



Goliath Grouper Study

A Survey Analysis of Dive Shop and Charter Boat Operators in Florida

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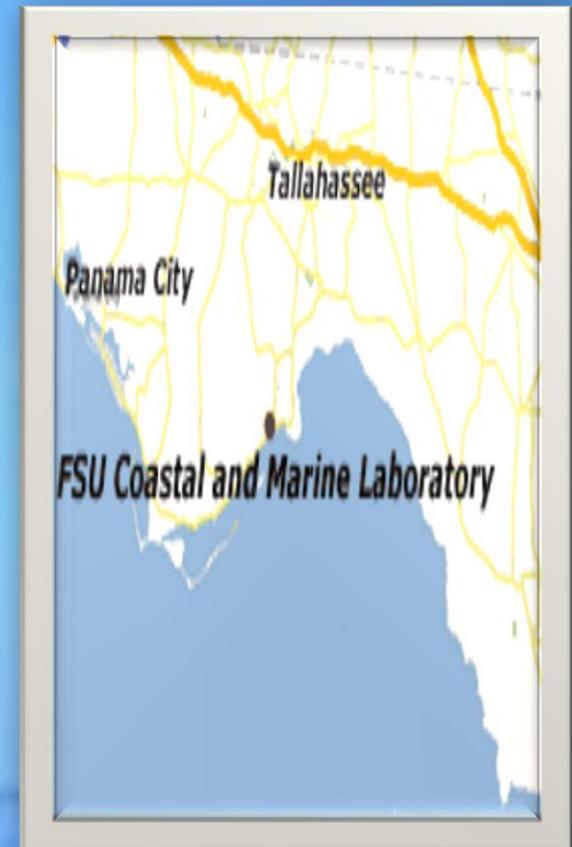
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- The FSUCML is a member of The Southern Association of Marine Laboratories (SAML) and The National Association of Marine Laboratories (NAML). It has developing research partnerships with a number of state and federal agencies.
- The laboratory is also available to investigators and educational groups from outside the university .



Goals

- Background
- Problems and Objectives
- The Survey
- Demographics and General Information
- Fishing Techniques
- Goliath Grouper Encounter
- Income, Cost and Expenses
- Fisheries Management
- Ecological Considerations
- Spatial Information
- Conclusions

Background

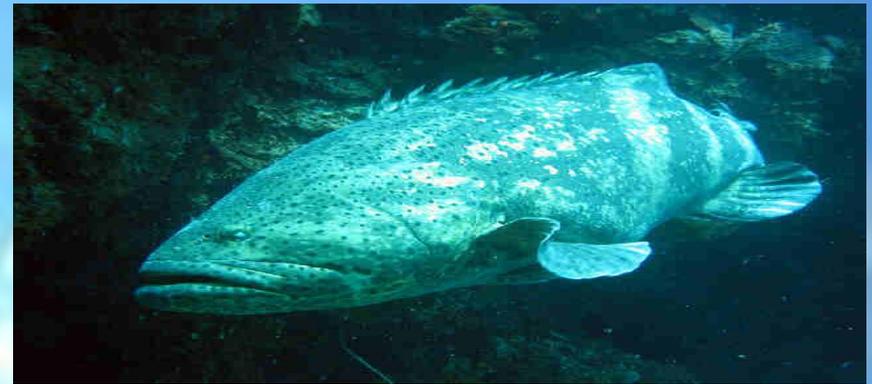
- Goliath grouper populations began declining in the 1950s and 1960s in the SE U.S.
- A fishing ban was put into effect in 1990.
- National Marine Fisheries Service still consider it overfished.
- Signs of recovery in Florida.
- Full recovery based on the Magnuson-Stevens Fishery Conservation and Management Act standards is unlikely until at least 2020 (SEDAR 2004).

Problem and Objective

- Some respondents are excited about the resurgence of Goliath Grouper.
- Others believe GG could threaten their business that depends on competing resources(e.g. snapper).
- Two main groups of interest:
 - Dive shops.
 - Charter boat fishing operators

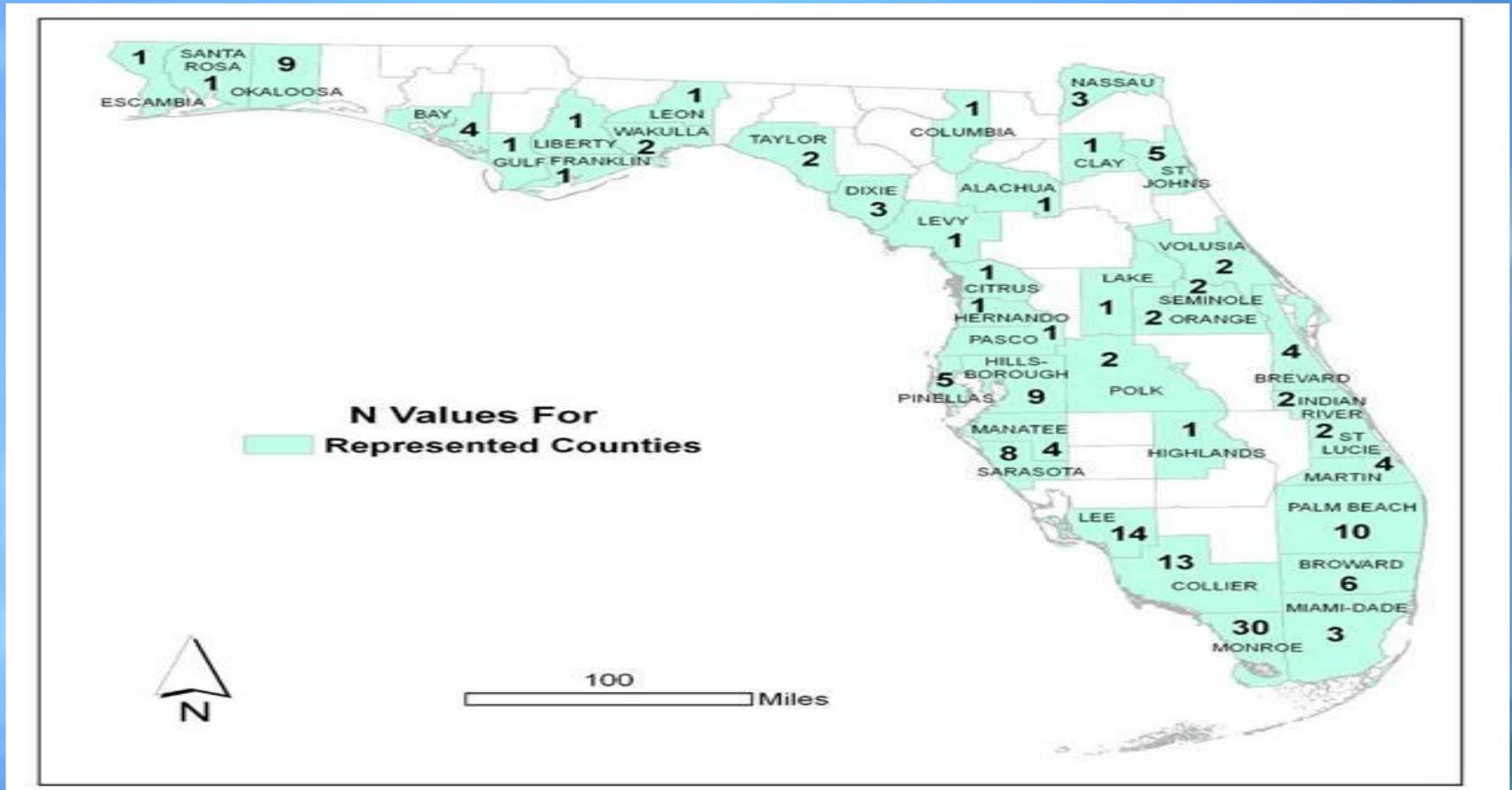
The Survey

- Ecological issues, including:
 - The increasing abundance of goliath grouper
 - The distribution of goliath grouper
 - Overall ecosystem health;
- Socio-economic issues related to:
 - The economic status of these business sectors
 - Conflicts among user groups
 - Fisheries management.

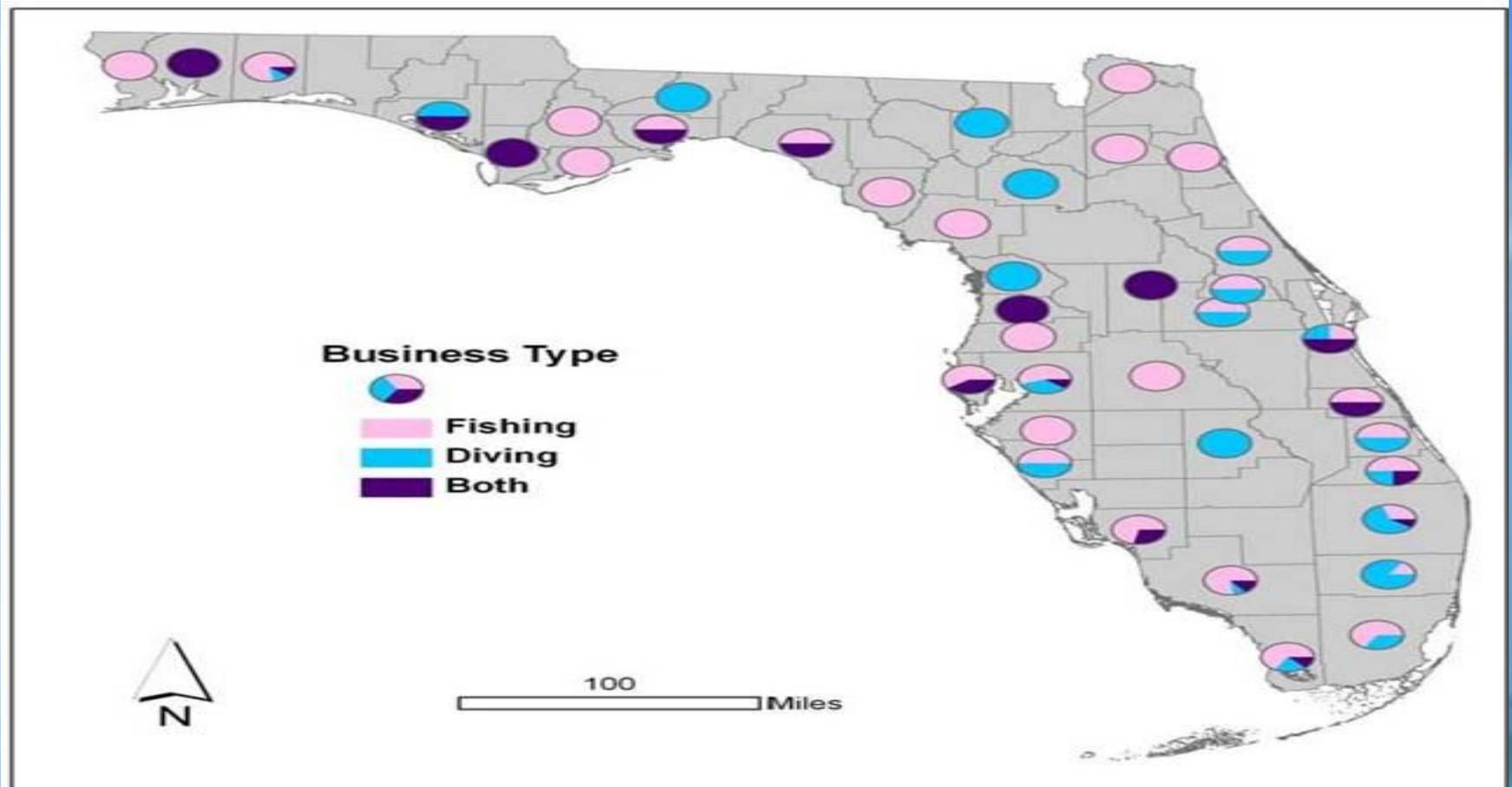


	No.	No. Of Responses	Response Rate
Fishing	345	95	27.5%
Diving	215	35	16.2%
Both		27	
Returned		33	
Total	560	157	

The Survey



The Survey



Demographics

- Respondents ranged in age from 19 to 86 years old.
- Most of the business owners were older than 50, male (98%), and had at least some college education, with at least 25% of each sector (divers and fishers) having a college degree.
- 75% were married, 15% single, and 8% divorced.
 - 95% were Caucasian.
 - Other 5% made up of American Indian/Native Alaskan, Spanish/Hispanic/Latino, Native Hawaiian/Other Pacific Islander, and Asian races.

General Information

Industries:

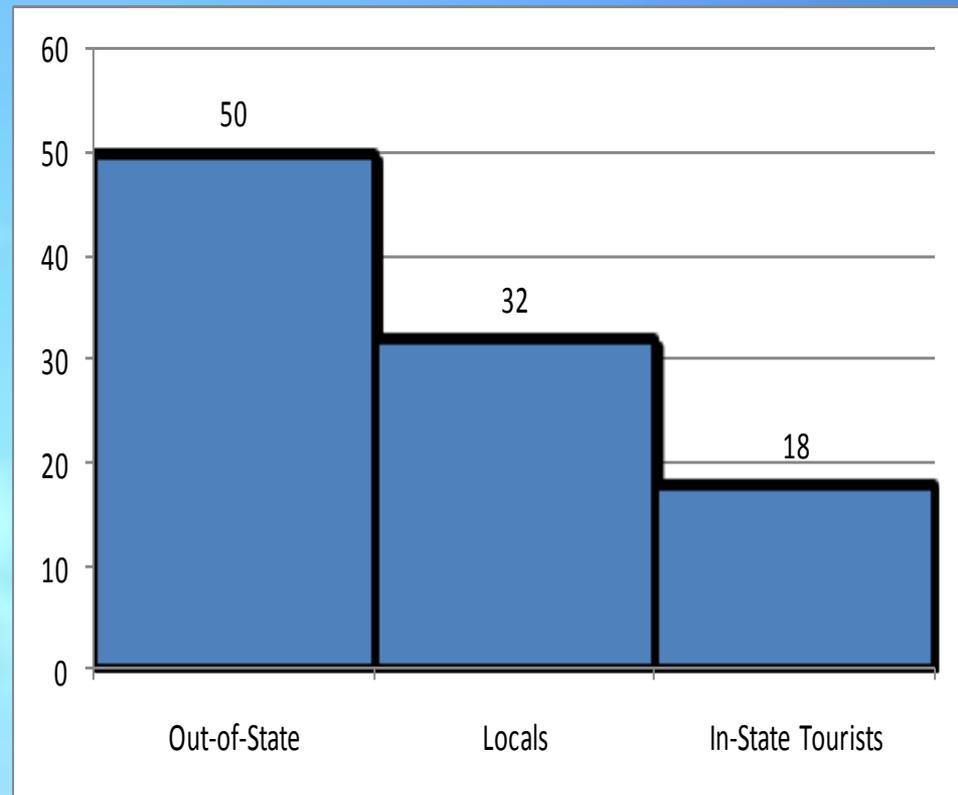
- Diving: 24.6%.
- Fishing: 58.7%
- Both: 16.7%.
- Diving:
 - 29.3% sightseeing
 - 70.7% sightseeing and spearfishing
- Both
 - 14.3% sightseeing
 - 17.9% spearfishing
 - 67.8% both sightseeing and spearfishing

General Information – Cont'd

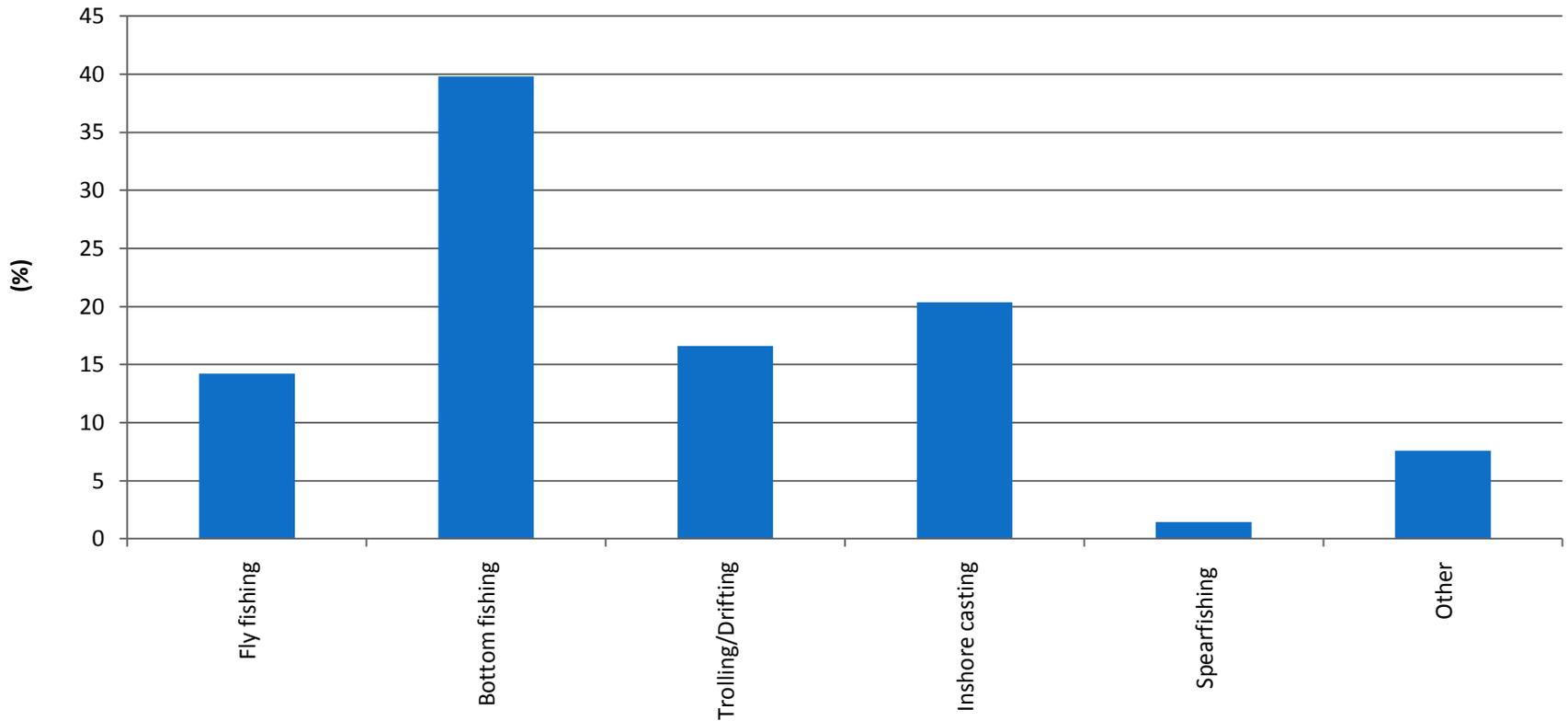
- 58% of the fishing charter boat operators have six-passenger captain's licenses - the easiest and most common license to obtain.
- The most prevalent fishing method employed was bottom fishing, followed by inshore casting, and trolling.

General Information – Cont'd

- ❖ 50% of the customers came from out-of-state.
- ❖ 32% locals.
- ❖ 18% were in-state tourists.
- ❖ Most of the fishing businesses and dive/fish businesses had out-of-state customers while most of the diving businesses had local customers.

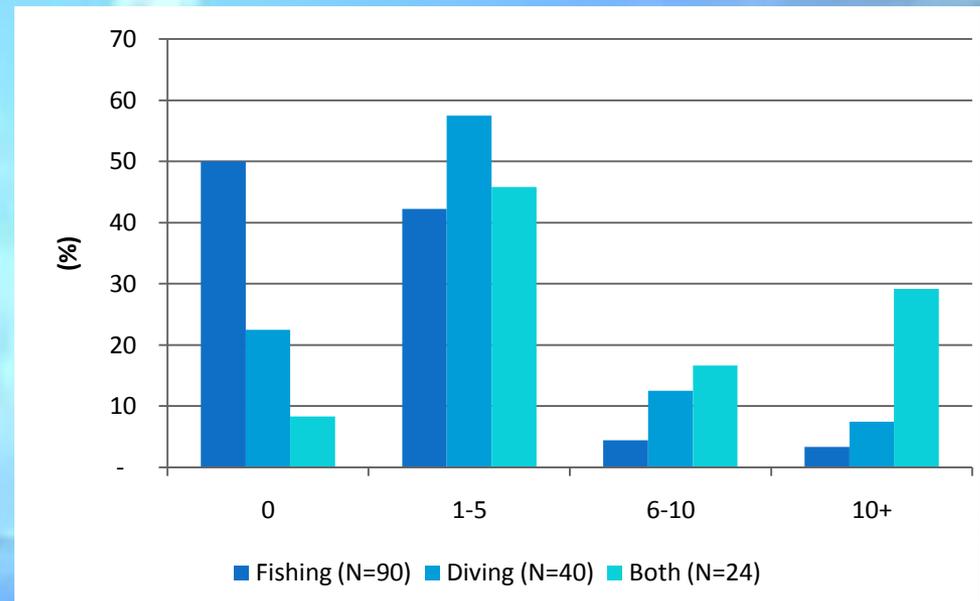
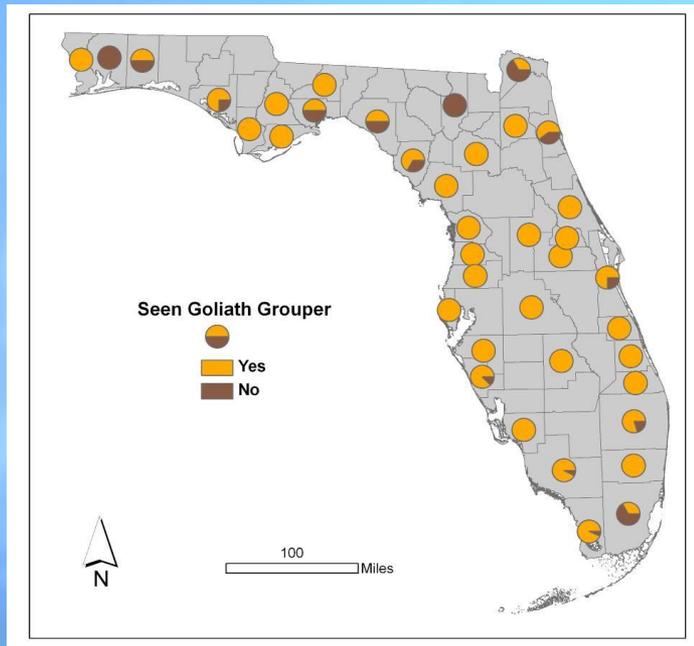


Fishing Techniques

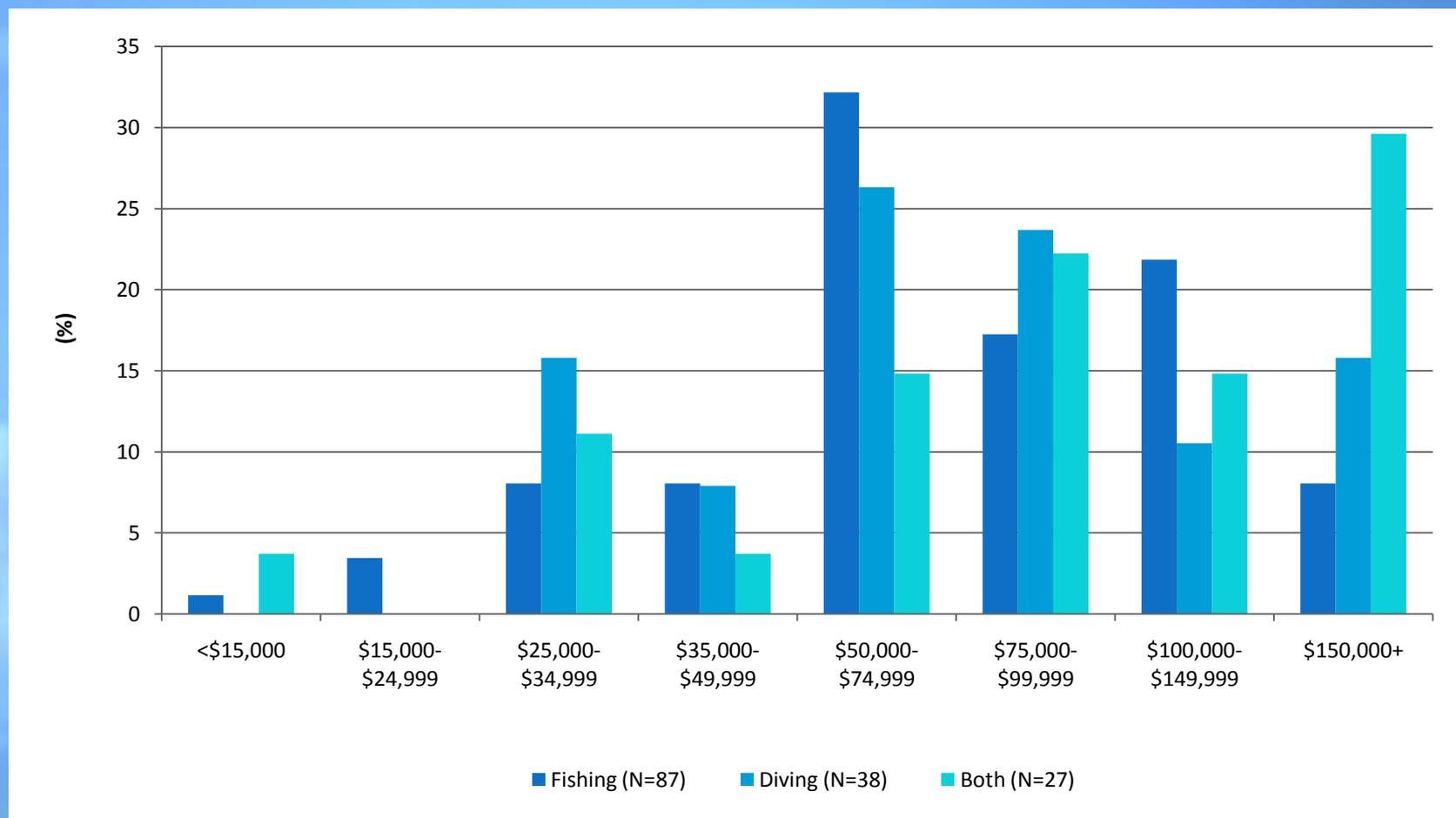


Goliath Grouper Encounter

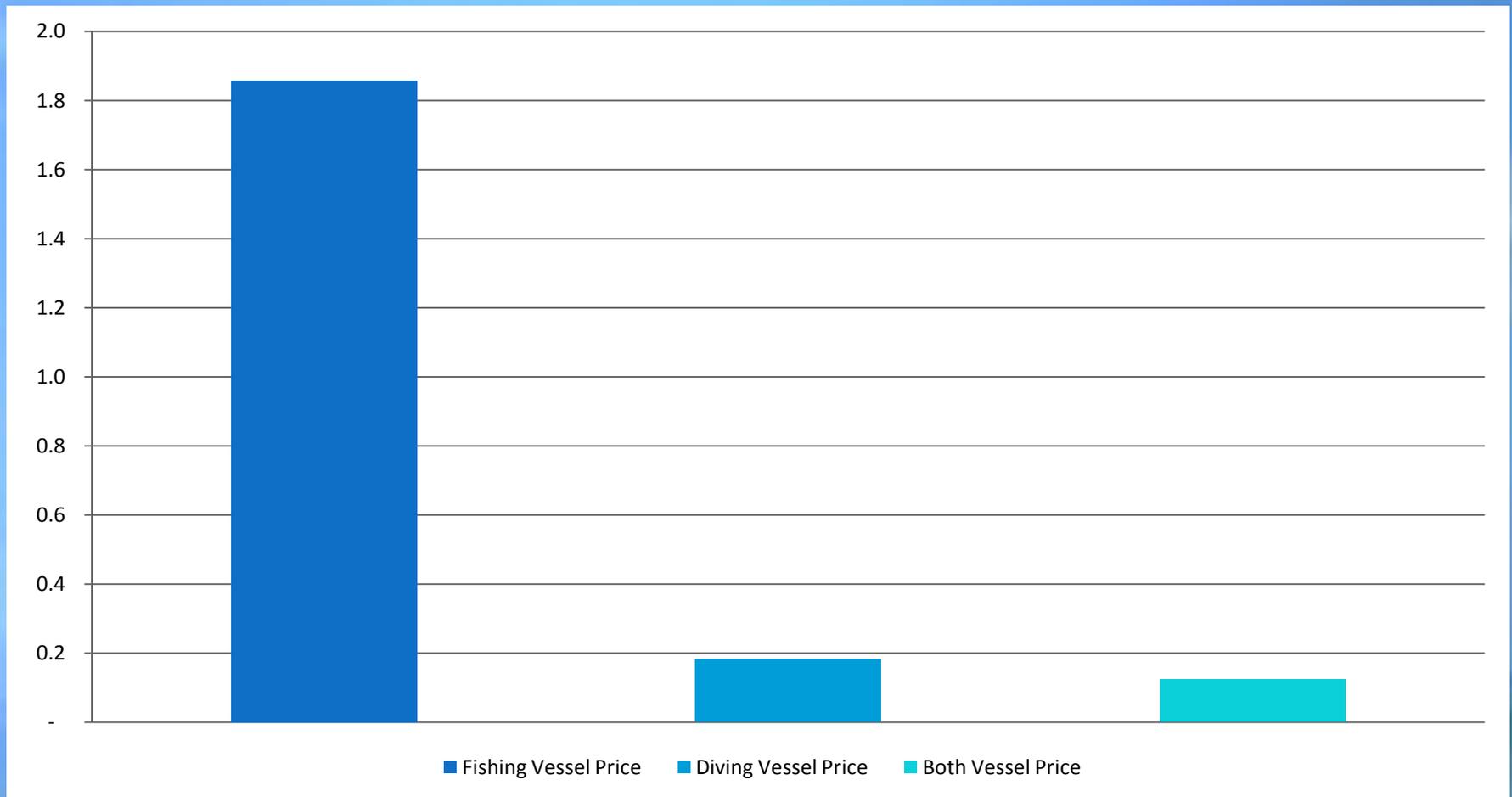
- Most of the survey respondents (84%) had either seen or caught goliath grouper, primarily in businesses operating in coastal counties
- 45% of the respondents encountered few (1-5) goliath grouper on a typical trip.



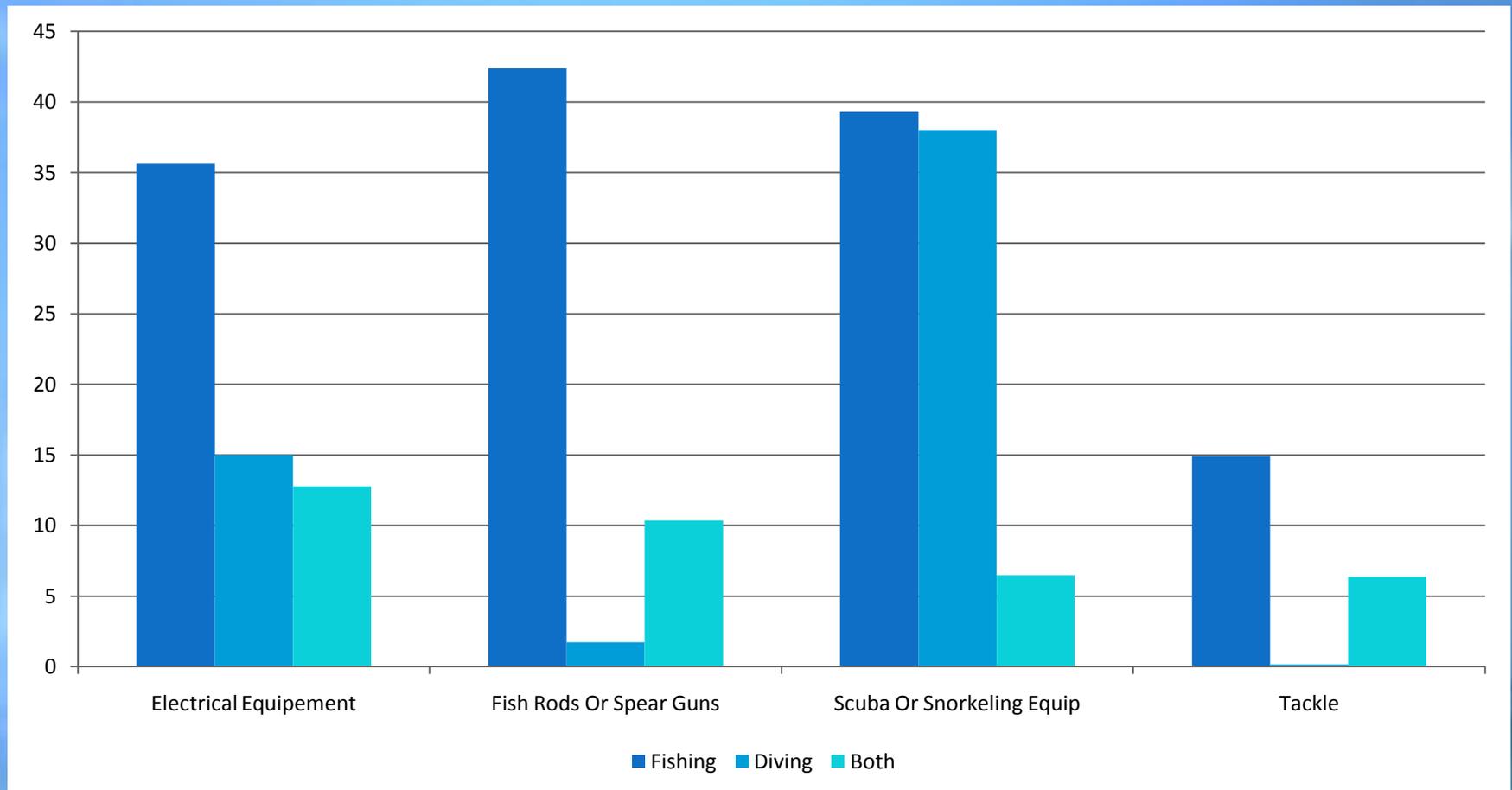
Economic Aspects - Income



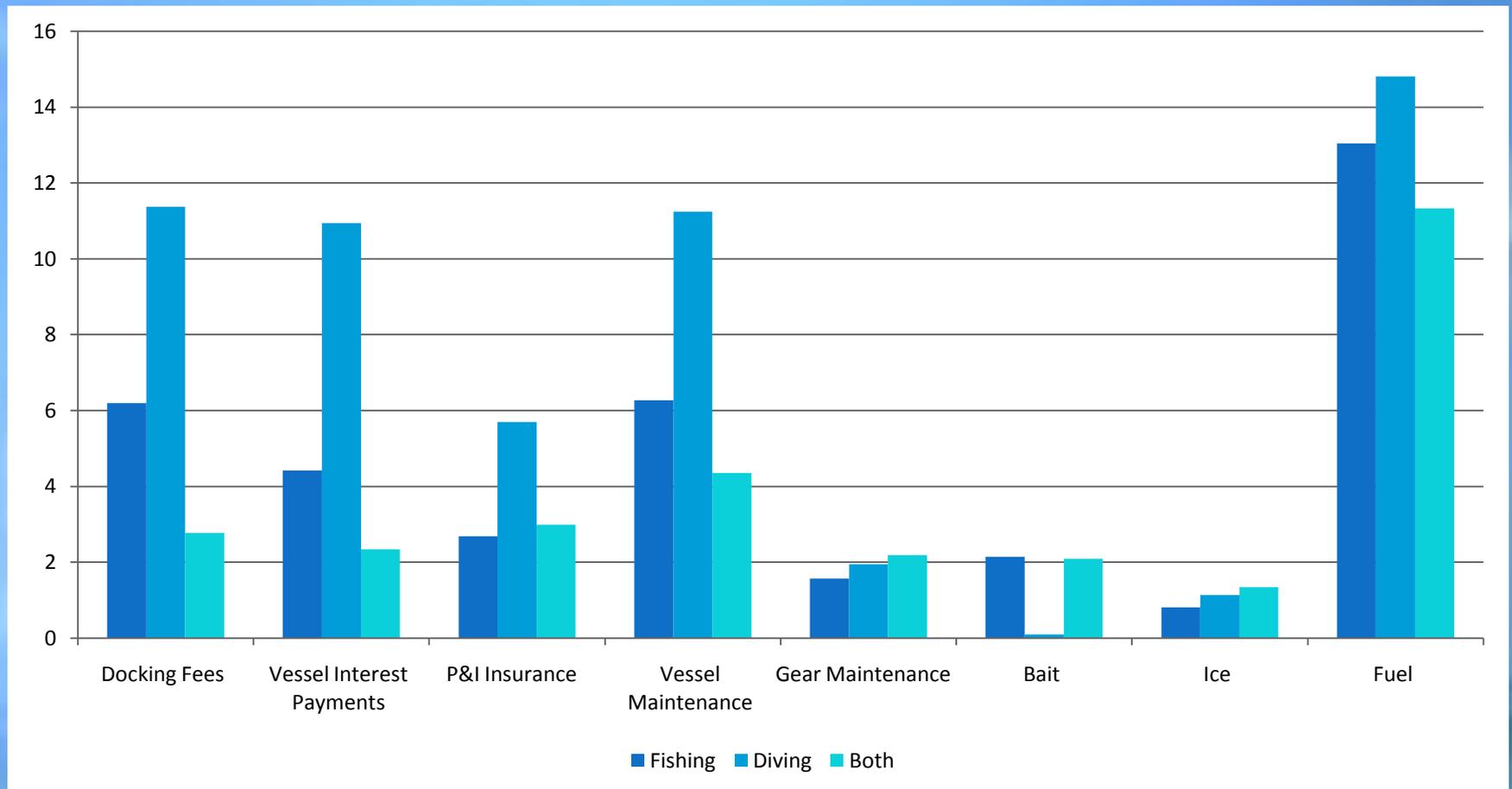
Economic Aspects – Vessel Cost (\$)



Economic Aspects – Other Cost (\$)



Economic Aspects – Expenses (\$)

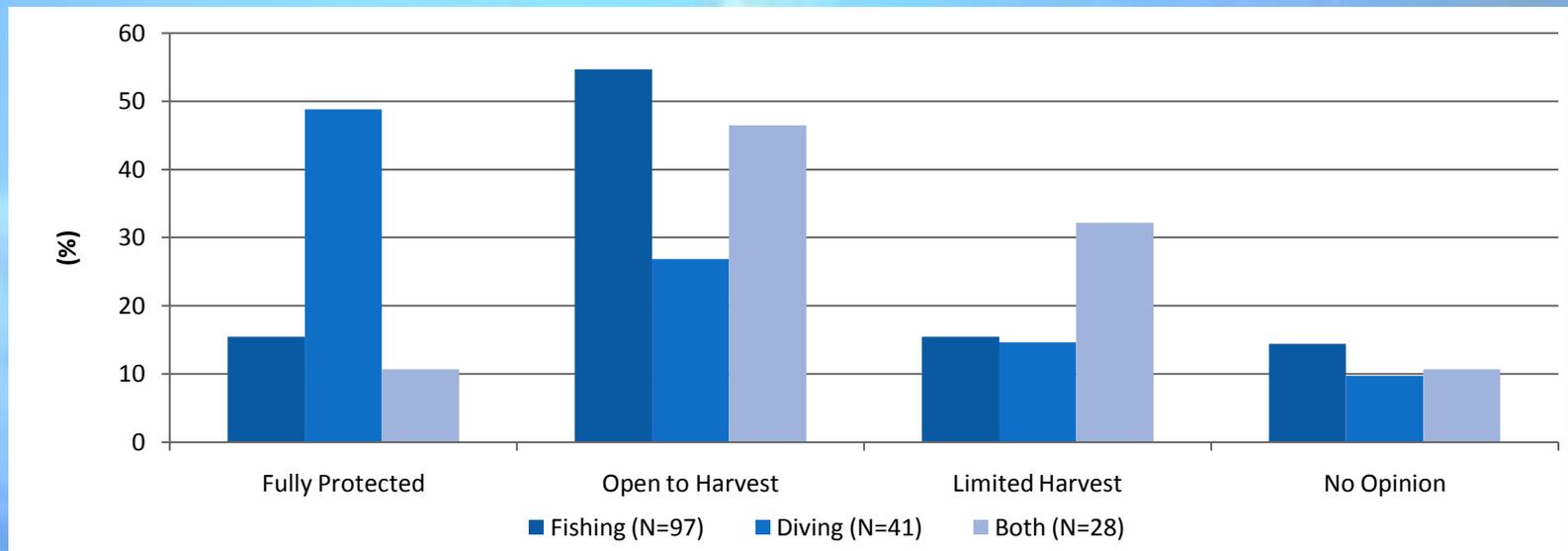


Economic Impact–Harvest?

- 53% of the survey participants have customers interested in goliath grouper encounters.
- Regarding the effect of goliath grouper on businesses, 39% respondents found no effect while 26% said they were beneficial, 24% said they were detrimental, and 11% were not sure.
- The impact of allowed harvest on the businesses:
 - Beneficial: 45%.
 - Detrimental: 18%.
 - No effect: 27%.

Economic Impact–Harvest - Cont'd

- By sector: Fishing: 47%, Both:71% and Diving: 41%.
- Overall, 46% of the survey participants believe that goliath groupers should be open to harvest while 23% believe that they should remain fully protected.

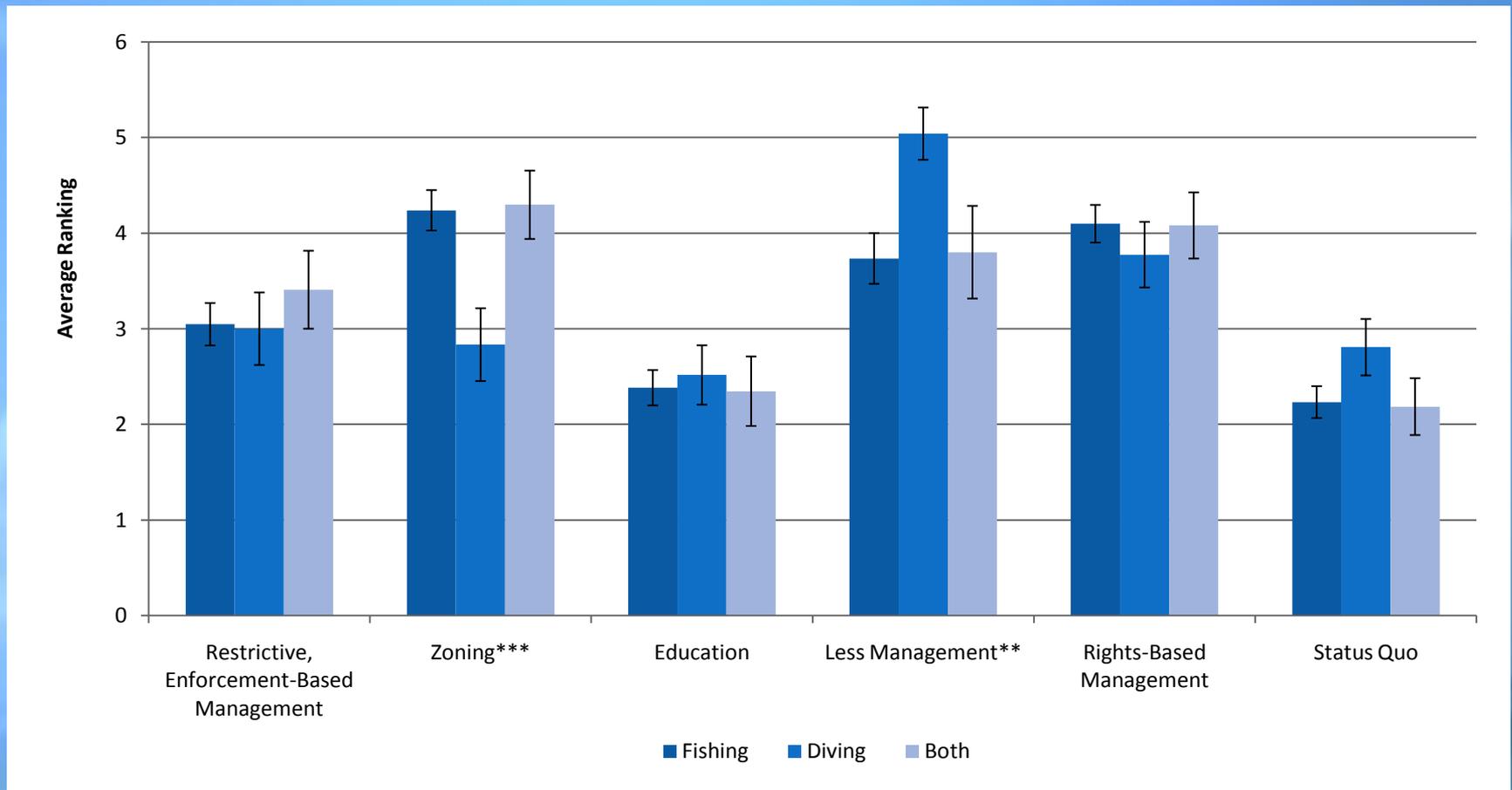


Fisheries Management Information

- restrictive, enforcement-based management involving higher penalties, more patrols, and monitoring;
- innovative management using separation via zoning and marine protected areas;
- interpretive management with more outreach and education;
- less management;
- rights-based management including limited entry, trap certificates, and property rights; and
- seasons and bag limits (*status quo*)

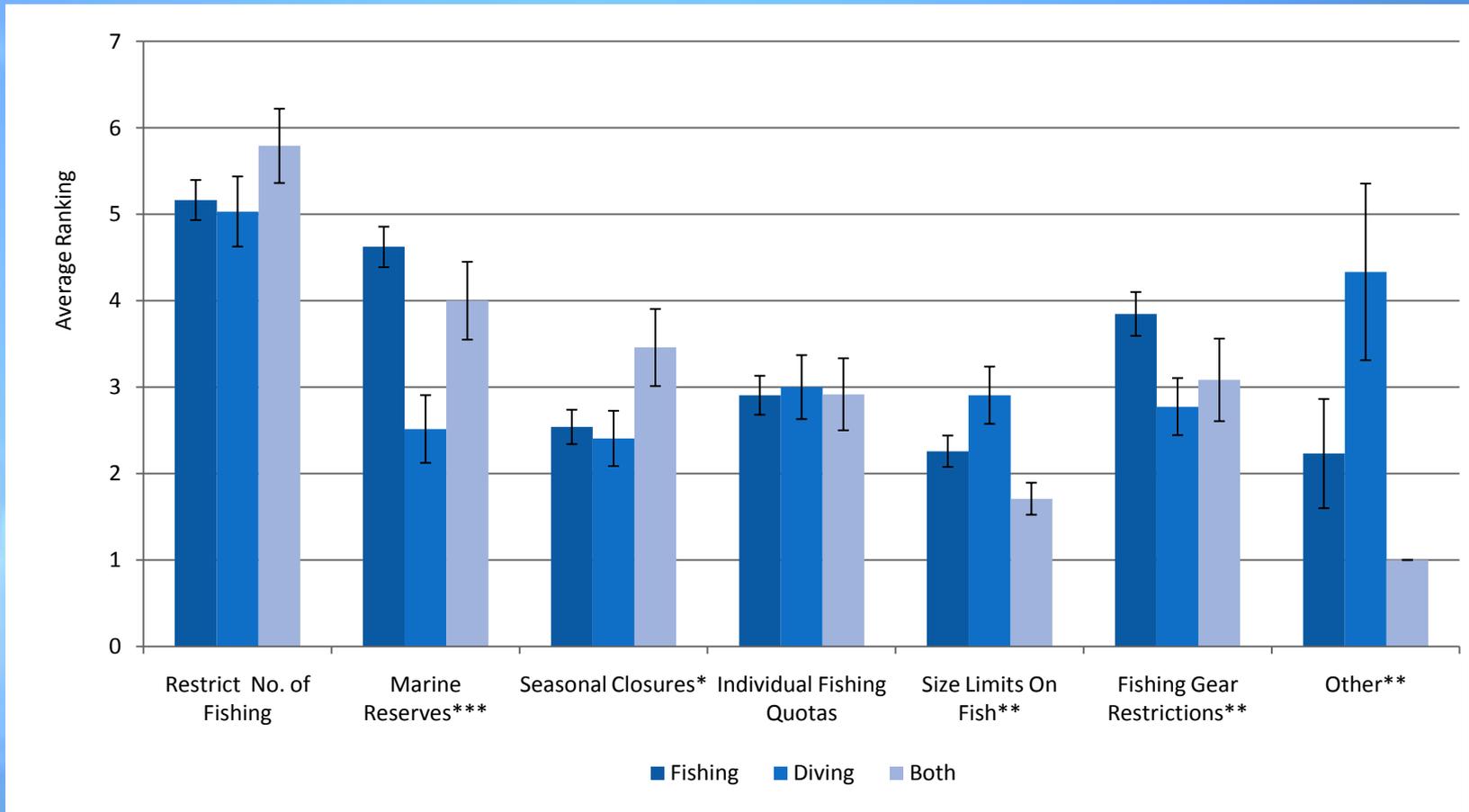
Fisheries Management Information

– Cont'd



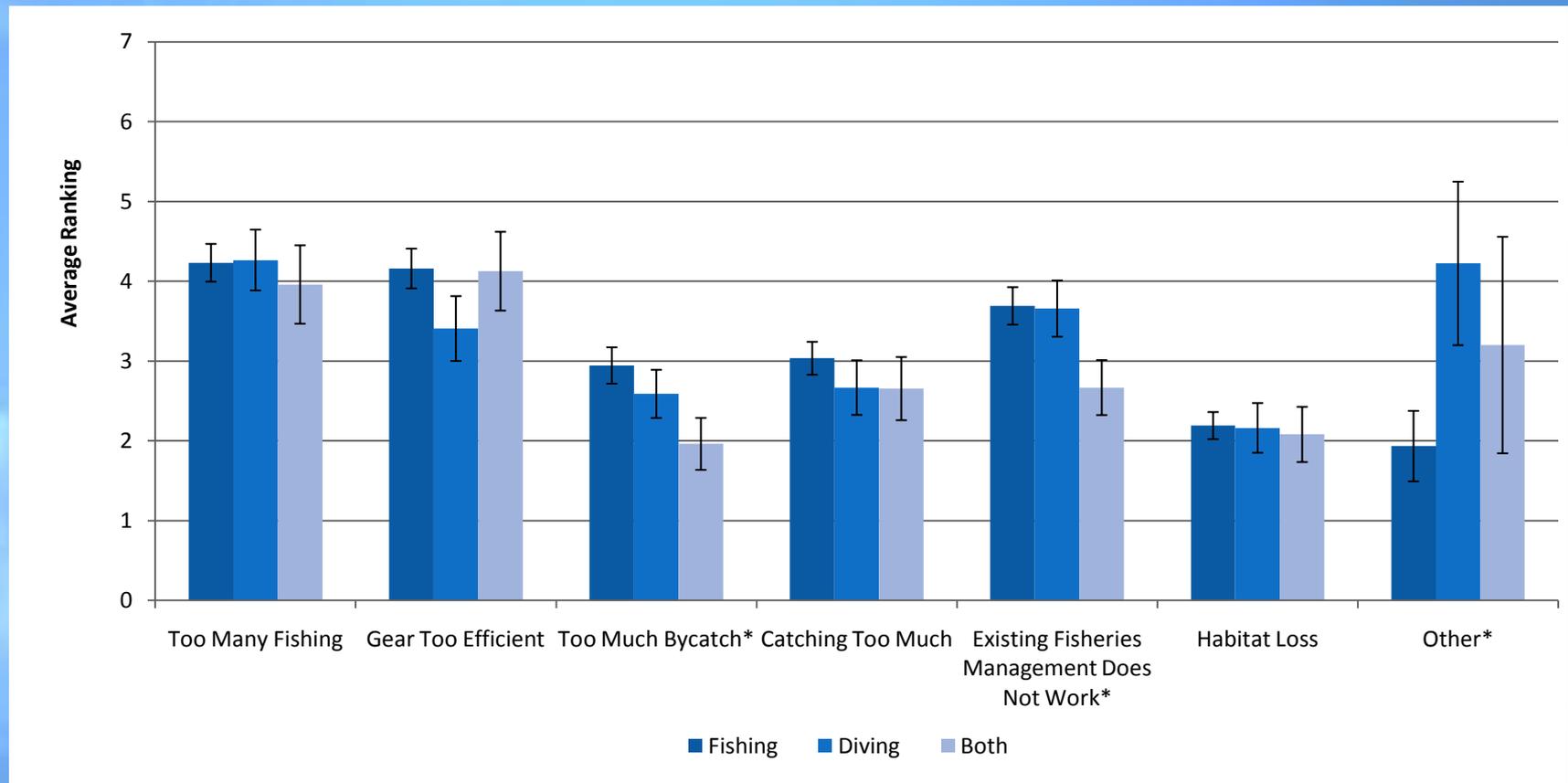
Fisheries Management Information

– **Cont'd:** The most effective management practice



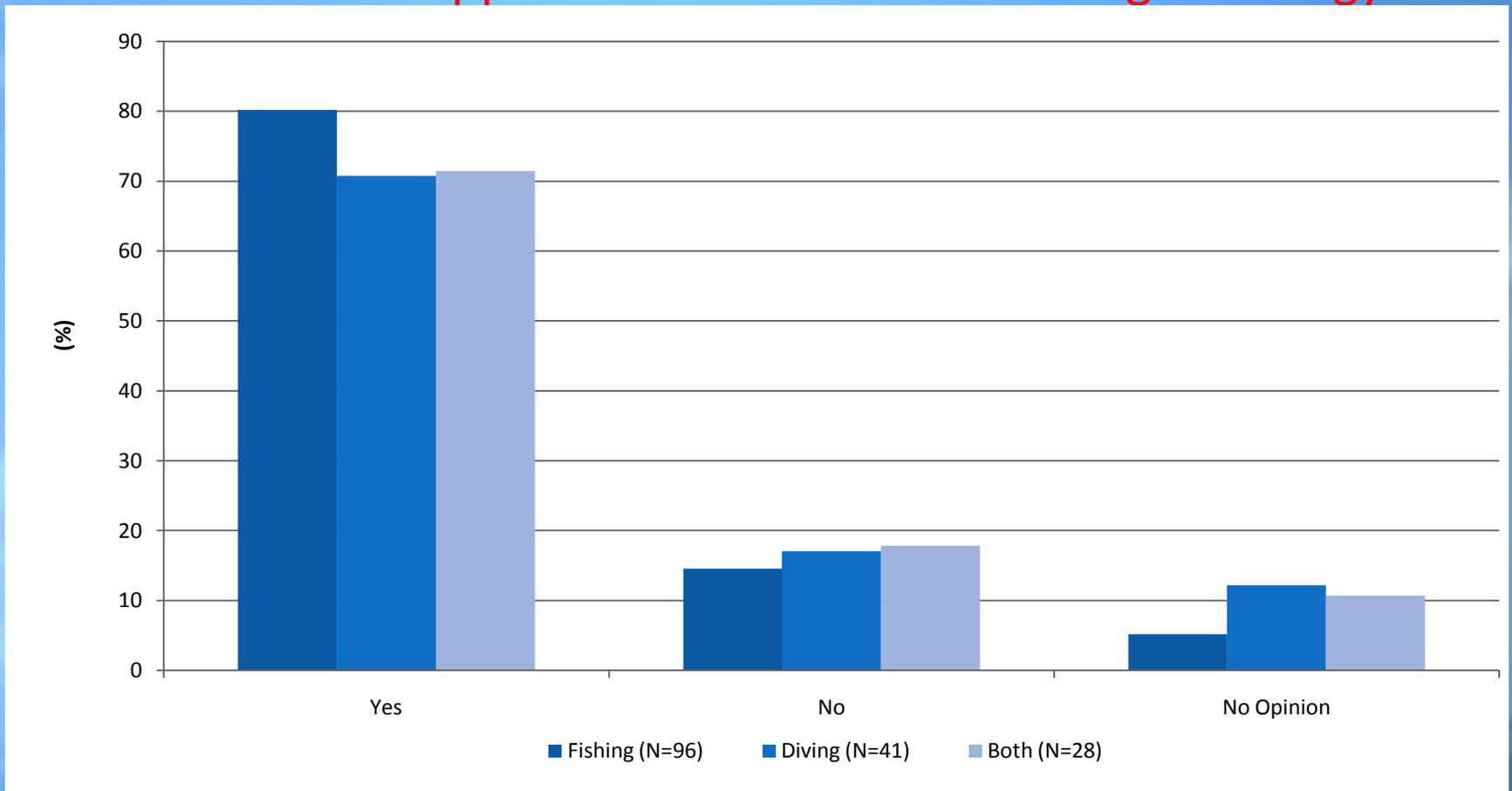
Fisheries Management Information

– Cont'd: Obstacles to Producing Sustainable Fisheries



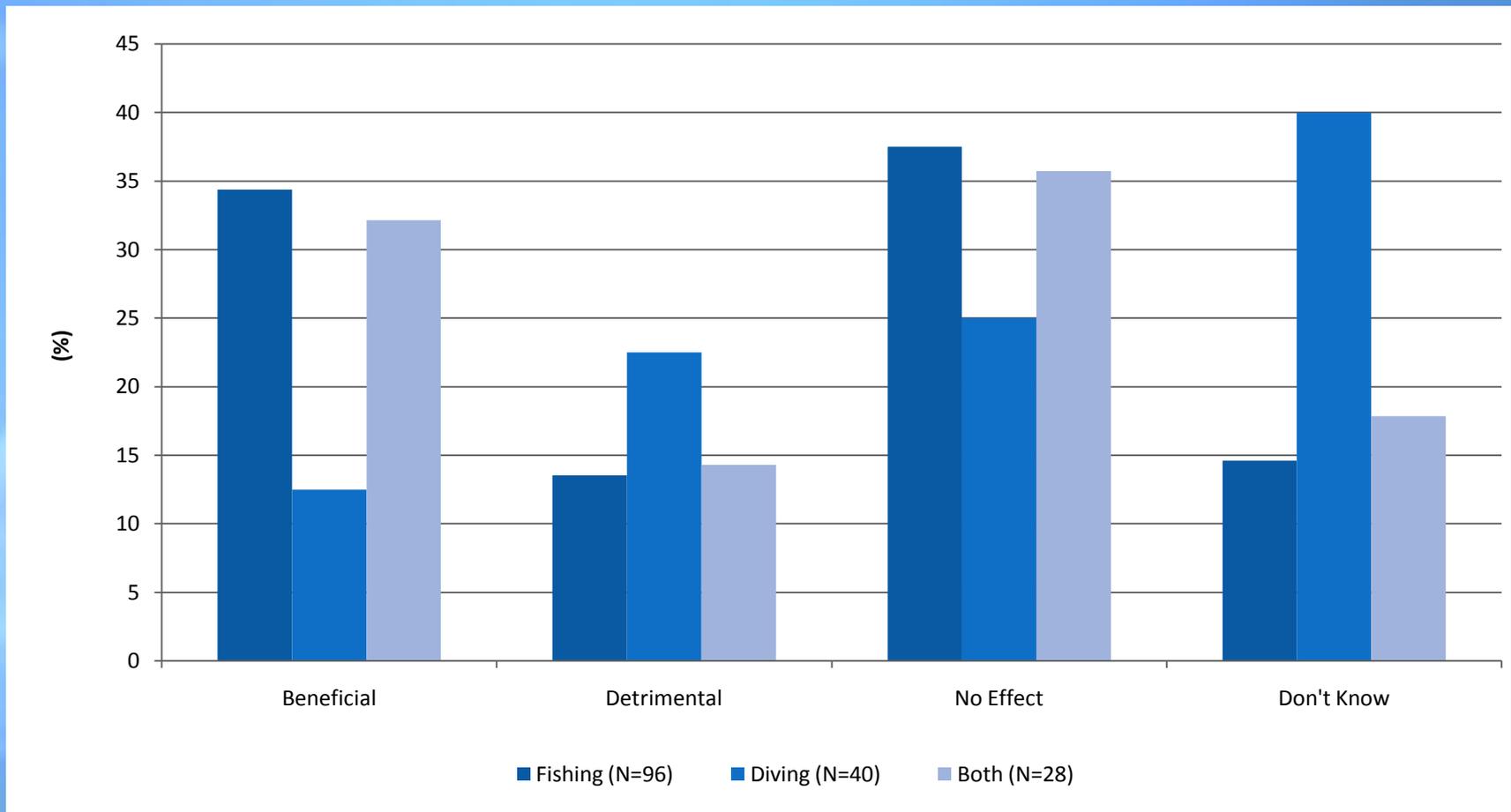
Fisheries Management Information

– Cont'd: Support of Catch and Release Mgt. Strategy



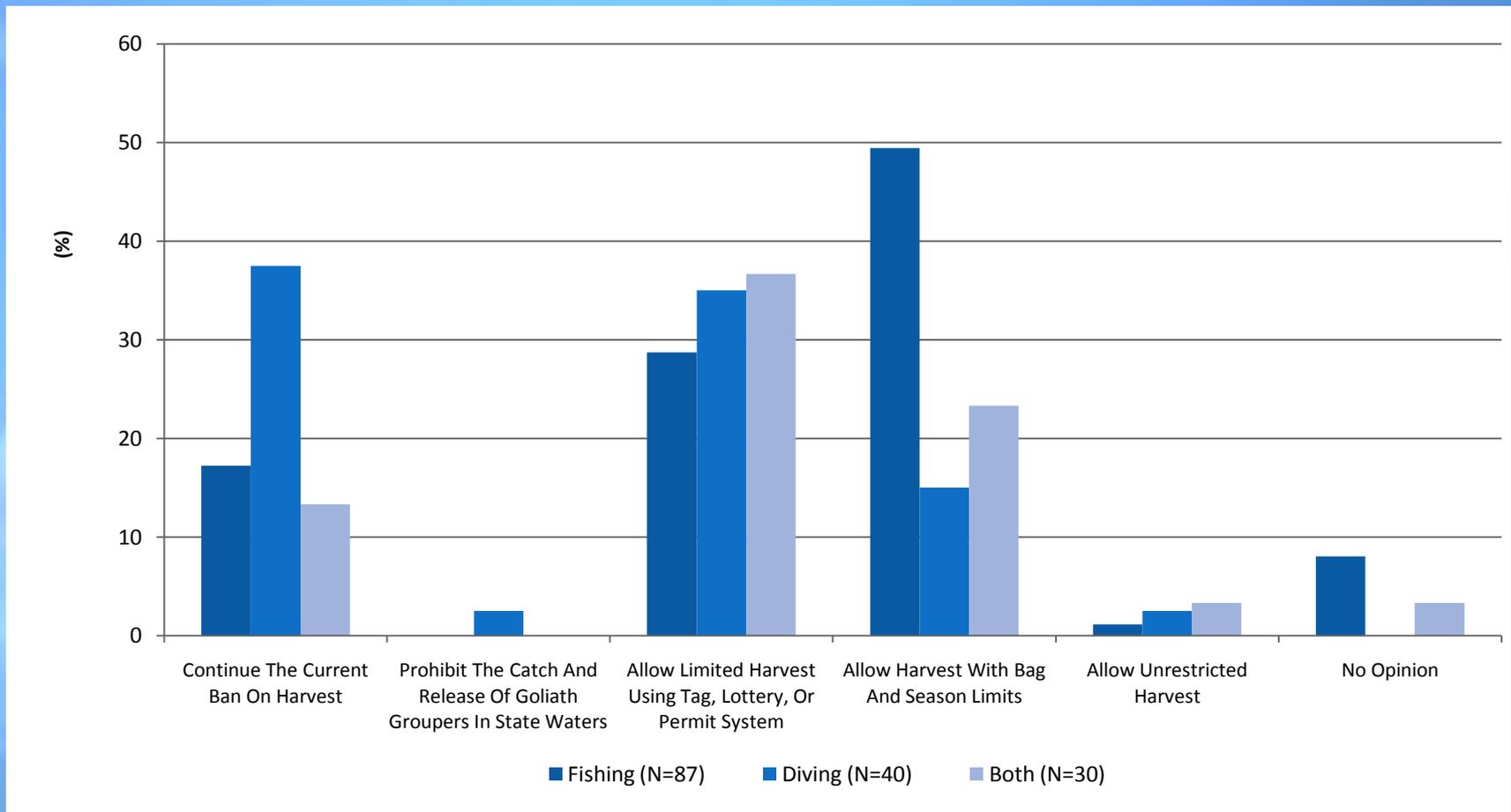
Fisheries Management Information

– Cont'd: Effect of Catch and Release Angling Method on the GG Population



Fisheries Management Information

– Cont'd: How The State Of Florida Should Manage Goliath Grouper

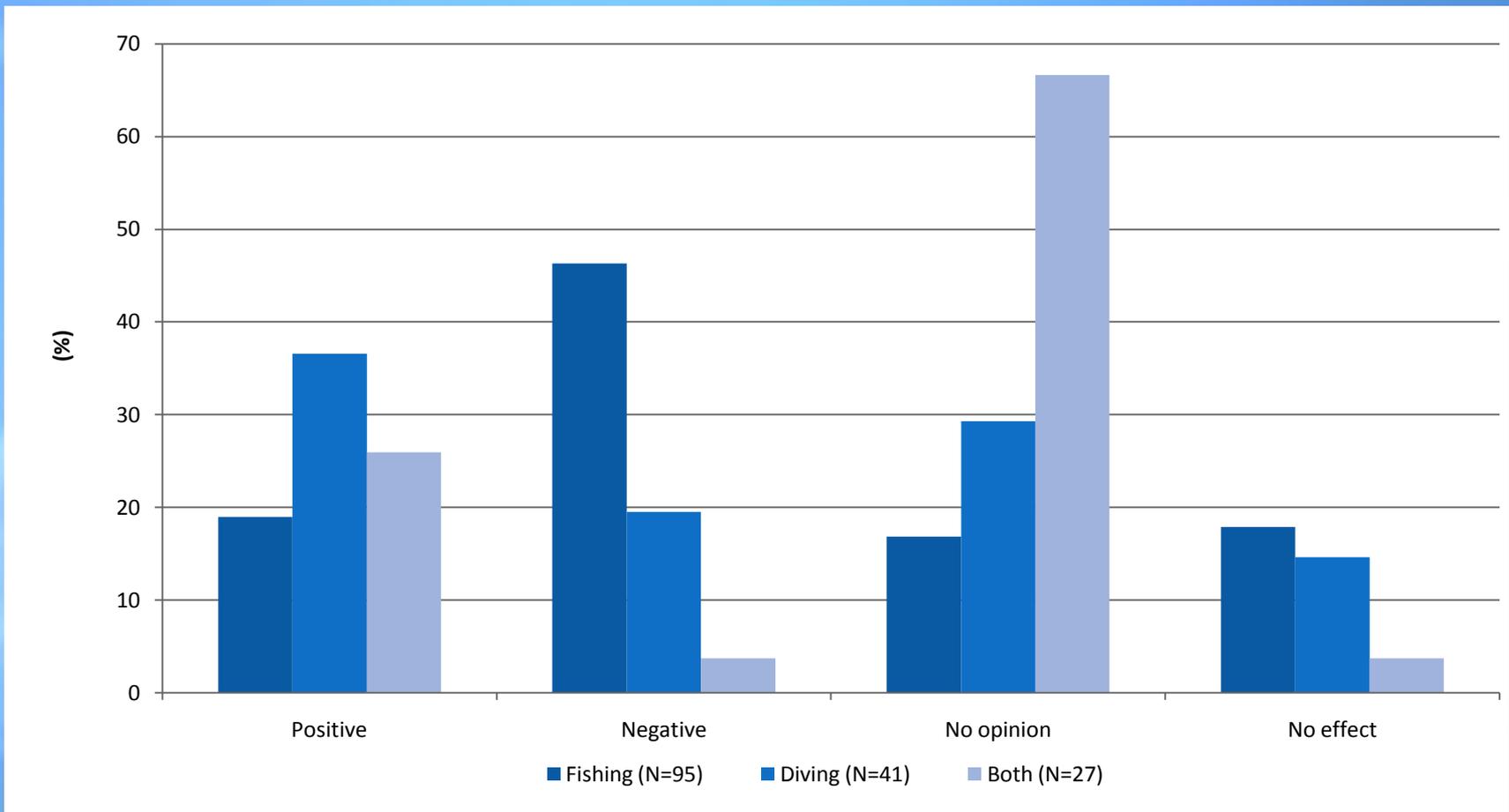


Ecological Considerations

The effect that recovered goliath grouper populations have on the areas where they dive or fish

- 45% : detrimental
- 24% : positive
- The remaining ~30%: no opinion or no impact.
- By Sector:
 - Fishermen: detrimental (46%)
 - Divers: positive (37%)
 - Spear fishermen: no opinion.

Ecological Considerations – Cont'd

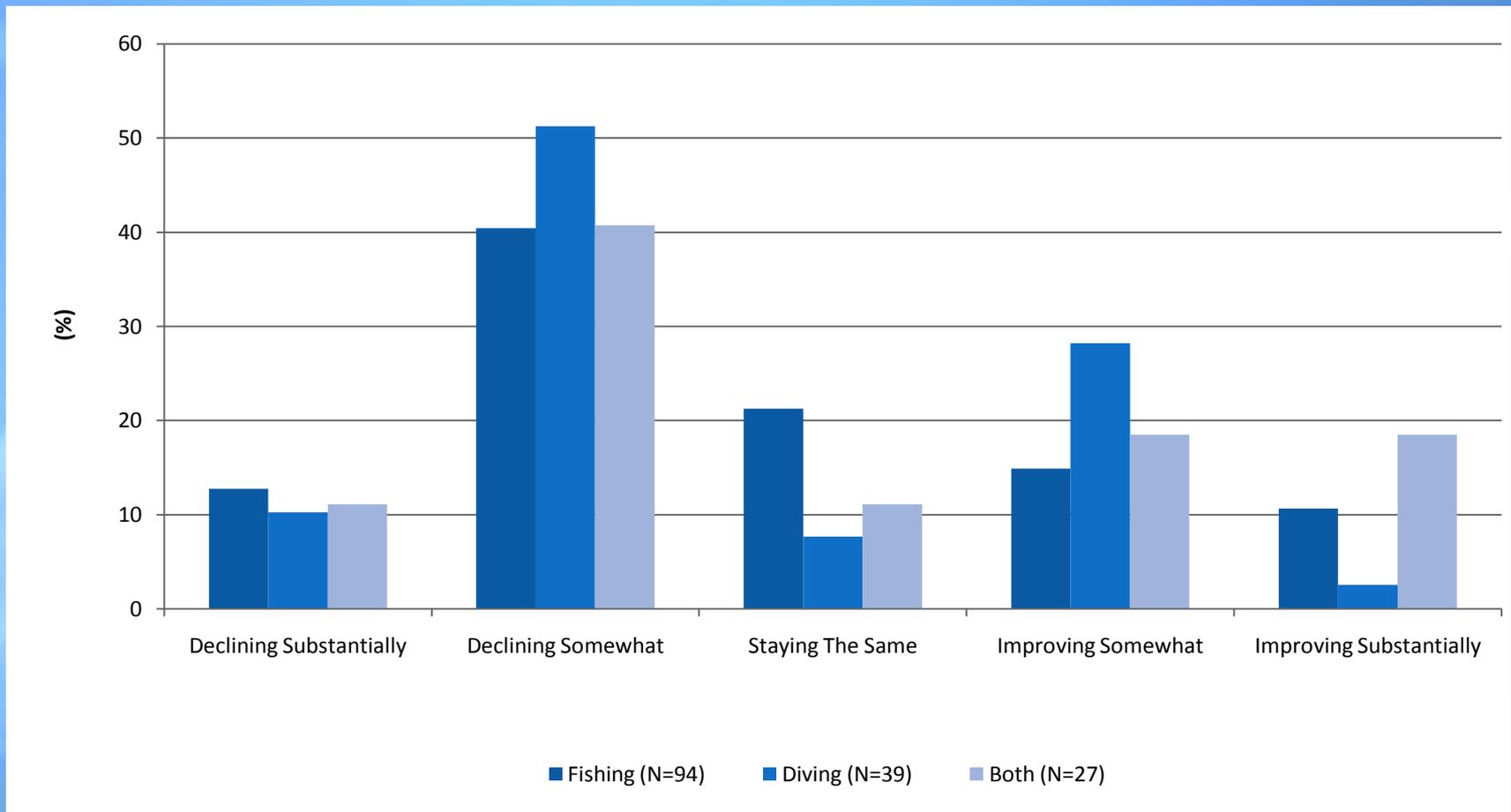


Ecological Considerations – Cont'd

- 68% of the respondents thought that the marine areas they typically visit are in fair or good condition:
 - 55% perceiving the health of these sites as declining
 - 16% finding them unchanged
 - 29% viewing them as improving.
- Opinions differed little among sectors either about the current status of the habitat or the relative state of decline or improvement.

Ecological Considerations – Cont'd-

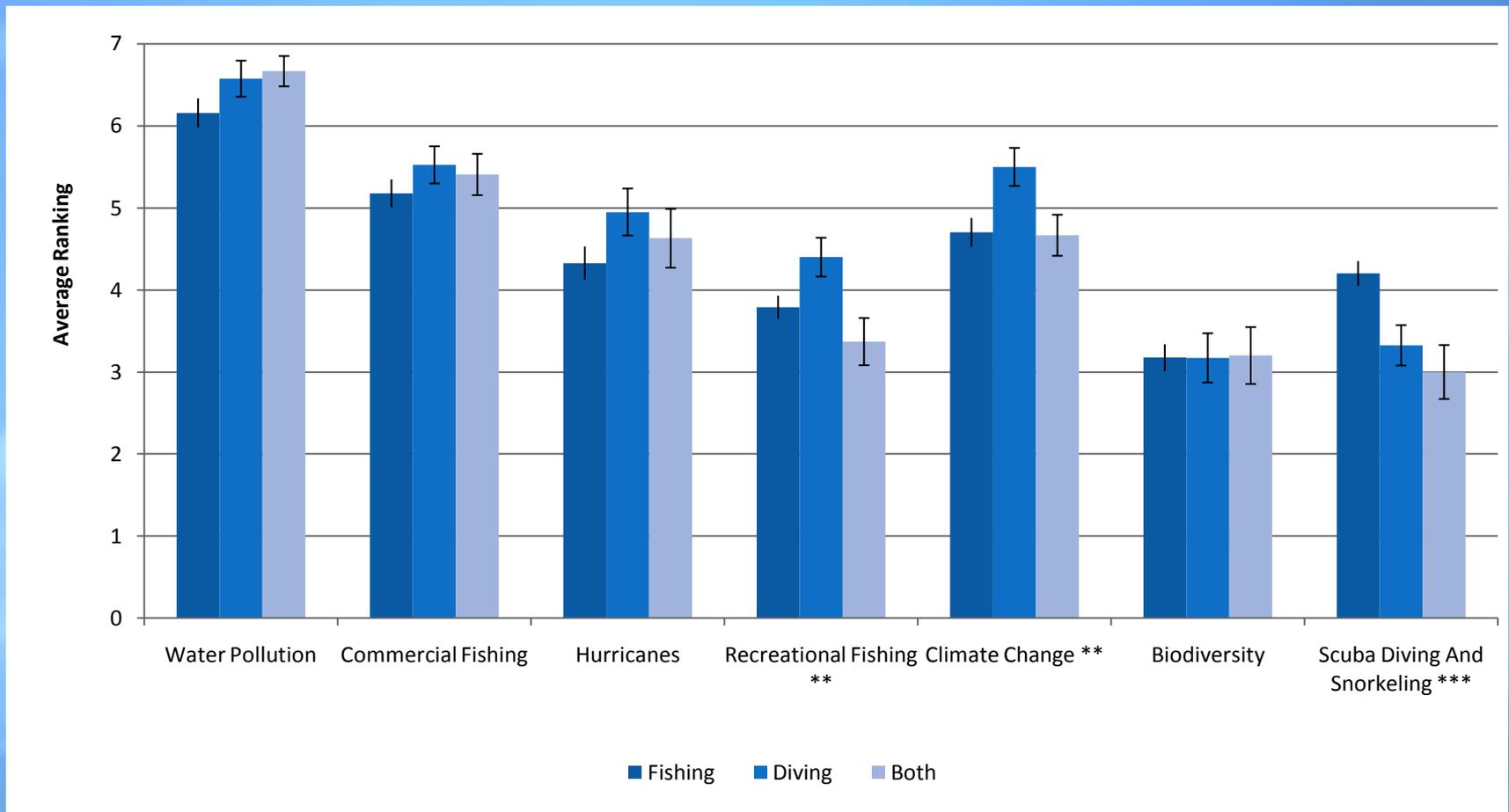
Changes in the Status of Fishing/Diving Grounds in the Last 20 Yrs



Ecological Considerations – Cont'd

- 78% percent of the survey participants felt that nearshore habitats that support juvenile fishes had declined in both quantity and quality over the past 20 years; 91% believe that this has reduced overall fish abundance.
- The primary perceived causes for these declines were fairly consistent among sectors with water pollution, commercial fishing, climate change, and hurricanes all having a negative effect on ecosystem health. Biodiversity as positive.

Ecological Considerations – Cont'd - Cause of Decline

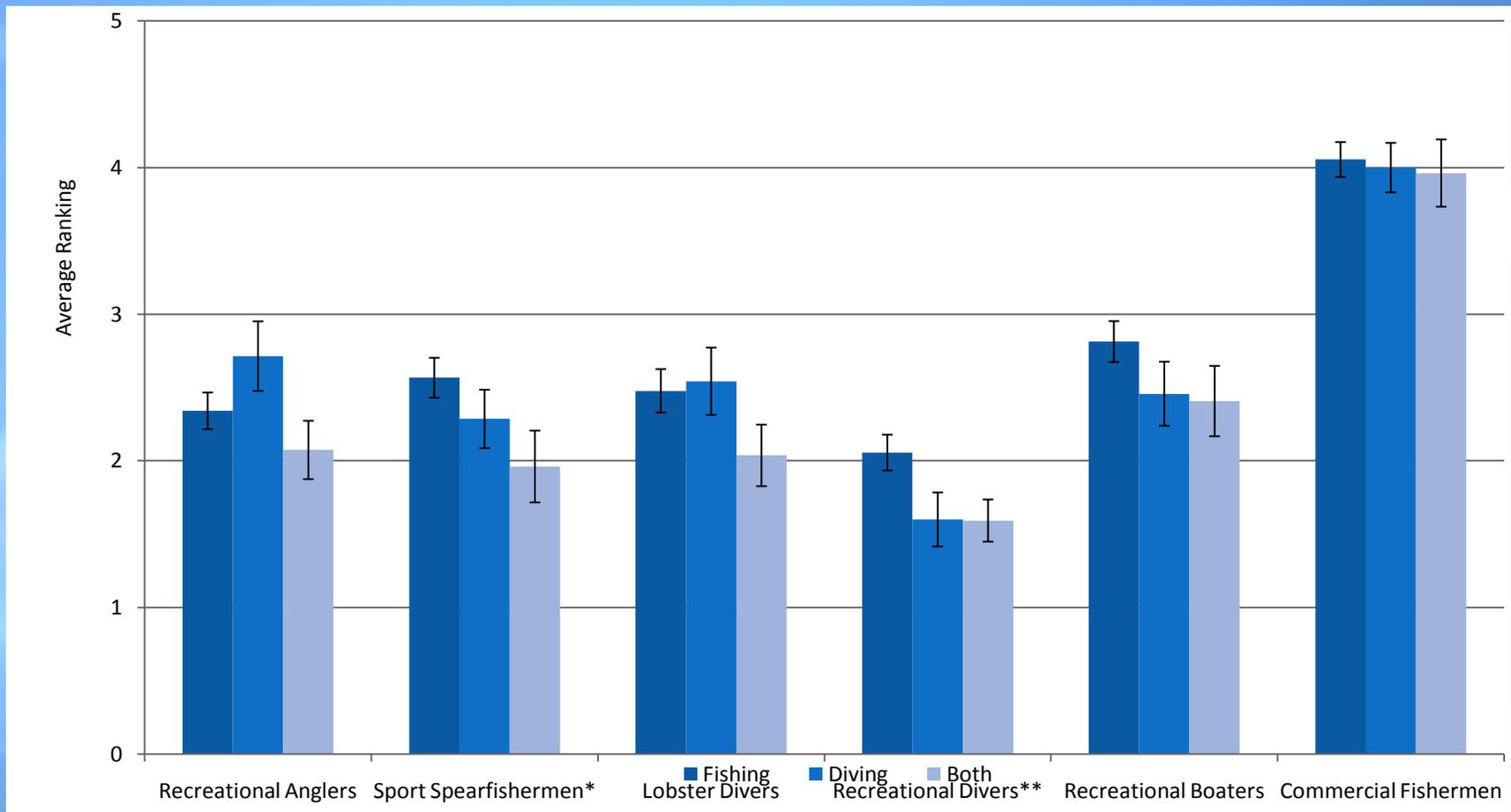


Ecological Considerations – Cont'd

- The only differences between sectors was that the divers suggested that recreational fishing has a slight negative effect and the fishermen think the divers have a slight negative effect.
- All the sectors identified biodiversity as having a slightly positive effect on ecosystem health.
- Overall, the sectors had similar opinions about user groups, with all considering commercial fishermen to have the greatest impact and recreational divers to have the least.

Ecological Considerations – Cont'd:

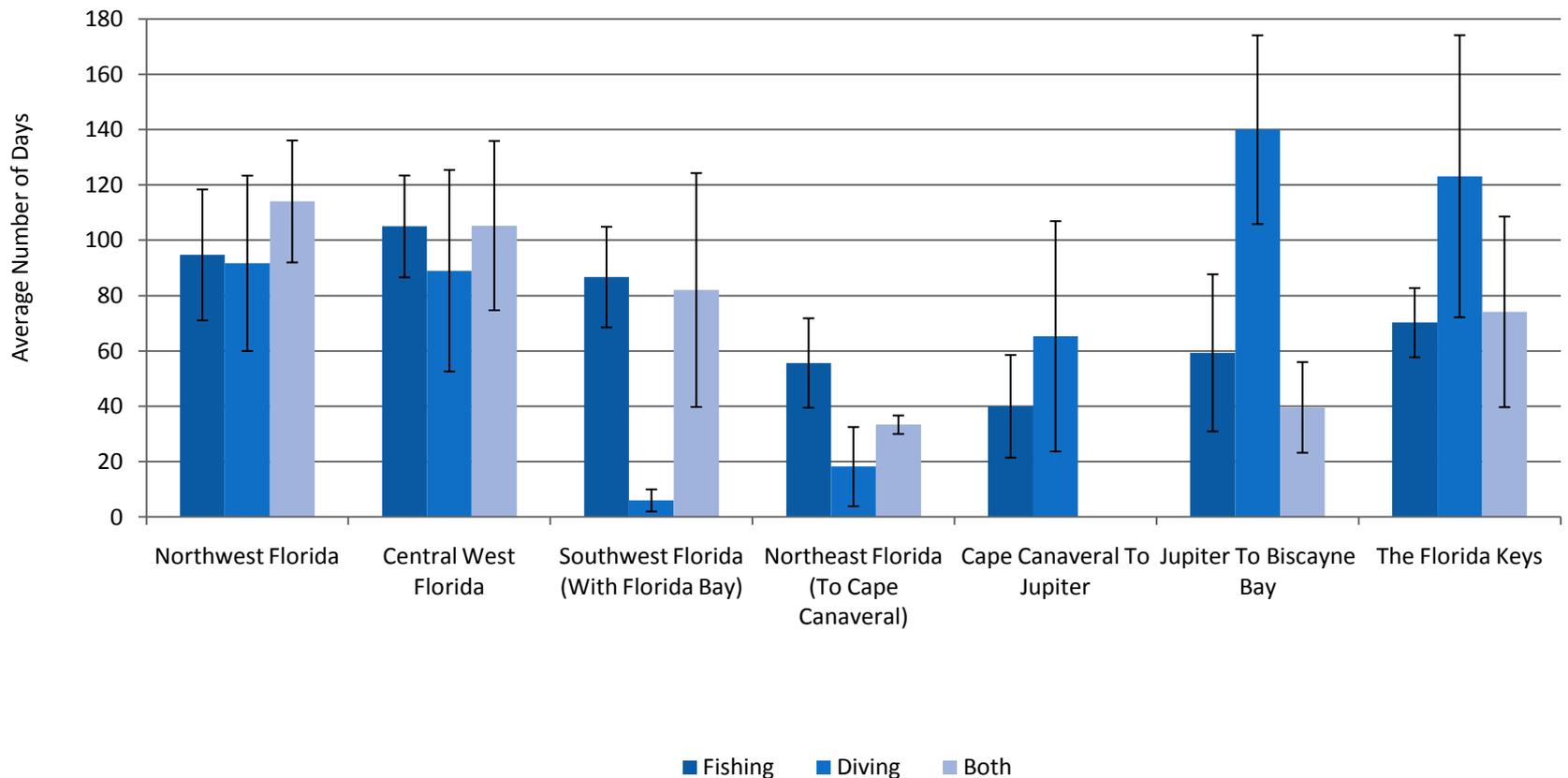
The level of impact of different user groups to marine resources



Spatial Information

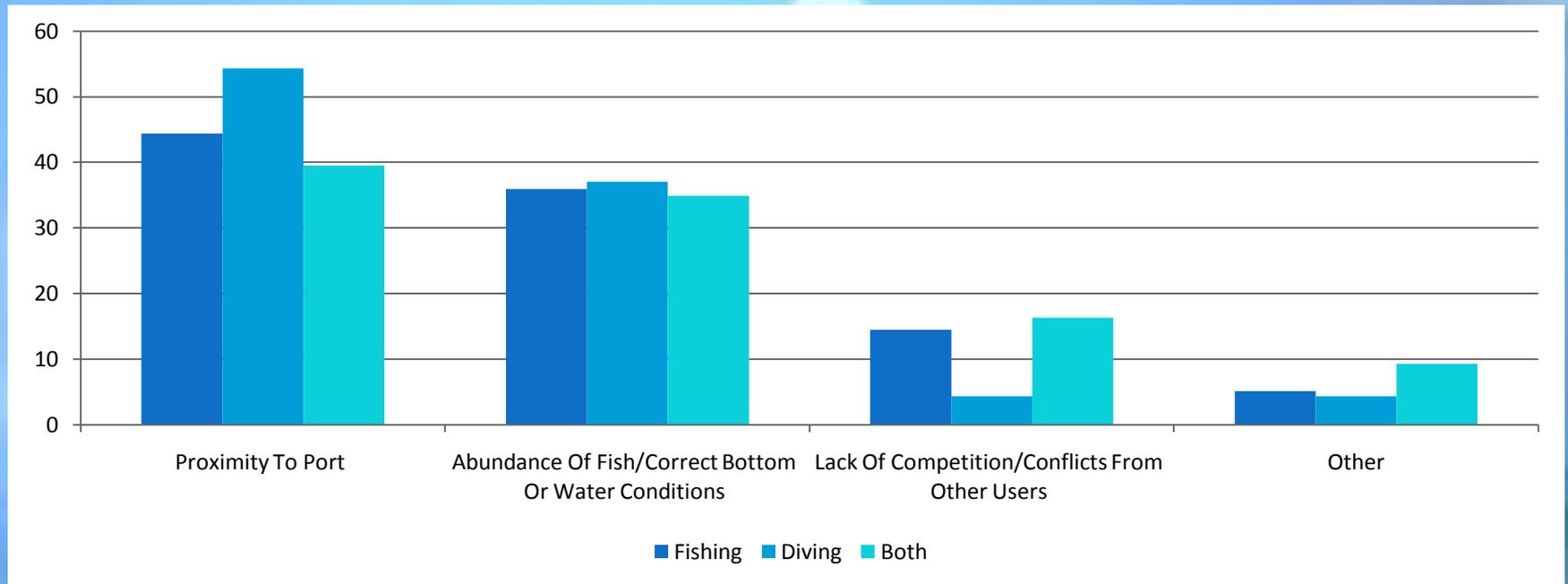
- In northwest Florida and central west Florida, all user groups averaged between 89 and 114 days on the water.
- In southwest Florida, including Florida Bay:
 - Fishermen : 87 days. Diving/fishing : 82 days. Divers: 6 days
- Divers spent the most days on the water in the area between Jupiter and Biscayne Bay and in the Florida Keys.
- There were no reports of businesses that cater to both fishermen and divers spending time in the area between Cape Canaveral and Jupiter.

Spatial Information – Cont'd



Spatial Information – Cont'd

- Reason for place selection ranking: proximity to port, abundance of fish, water conditions, lack of competition or conflict with other user groups.



Conclusions

- **The goliath grouper remains critically endangered throughout their range, despite the bright spot of recovery in southwest Florida.**
- **Most of the survey participants encountered goliath groupers during normal operations, seeing or catching fewer than five goliath groupers on a typical trip. These low numbers sighted suggest a relatively small population of fish in which the same individual is encountered repeatedly.**

Conclusions – Cont'd

- The general trend in the goliath grouper population is **SLIGHT RECOVERY** since 1990 when a fishing ban was put into effect.
- Adult goliath grouper population are distributed throughout the state and occur in habitats frequently visited by fishermen and divers, e.g. wrecks and rocky ledges.

Conclusions – Cont'd

- There are significant differences between the diving charter industry and the fishing charter industry in a number of areas relating to fishery impacts on the environment and the impacts of goliath grouper on their industries in terms of their perceptions on:

1- Harvest:

Diving: Fully Protected. Fishing: Open to Harvest.

2- Impact on Environment:

Diving: Detrimental. Fishing: Positive.

Conclusions – Cont'd

- Catch and release strategy was the most supported management strategy (75% of all respondents supported).
- Habitat loss is one of the most critical impediments to sustainable fisheries.
- *Status quo* and education were the most preferred type of management strategy. Zoning, rights-based management, and less management were the least preferred.

Conclusions – Cont'd

- The proponents of allowing harvest with bag and seasonal limits were overwhelmingly those in the charter boat fishery, while those in the diving industry were largely split between continuing the current ban and allowing limited harvest using a tag, permit, or lottery system.
- The survey respondents had many expenses last year, with the highest expenses being fuel, docking fees, and vessel maintenance. Diving industry fuel expenses averaged \$14,811 and fishing charter industry averaged \$ \$13,047.

More Information

- The report can be obtained from the CEFA web <http://cefa.fsu.edu/projects.html>. or by email: Dr Julie Harrington and Bassam Awad.
- Survey and presentation are not available online but can be obtained by email.



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