

Peer Review

Review of: "A Review of Grouper Fisheries Management in the Southeastern and Caribbean U.S.: Challenges, Successes, and Future Directions"

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Overall, this review paper is very well written, interesting, and informative, and therefore well worth publication for the benefit of those other workers involved in this complex field.

Some minor comments on the details of its content are as below.

The Abstract adequately summarises the scope and contents of the paper, and the Introduction provides the necessary background and well sets the scene for the remainder of the contents of this paper.

My first criticism here, in the Introduction and elsewhere (including in several of the Tables and Figures, etc.), is in relation to the nomenclature of one of the subregions involved. The “South Atlantic” is, of course, that portion of the Atlantic Ocean to the south of the Equator, not that portion of it surrounding the mainland of the SE USA (the Brazilians, for instance, would quickly point this out as being not only incorrect but a totally US-centric view!). This region should therefore be referred to as something along the lines of the “SEUS Coastal Atlantic” subregion (e.g., as surely the waters around the southern coasts of Japan should not be referred to as the “South Pacific”?). [And I know that you have a “South Atlantic Fisheries Management Council” there – but in this case, we are here dealing with a scientific paper.]

Under 2. Relevance, the statement that “To date, a substantial amount of amendments to the GOM Reef Fish Fisheries Management Plan involve (?) changes to grouper stocks, particularly Red Grouper

and Gag", is unclear and needs to be reworded for clarity.

Under 3. Complexities, in 3.1 Multispecies Fisheries, para 3, it is stated that there has been a substantial increase in recreational fishing effort over the past 40 years, up to ~2020, but Figure 3 clearly shows that this was only the case during the first 30 years, up until ~2010, after which there was a subsequent significant decline. This therefore needs to be reworded and to preferably include some explanation for this decline.

Under 3.2 Protogynous Hermaphroditism, a column showing the maximum lengths of each species should also be included (next to that for longevity), as this may also be a significant factor in relation to fishing pressures and population declines in at least some species. And in para 3, in reference to Gag, the rationale for "suggesting that they could be pair spawners" is unclear?

A good case is also made there that "protogynous hermaphrodites [therefore] require conservative management approaches", and that in this case, an SPR value of at least 40% needs to be used here as a proxy value in estimating MSY (para 5). And also the case for the importance of maintaining male-specific spawning stock biomass in protecting populations of such hermaphroditic species (i.e., in relation to "sperm limitation").

Under 3.3 Deepwater Groupers, the emphasis here that they generally have a lower natural mortality due to their longevity and other related factors is important, but it should also be emphasised here that most of these deepwater species belong to the genus *Hyporthodus*, rather than *Epinephelus* or *Mycteroperca*, which generally occur in shallower habitats. And in para 2, the sentence beginning "Like the shallow water grouper, ..." is unclear and needs rewording. The emphasis here on the need for long-term monitoring of deepwater groupers in MPAs is also important.

Under 3.2 Goliath Grouper, as this is meant to be a "management" oriented review, more discussion should be included on the implications of the relatively recent approval for (and folly of!) a recreational fishery focused on the immature juveniles of this species, which is here only mentioned in passing.

Finally, under Conclusions, second last paragraph, what is FI-NIRS? (spell out here).

Overall, and as commented at the outset, this is a well-written and interesting review paper that, following attention to the few minor corrections and suggestions outlined above, should be of practical use to those other workers involved in this complex field of grouper management. And the comprehensive bibliography also includes an excellent collection of references in the latter regard.

Declarations

Potential competing interests: No potential competing interests to declare.