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SAFMC Citizen Science Program

Citizen Science Research Priorities

1. Age Sampling:

a. Target volunteers: Recreational
b. Data needed: otolith collection
c. Target species: Cobia, Greater Amberjack, Scamp, Snowy Grouper, Gag, Knobbed Porgy, Porgy complex, Almaco Jack, Dolphin, Wahoo, Lane Snapper, Hogfish (GA-NC stock), Red Grouper, Vermilion Snapper, Blueline tilefish
d. Anticipated outcome: characterize the age of catches
e. Potential cost: $$

RECOMMENDATION: Support keeping as a research priority

- *Having more age data from the recreational sector is a high priority*
- *Additional species suggested due to upcoming assessment schedule and South Atlantic Research & Monitoring plan noting the need to obtain life history traits for priority unassessed species; priority unassessed species added were those from the research plan of noted interest to Committee members*
- *Committee members discussed idea of developing citizen science volunteer port sampler team that could coordinate with NOAA/states; member noted fish cleaners at dock could potentially help collect samples; noted training volunteers to remove otoliths, particularly for some species (e.g. jacks, dolphin), could be challenging; carcass collection could be logistically easier than on site removal*
- *Age data are critical to assessment but can be influential, so sampling design and protocol will be important to any projects addressing this priority*

2. Maturity Data:

a. Target volunteers: Recreational and commercial; tournaments
b. Data needed: gonad collection (either actual biological samples or pictures)
c. Target species: Cobia, Red Porgy, Snowy Grouper, Spiny Lobster, Gag, Red Grouper, Black Grouper, Scamp, Black Seabass, Greater Amberjack, Wahoo, Mutton Snapper
d. Anticipated outcome: improved reproductive information
e. Potential cost: $$

RECOMMENDATION: Support keeping as a research priority

- *Additional species suggested that spawn outside of SERFS sampling season and South Atlantic Research & Monitoring plan noting the need for mutton snapper spawning study and to obtain life history traits for priority unassessed species; priority unassessed species added were those from the research plan of noted interest to Committee members*
- *Storage for biological samples could be challenging; cannot be frozen and can only be on ice for a limited period before needing to be placed in formalin*
- *Photos would likely be more useful for non-hermaphroditic species*

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- *SERFS sampling provides reproductive information for many South Atlantic stock assessments; having samples for species that spawn outside of their sampling season (~April to October) would be helpful*
- *Sampling design not as critical as for age data; ideally would like samples from whole spawning season*
- *Divers may be able to provide information/photos on spawning*

3. Discard Information:

a. Target volunteers: Recreational and commercial
b. Data needed: length of fish; depth caught/released; number of fish; reason for discard; devices used
c. Target species: all SAFMC managed species in particular, Scamp, Red Snapper, deepwater groupers, Red Porgy, Greater Amberjack, Cobia, King Mackerel (sub-legal releases), and Gray Triggerfish
d. Anticipated outcome: improved discard removals estimates, ability to characterize size composition of discards
e. Potential cost: $-$$

RECOMMENDATION: Support keeping as a research priority

- *Number of released fish is increasing in many South Atlantic fisheries; having more information on released fish is a high priority, especially in recreational sector*
- *Collecting information on every released fish could be challenging for trips where there are many discards; implementing sub-sampling strategy could potentially help; additionally developing tools to help fishermen easily tally info while fishing and data entry could be done when back on land could also help with this issue*
- *Commercial and for-hire already report number of discards by species through logbook; additional ask to have these fishermen share information on released fish via different project; incorporating some of these critical fields (length, release treatment, predation) into logbooks could help streamline data collection*
- *Having an incentive for participation (e.g. keep undersized catch) could assist with recruitment and retention*

4. Genetic Sampling:

a. Target volunteers: Recreational and commercial; bait and tackle shops; tournaments
b. Data needed: fin clips
c. Target species: Cobia, Hogfish (both stocks), Red Grouper, White Grunt, Spanish Mackerel, Dolphin
d. Anticipated outcome: stock identification
e. Potential cost: $-$$

RECOMMENDATION: Support keeping as a research priority

- *Group noted that genetics are an evolving and increasingly powerful tool; can be used for stock identification, close-kin mark-recapture can be used to estimate abundance, in the future could be used to age fish; could be worthwhile to collect samples to 'bank' for future use*

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- *Additional species suggested due to South Atlantic Research & Monitoring plan noting the need to evaluate stock structure using updated data and modern techniques for Spanish mackerel and interest in dolphin stock structure by committee members*
- *Committee members discussed idea of developing citizen science volunteer port sampler team that could coordinate with NOAA/states; member noted fish cleaners at dock could potentially help collect samples*
- *Noted that fin clip sampling is less complex than other biological samples (otolith, gonad) and storage may be less problematic as buffer is more benign*
- *Group felt it would be worthwhile to follow up with genetics experts to learn more about data use and further refine species list*

5. Fishing Infrastructure:

a. Target volunteers: Recreational, commercial, and community members/citizens
b. Data needed: GPS location of existing and previously existing/closed fishing-related infrastructure (commercial fishing facilities, marinas, bait/tackle shops, ice house, fuel docks, boat ramps, piers, roadside seafood stands, retail markets, etc.)
c. Anticipated outcome: Baseline for fishing-related infrastructure to help document potential impacts from regulations
d. Potential cost: $

RECOMMENDATION: Support keeping as a research priority

- *Group noted this is especially important for the commercial and for-hire sectors and is becoming increasingly important with the loss of working waterfronts*
- *South Atlantic Research & Monitoring Plan includes quantifying current and baseline access to fishing infrastructure in the South Atlantic as a new social/economic priority*

6. Historical Fishing Photos:

a. Target volunteers: Recreational and for-hire
b. Data needed: digitized images (will need to scan print photos into digital format)
c. Target species: commonly caught charter/headboat species
d. Anticipated outcome: length comps for certain species; improved historical information
e. Potential cost: $-$$

RECOMMENDATION: Support keeping as a research priority

- *Documenting more information on historic fisheries catches can help us better understand health of current fisheries*
- *As climate change becomes a larger issue, capturing information on fish availability over time could be valuable; photos could help capture this information for historic time periods*
- *Fishermen, scientists, and members of the public have shown interest in this priority through the current FISHstory project*

7. Fishery Oral Histories:

a. Target volunteers: For-hire and commercial captains

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b. Data needed: interviews with fishermen to learn about the history and current state of a fishery; possibly pair interviews with topic #6 (Historical Fishing Photos)
c. Anticipated outcome: documentation of how fisheries operated over time (catchability changes over time with improvements in technology; markets; clients; species distribution; size of fish; weather; etc.) and other observational data
d. Potential cost: $

RECOMMENDATION: Support keeping as a research priority

- *As climate change becomes more of an issue, capturing information on fish availability and ocean conditions through interviews could be valuable*
- *Having information on trends in the fishery could be useful supplemental information for assessment and management*

8. Oceanographic/Environmental/Weather Conditions:

a. Target volunteers: Recreational and commercial
b. Data needed: Bottom temperature; weather impacts to fishing; presence/absence of sargassum and size of area; movement of forage fish (bait) and shifts in patterns of a fishery (i.e., mackerel)
c. Anticipated outcome: building database on climate and conditions; distribution of sargassum; how forage fish impacts patterns in a fishery
d. Potential cost: $-$$

RECOMMENDATION: Support keeping as a research priority

- *This type of information is of interest to fishermen and could be increasingly important with climate change*

9. Rare or Data Limited Species Observations:

a. Target volunteers: Recreational and commercial
b. Data needed: Point observations of data limited or unusual or rarely encountered species
c. Anticipated outcome: baseline for species shift; increasing information available for data limited species
d. Potential cost: $-$$

RECOMMENDATION: Support keeping as a research priority

- *Could be valuable to capture information on shifting species which is a topic of interest to Council*

10. Diet Samples:

a. Target volunteers: Recreational, for-hire, and commercial
b. Data needed: stomach collection
c. Target species: all groupers (especially Black, Scamp, Yellowmouth, Snowy and Warsaw), Tilefish, Blueline Tilefish, Greater Amberjack, Lesser Amberjack, Almaco Jack, Wahoo and Dolphin (in FL/GA), Red Snapper, Black Seabass, Bullet Mackerel, Frigate Mackerel
d. Anticipated outcome: improved diet information
e. Potential cost: $$

RECOMMENDATION: Support keeping as a research priority

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- *Target species identified in consultation with Lauren Gentry (FL FWCC) via literature review and work with EWE (Ecopath with Ecosim) models*
- *Likely of interest to fishermen*
- *Stomachs can be frozen so storage of samples may be less of an issue than for gonads*
- *Information could be valuable for ecosystem-based management and for use in EWE models; can provide information on predator-prey information; climate change can impact diet so this information could be increasingly important*

11. Personal Fishing Logbooks/Diaries:

a. Target volunteers: For-hire and commercial
b. Data needed: translate fishermen logbooks into electronic data/database
c. Anticipated outcome: develop relative indices of abundance
d. Potential cost: $-$$

RECOMMENDATION: Support keeping as a research priority

- *Many fishery dependent indices in recent South Atlantic stock assessments have ended prior to the last year of the assessment due to management/regulations; logbooks could potentially provide finer scale information that could allow indices to be developed throughout the time series; could provide information on changes in habitat over time*
- *Logbooks contain sensitive information – many fishermen may not be comfortable sharing this information; may be more willing to share historic information that aren't as critical to their current operations*
- *Likely higher barrier for this research priority than others; could be challenging to find fishermen who may be comfortable sharing this info and would need to make sure it stays confidential; would be helpful to get input from Advisory Panels to get input on feasibility and whether fishermen may be willing to share this type of info*

12. Monitoring in Managed Areas:

a. Target volunteers: Recreational and commercial
b. Data needed: species, length, depth
c. Target species: deepwater snapper and grouper
d. Anticipated outcome: changes in fish abundance over time
e. Potential cost: $$

RECOMMENDATION: Support adding as a research priority

- *Support adding back into priorities (was included in initial citizen science research priorities; removed from priorities in 2019 – was noted it may be more appropriate for cooperative research based)*
- *Interest in this topic from fishermen; many of the spawning SMZ's sunset in 2027 so increasingly important to collect information in these areas*
- *Would be helpful to get feedback from AP's on how often they typically fish near these areas and if they would likely require some compensation to sample; may be more appropriate for a 'Research' type fleet*
- *Divers may be able to help collect data; some areas are closed to fishing but open to diving*

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13. Movement and Migration:

a. Target volunteers: Recreational and commercial
b. Data needed: species, location, length, tag details
c. Target species: Dolphin and Wahoo
d. Anticipated outcome: movement and migratory patterns
e. Potential cost: $-$$

RECOMMENDATION: Support adding as a research priority

- *Dolphin and wahoo were added as target species based on South Atlantic Research & Monitoring Plan noting the need to define wahoo migratory patterns and interest in having more information on dolphin movement in the mid-Atlantic and Northeast*
- *Committee members noted that there are already successful tagging programs so projects should work to support or collaborate with these groups to address this priority; could also potentially share information on species priorities with other groups, as appropriate*

14. Shark Predation:

a. Target volunteers: Recreational and commercial
b. Data needed: observations of shark depredation, location, species
c. Anticipated outcome: document shark depredation observations
d. Potential cost: $-$$

RECOMMENDATION: Support adding as a research priority

- *Issue of shark depredation has been raised at several AP and Council meetings; although the Council doesn't manage sharks, depredation issues affect Council managed fisheries; issue of great interest to fishermen; making it a research priority could help raise awareness*
- *Not clear how data collected could be directly applied to Council management, but could start to help quantify interactions*
- *Cooperative Research Project citizen science project studying shark depredation in Florida is getting underway in 2021; will be able to learn from these efforts*

Other suggestions not recommended for inclusion in the current version of the Citizen Science Research Priorities

- *Bottom Habitat Mapping:* included in original citizen science research priorities but was removed in 2019; likely challenging to coordinate – could be more appropriate for a 'Research fleet'; NOAA already has a crowdsourced bathymetry project – want to avoid duplication; would be helpful to learn more about the NOAA project and revisit when updating priorities in two years
- *Fishing Effort:* could potentially focus on getting higher spatial and temporal resolution and/or potentially estimate effort differences between public and private access points for the recreational sector; was noted that this is a sensitive topic and could be challenging for citizen science approach
- *Gear modifications to help reduce discards:* Council interest in exploring gear modifications as a way to reduce discards; Snapper Grouper AP noted gear modification regulations may be challenging because there are so many species in Snapper Grouper complex and different gears are used to target different species; group felt some of this information could potentially be collected through current logbook programs

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Other feedback provided through the research priority discussion that could be applied more broadly to the Citizen Science Program

- Committee discussed the idea of a 'Research Fleet' for citizen science projects; could be a smaller group of vessels highly trained in the scientific process that could potentially be first in line to assist with projects; could become a small group of 'super volunteers' who are very interested in participating in data collection; may be helpful for projects that require more significant training and could help with recruitment and retention challenges; interest in learning more about the NEFSC Research Fleet and having discussions with the NEFSC/SEFSC to see if/how this idea could be incorporated into the Council's citizen science efforts
- Committee members noted the dive community would be a good group to partner with for citizen science efforts; could potentially provide information on habitat, spawning, monitoring in some managed areas, etc; could collect videos/photos for analysis, crowdsourcing could be used to help with video/photo analysis