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**Subject:** Coral Amendment 10

Good morning

I am a member of the FSU Research Faculty and have been working with deep coral communities, including the Oculina Banks since 1998. I have attached my comments on the proposed Coral Amendment 10 for your consideration, and have also submitted this document via the SAFMC public online portal. In the light of the many negative, and few positive outcomes of Alternatives 2 and 3, I ask that Council Members consider voting for Alternative 1 - no action.

Thank you for your attention

Regards

Sandra Brooke PhD

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## **Comments on Coral Amendment 10 to the Fishery Management Plan for Coral, Coral Reefs and Live Hard Bottom Habitat of the South Atlantic Region**

**Sandra Brooke PhD. Coral Ecologist  
September 12, 2021**

Coral Amendment 10 proposes to establish a shrimp fishery access area along the eastern boundary of the Northern Extension of the *Oculina* Bank Habitat Area of Particular Concern (OHAPC). The purpose of the proposed action is to help achieve optimum yield in the rock shrimp fishery within the SAFMC region by allowing permit holders within the industry access to currently protected areas of the OHAPC.

Rock shrimp are harvested using bottom trawls, which comprise heavy doors and chains that drag across the seafloor. Industrial bottom trawling is arguably the single greatest cause of physical damage to deep coral and sponge communities globally, reducing large tracts of complex reef habitat to rubble. Deep coral reefs develop slowly and are thousands of years old, so recovery from physical impact will take many years, if it happens at all. Rock shrimp trawling has caused extensive and well-documented damage to the *Oculina* Banks (Koenig 2001, Reed 2002, Koenig et al 2005, Reed et al. 2007), and despite restoration efforts, the reefs have not recovered (Brooke et al 2006, Harter et al 2019).

In addition to the direct physical impact, the doors and chains of bottom trawl gear dragging along the seafloor cause sediment resuspension. The amount and type of sediment, its persistence in the water column and its dispersal distance are dependent on a number of factors (e.g. grain size, current speed) that are specific to each location. Palanques et al. (2001) documented a 3-fold increase in the amount of suspended sediment that lasted for up to 5 days after trawling on a soft-sediment continental shelf in the Mediterranean. The OHAPC sediment is dominated by coral rubble and sand near the reefs but has a higher percentage of silt and clay further from the coral areas (Scanlon et al 1999). The smaller (silt and clay) particles remain in suspension longer than the heavier elements and therefore can be carried further from the source of disturbance (e.g. bottom tending fishing gear). The Gulf Stream drives the hydrodynamic regime in the OHAPC, creating strong currents that can potentially transport sediments significant distances. The prevailing current in the OHAPC is northerly, but current reversals are possible at depth (pers. obs.), and periodic gyres and upwelling events create significant cross-shelf flow (Smith 1983). These complex interactions create an unpredictable current regime within the OHAPC.

Corals and other suspension or filter feeders have delicate feeding mechanisms that can become clogged by sediment, or in severe cases, sediments can bury deep reef communities and cause stress or mortality (Brooke et al 2009). Corals shed sediment by producing mucus which is energetically costly. In an area of repeated disturbance (such as a commercial trawling area), the chronic cost of removing sediment could impact community health and resilience. The early life history stages of many benthic invertebrates are planktonic and use fine cilia and appendages for feeding and swimming. If sediment load is high during spawning periods, larval cohorts may be compromised, which has a long-term effect on community resilience (Jones et al 2015).

The proposed alternatives 2 and 3 would open historical rock shrimp fishing areas, which represent a very small percentage (1.8%) of past fishing activity (SAFMC Coral Amendment 10 Environmental Assessment report) and remove most of the slim buffer that currently exists between the high relief coral mounds and the OHAPC eastern boundary. Surface currents are frequently as fast as 2 meters/second (120 m/min) over the OHAPC. Cross-shelf bottom currents are weaker, but even at half this speed (1 m/s), and with the current boundaries in place, sediment from trawling could be transported to the mounds within minutes. Removing the boundaries exposes the corals to almost immediate sediment load from bottom trawling prosecuted along the edge of the proposed fishing access area. The high relief mounds do not simply stop at the base; they often have areas of low relief coral communities that gradually taper off into soft sediment. Detailed maps of this area would provide more information on low relief structures, but in their absence, these habitat boundaries are unknown. The existing OHAPC boundaries provide some measure of protection against physical impact and sedimentation. Given the strong unpredictable currents in the region, it is possible (or likely) that fishing gear will sometimes be carried off the planned trawling lines. If the buffer area is removed by the proposed amendment, trawl gear could impact the periphery of the coral mounds and damage low relief habitat. Since the VMS systems track the vessel, the fishing gear could intrude into the protected area boundary without alerting law enforcement. In summary, proposed Alternatives 2 and 3 both substantially increase the risk of direct and indirect damage to ecologically important habitat.

One of the basic tenets of the Magnusen-Stevens Act is the precautionary principle, which seeks to prevent degradation of resources and facilitate their restoration. A review of best practices for managing fishery impacts to deep coral ecosystems highlighted protection of vulnerable habitat to bottom tending gear (Hourigan 2009). The OHAPC boundaries were expanded by the SAFMC in 2001, in consultation with stakeholder groups, to protect existing areas of *Oculina* habitat, which had been decimated elsewhere. Moving the fishing access areas to effectively abut the coral habitat violates the precautionary approach, and reverses existing protections, without significantly increasing economic benefit to the Rock Shrimp fishers.

***I ask that the Council consider accepting Alternative 1 (no action) of Coral Amendment 10, leaving the OHAPC protected area intact.***

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