

FWC Staff Failed to Provide Additional Scientific Support for Opening a Limited Goliath Grouper Harvest

FWC Commissioners Florida Fish and Wildlife Conservation Commission 620 South Meridian Street
Tallahassee, Florida 32399-1600 October 1, 2021

Dear FWC Commissioners:

We write this letter in opposition to the FWC staff recommendation to allow a limited harvest of the vulnerable Atlantic Goliath Grouper (*Epinephelus itajara*) (hereafter referred to as Goliath Grouper) in Florida state waters. Note that two of us have worked on this species since 1994 and all three of us have provided data and input to FWC over the years.

Based on the draft plan for a limited harvest and the draft FWC presentation on the website at the time of this writing, we hold that FWC has not made a viable case for opening a fishery of any type for Goliath Grouper in large part because:

- (1) they have provided no scientific support for doing so;
- (2) they have considered the anecdotal and scientifically unsubstantiated perception of a subset of stakeholders that Goliath Grouper are invasive and destroying habitat as having more weight than the existing best scientific evidence that clearly demonstrates the opposite; and
- (3) the proposed data gathering by limited-harvest permit holders for juvenile Goliath Grouper will provide no data that would demonstrate recovery of historic age and size classes, and the biological samples that would be collected can be obtained using non-lethal methods.

Details below support each item above.

(1) FWC provided no scientific support for opening a fishery at this time. –

- a. Several of the Commissioners at the May meeting pointed this out and asked that staff provide more scientific evidence for the October meeting. Yet neither in the draft rule nor in the presentation has FWC offered more data. Indeed, they presented no data at all. Where is the best available science?
- b. FWC states that Goliath Grouper are increasing in Florida and that this trend is expected to continue. They present no data to support this claim. In the May meeting they provided a figure using catch rates (MRIP) that showed decreasing juvenile and adult abundances since 2009, but with a recent increase in 2020. This contradicts multiple dive survey indices (REEF, FMRI's Great Goliath Grouper Count) that show sustained decreases in abundance, which approach the lows observed in the 1990s. Moreover, the 2020 data point that might suggest Goliath Grouper some recovery is insufficient to justify a harvest.

FWC contradicts their statements that 'a positive trend in abundance is expected' and that 'a limited harvest is expected to have minimal impact', by noting that "the current red tide in southwest Florida has resulted in the mortality of Goliath Grouper; however, the magnitude of any impact on the population from this event is currently unknown". Clearly, the status of this population is uncertain at best, and FWC admits they have no clear estimate of how recurring red tide events impact Goliath Grouper population, and so we question how they can state so confidently that a harvest will not have an impact on their recovery. **There remains far too much uncertainty surrounding their recovery.**

- c. FWC statements about changes in both NOAA and IUCN status for Goliath Grouper leave out essential information.

- i. FWC points out that NOAA Fisheries in 2006 removed Goliath Grouper from the *Species of Special Concern* list due to data showing an increase in abundance in the U.S. population. **What they neglected to mention are two important points: (1) that NOAA, following the Magnuson-Stevens Conservation Act, still considers Goliath Grouper overfished and still prohibits harvest; and (2) the decision to remove Goliath Grouper from the Species of Special Concern list occurred prior to the significant cold-water events and red tide that drove both the adult and juvenile populations down, and from which they are just beginning to recover.**
- ii. FWC points out that **the International Union for the Conservation of Nature (IUCN) in 2018 changed their listing of Goliath Grouper on the Red List of Threatened Species from “critically endangered” to “vulnerable.”** What they neglected to include was the reason for the status change. According to Dr. Yvonne Sadovy (Professor of Biological Science at Hong Kong University; founder and co-Chair with Dr. Matthew Craig, NOAA Fisheries, Geneticist, of the IUCN World Conservation Union Specialist Group on Groupers and Wrasses), the change was due solely to a stricter application of the criteria used for IUCN Red List assessments) and improved data interpretation rather than any genuine change in status of the species. She further states, having read the meeting materials and presentations from the US on this species, that “ ... it is clear to me that there is too little science and too much anecdotal information being used for management decisions. This will be to the detriment of this species and seems to reflect a political rather than a scientific process.” Moreover, although the population continues to recover in Florida waters, recovery has been minimal throughout the rest of their historic range where similar protections are in place.

What the scientific data unequivocally show is that recruitment limitation of Goliath Grouper in Florida is largely due to tremendous loss (80-90%) of essential juvenile Goliath Grouper mangrove habitat (where they live for 5-6 years before joining adult populations), to severe eutrophication of coastal waters--the primary acute symptoms of which are hypoxia and harmful algal blooms such as red tide (Figure 1) – and to recent cold events that create bottlenecks to the full recovery required to support even a limited fishery.

Note that Goliath Grouper juveniles succumb at temperatures below 15°C (59°F) that now occur on a ten-year cycle in shallow South Florida waters. Such an event in 2010 in Everglades National Park resulted in more than 90% mortality of resident juveniles with no recovery at all after 8-9 years. **Projections are for a cold winter this year that could easily reverse recent gains made by juveniles.**

- (2). FWC provides no scientific basis for the flawed public perception that Goliath Grouper are invasive and destroying habitat. There are those who consider Goliath Grouper an invasive species with an expanding population that is eating all the other reef fish and lobsters, destroying the ecology of the reefs, and must be controlled by fishing. **The best available science, however – the science that you are charged with using to make management decisions – shows that Goliath Grouper juveniles and adults eat primarily crabs and slow-moving fishes (Figure 2).** Further, it demonstrates that Goliath Grouper often enhance the biodiversity and abundance of the reefs on which they occur (Koenig et al. 2011). Clearly, misperceptions about the ecology of Goliath Grouper should not influence FWC’s decision to open even a limited fishery.
- (3) FWC’s proposal for data collection by permit holders for juvenile Goliath Grouper will provide no data that would demonstrate recovery of historic age and size classes, the primary measures for population recovery. FWC will require permit holders that harvest a fish to collect data on the date of harvest, total length, and a general location and water depth where the fish was caught. They will also require the collection of a fin clip for genetic purposes. FWC states that these data and biological samples would contribute data for evaluating the genetic diversity and genetic effective population size. Although this may be true, what they fail to

mention is that these data and samples can easily be collected non-lethally by recreational catch-and-release fishers and by scientists.

CONCLUSIONS AND RECOMMENDATIONS

Based on this brief review; it is clear that a fishery for Goliath Grouper **should not** be opened in Florida. Goliath Grouper full recovery depends on factors that need to be addressed immediately:

1. Reverse habitat loss and eutrophication in South Florida estuaries - this action will increase production of Goliath Grouper (and many other fishery species) and reduce the destructive intensity of red tide.
2. Restore mangrove habitat (and water quality) in South Florida estuaries. Tampa Bay serves as an excellent example of how this should be done (Greening et al. 2014).
3. Promote non-consumptive ecotourism diving industry in Florida with Goliath Grouper as the flagship species.

These recommendations are intended to help FWC make an informed decision based on the best available science, much of which we conducted while employed at the Florida State University Coastal & Marine Laboratory.

Respectfully.

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Christopher C. Koenig, Ph. D. retired (former Faculty Member Florida State University Coastal & Marine Laboratory)

Christopher Malinowski, Ph. D. Research Biologist in the State of Florida, Member of the IUCN World Conservation Union Specialist Group on Groupers and Wrasses

Literature Cited

Greening, H., A. Janicki, E.T. Sherwood, R. Pribble, J.O.R. Johansson. 2014. Ecosystem responses to longterm nutrient management in an urban estuary: Tampa Bay, Florida, USA. *Estuarine, Coastal and Shelf Science* 151: A1-A16.

Koenig, C. C., F. C. Coleman, and K. Kingon. 2011. Pattern of recovery of the Goliath Grouper *Epinephelus itajara* (Lichtenstein, 1822) population in the southeastern U.S. *Bulletin of Marine Science* 87:891– 911.

Koenig, C. C., Coleman, F. C., & Malinowski, C. R. (2020). Atlantic Goliath Grouper of Florida: To Fish or Not to Fish. *Fisheries*, 45(1), 20-32.

Koenig, C. C., & Coleman, F. C. (2013). The recovering goliath grouper population of the southeastern US: non-consumptive investigations for stock assessment. *MARFIN project NA10NMF4330123 final report, NOAA, Miami, FL.*

Figures

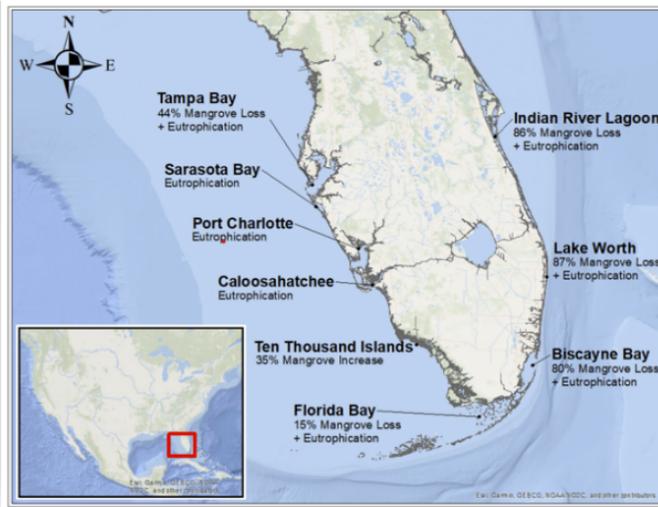


Figure 1. Map of mangrove habitat condition and water quality in major estuaries of South Florida (from Koenig et al. 2020)

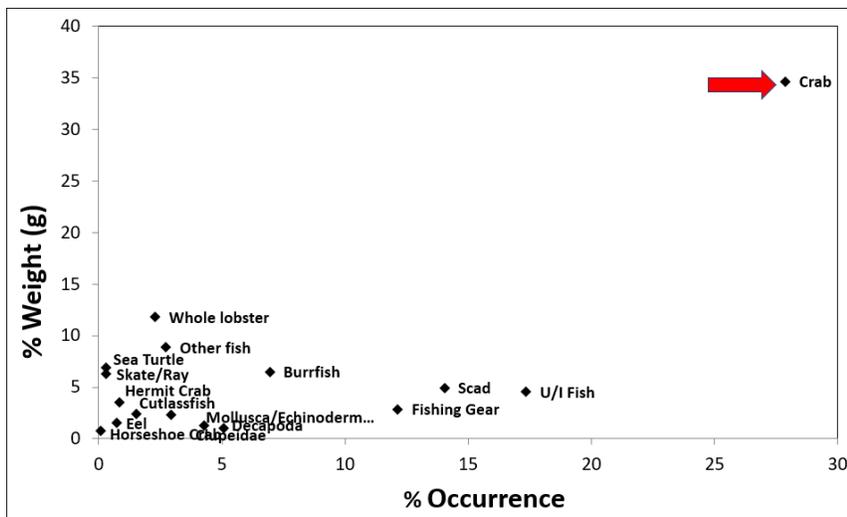


Figure 2. Adult Goliath Grouper Diet (N=363). Koenig et al. 2013