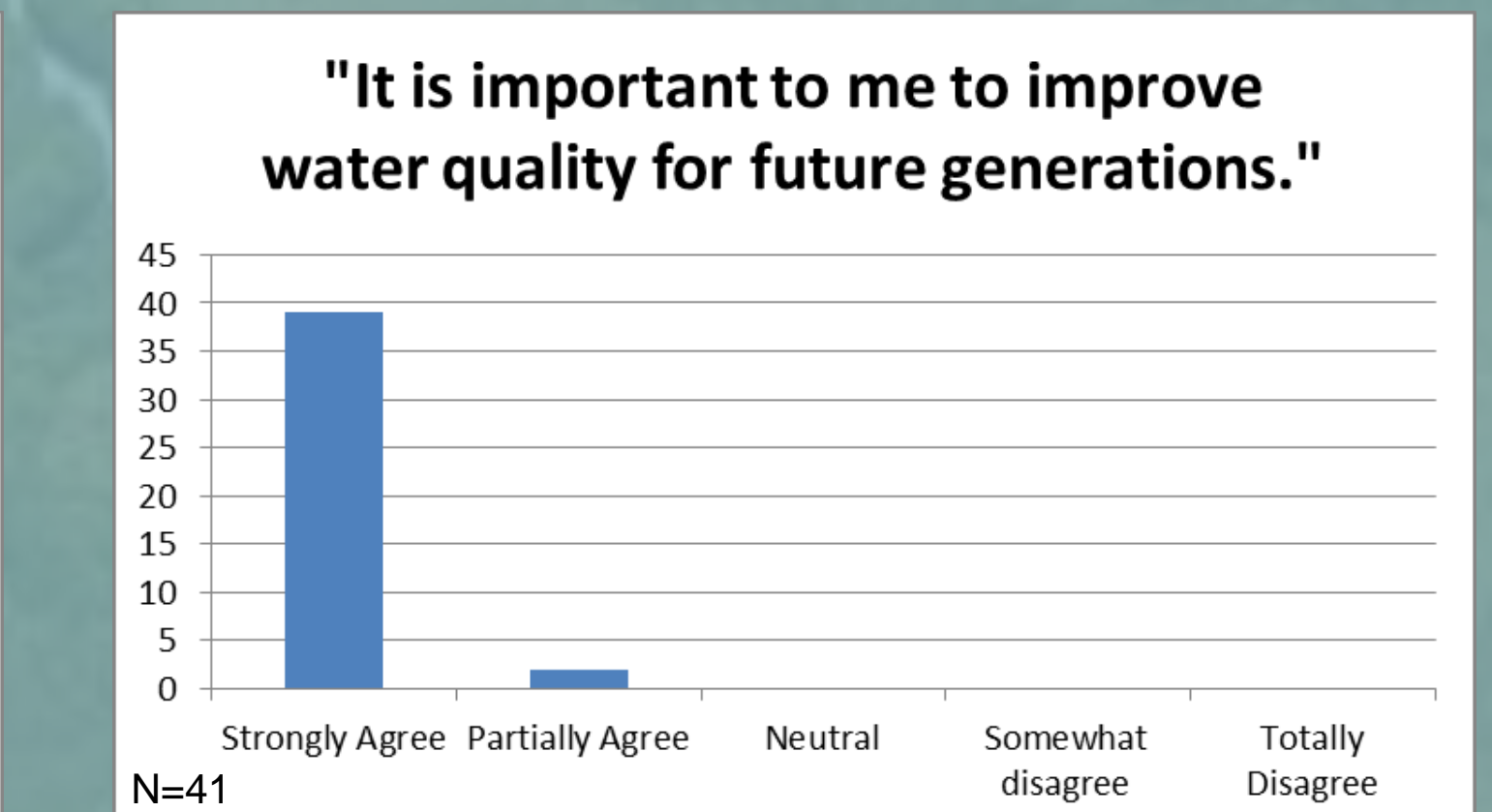
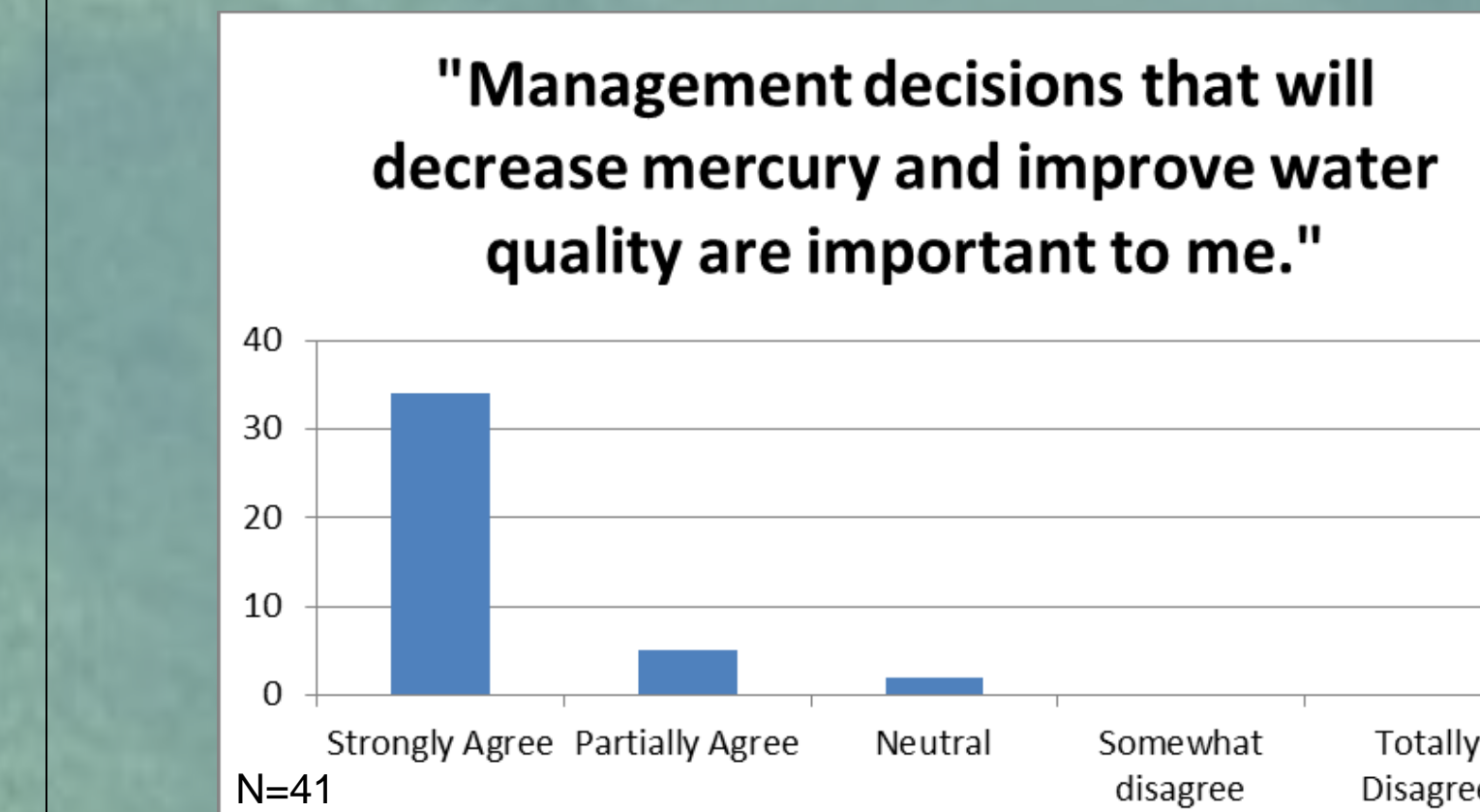


### Florida Department of Health Fish Consumption Advisories 2011

Location	County	Species	Women of childbearing age, young children: NUMBER OF MEALS	All other Individuals: NUMBER OF MEALS
Tamiami Canal	Miami-Dade	Mayan Cichlid*	Two per week	Two per week
		Bluegill, Redear Sunfish	One per week	Two per week
		Spotted sunfish, Warmouth	One per month	One per week
		Largemouth bass less than 14 inches	One per month	One per month
		Largemouth bass 14 inches or more, Bowfin, Gar	DO NOT EAT	DO NOT EAT

\*=Nonnative

### Do anglers want better water quality? After establishing awareness and a short brief on the topic of mercury advisories, respondents were asked if they feel:



## Discussion

- Anglers are aware of nonnative fish but very few travel to the canals to target them.
- Some anglers believe nonnative fish should be removed, but many have no opinion or think there is nothing that can be done about them.
- Despite previous awareness of mercury advisories, anglers prefer clean water and believe there is not enough information available to the public about risks of consuming fish with mercury.
- Anglers seem to place higher value in protecting the fishery for future generations than they do for themselves.
- 5 of 8 participants (n=41) who ate fish from the area at least once per month were unaware of mercury advisories.

## Future Directions and Broader Impacts

- One full year of surveys will provide a census of both wet and dry season fishing practices and will be inclusive of both English and Spanish speaking anglers.
- A large sample size will allow analysis and comparison of demographic groups such as shoreline and boat anglers, young and old, and by fishing experience, income, education and awareness scores.
- Finding stakeholder support for native biodiversity conservation through nonnative species management can be used by policy makers to make decisions on investment for fisheries.
- State and federal agencies will be presented my data to inform them on stakeholder perception of public outreach on the issue of mercury content in fish.