

Comparison of Key Research Findings Between Bonney 2024 & Sweeney-Tookes et al. 2024

Council staff put together a brief summary of the Bonney 2024 and Sweeney-Tookes 2024 reports below as a way to compare their findings and help with interpretation of results. Information was summarized and pulled from the final reports by staff. Interested parties should review the researchers' full reports for detailed findings.

Comparison of overall findings

Table 1. Comparison of key findings between Bonney 2024 and Sweeney Tookes et al. 2024. Compiled by Council staff.

	Bonney 2024	Sweeney-Tookes et al. 2024
Study population	Scientists and managers who work in the South Atlantic	Snapper grouper and mackerel commercial, for-hire and recreational fishermen; focused on 4 geographic segments in South Atlantic region important to snapper grouper and mackerel fisheries
Respondents	Majority identified as fisheries scientists; majority federal and state agency representatives, limited academics; included representatives working in all South Atlantic states; sample size = 79; 53% response rate	Three sectors represented relatively evenly across geographic area except for limited recreational representation in the Carolinas and GA/Northern FL regions; significant overlap between participants in each fishery; sample size = 41
Familiarity with SAFMC / federal fisheries management / data sources used for management	Majority of respondents had worked in fisheries for >10 years; large majority were familiar and have been heavily involved in Council; most familiar with SEDAR and sources of fisheries data used by Council; majority felt that more data would be helpful to many species	Differing levels of familiarity with fisheries management; confusion about federal fisheries management players and roles; varying levels of engagement among participants/sectors – but overall low levels of engagement; many felt participation / engagement in process fruitless
Trust with management and science; trust among stakeholders	Most felt managers use data to make decisions; that fishermen should have a voice and have a responsibility to participate in management, that managers consider needs of fishermen when making management recommendations; generally agreed that the science used by managers to make recommendations could be trusted; most felt that fishermen do not trust scientists to collect data representative of their fisheries and do not trust managers to make sensible regulations	Overall distrust of management process and people involved in fisheries management; experience dissonance between their own experience and scientific data; concerns about accidental or intentional manipulation of data or use of questionable science; concern regulations may be influenced by personal biases; feel voices not listened to or heard when engage in process
Knowledge of & familiarity with citizen science	Majority either very or somewhat familiar with citizen science; majority had participated or used citizen science data; most felt citizen science data could be useful to varying degrees	Varying levels of experience and interest in citizen science; many had engaged in collaborative research (i.e., tagging); most were not familiar with term citizen science but thought it could potentially be useful

Challenges / concerns with citizen science	Data not collected according to protocol; data not collected randomly/lack of statistical design; insufficient data collected over time / attrition & low participation; fishermen may not be truthful about data; lack of QA/QC; concern with projects not designed/monitoring by scientists; scientists/managers won't use data	Differing perspectives on voluntary vs. obligate engagement in data collection; question how useful scientists would find the data; financial / temporal limits may constrain engagement; operationalization of projects key to success or failure; concern with bias and reliability of data
Opportunities for citizen science	Citizen science seen as a potential source for useful data but some scientists and managers remain to be convinced of its efficacy; seems to be support for citizen science to provide supplemental data / fill data gaps; need to be able to demonstrate projects are being scientifically designed with input from data end users	Even with large trust issues there appears to be some support for citizen science; need to be transparent about project goals and potential use of data; have honest and transparent communication; project selection important; some sectors / individuals likely to participate without compensation; others may not have time without monetary incentive

Comparisons of trust issues

The tables below highlight some of the trust issues identified and described between stakeholder groups in Bonney 2024 and Sweeney Tookes et al. 2024.

Table 2. Summary of scientists and managers agreement/disagreement of statements with issues surrounding fisheries management. Responses ranged between 1-5 with one being strong agreement and 5 being strong disagreement.

Source: Bonney 2024.

Statements most respondents strongly or somewhat agree	Mean	SD
Fisheries managers use data to make mgmt. recs	1.43	0.64
Fishermen should have voice in mgmt. decisions	1.54	0.71
Fishermen have a responsibility to participate mgmt.	1.58	0.79
Fisheries managers consider needs of fishermen when make mgmt. recs	1.63	0.59
Statements most respondents generally agree not as strongly		
Fishing regs help to preserve fishing industry	1.69	0.91
Management make informed decisions about mgmt.	1.87	0.77
Science used by managers to make recs can be trusted	1.92	0.78
Statements where somewhat agree or neither agree/disagree		
Opinions of fishermen are taken seriously	2.18	0.89
Statements where respondents neither agree/disagree or somewhat disagree		
Scientists trust managers to use data to make mgmt. recs	2.51	1.08
Fishing industry associations have best interests of fishermen at heart	2.81	0.94
Statements where respondents strongly disagree		
SA fisheries are generally healthy	3.33	1.04
Fishermen trust scientists to collect data representative of their fisheries	3.88	0.87
Fishermen trust managers to make sensible fishing regs	3.94	0.68

Table 3. Significant qualitative themes identified via fishermen interviews in regard to trust and participation / engagement in fisheries management process. Source: Sweeney Tookes et al. 2024.

<p>Qualitative theme: Fishermen non-engagement</p> <ul style="list-style-type: none"> • Feel participation and engagement fruitless • Financial & temporal commitment needed to attend meeting often several hours from home • Confusion on role of different agencies – federal fisheries management is a black box
<p>Qualitative theme: Distrust management process & people involve in fisheries management</p> <ul style="list-style-type: none"> • Fishermen believe their sector is not receiving their fair share of catch quota • Question qualifications of regulators to make decisions • Concern about accidental or intentional manipulation of data or use of questionable science • Regulations may be influenced by personal bias of individuals involved in management
<p>Qualitative theme: Fishermen experience dissonance between their own experience and scientific information</p> <ul style="list-style-type: none"> • Their environmental observations that don't mesh with scientific information used by management • Scientific sampling techniques conflict with fishermen's sampling strategies • Offers to share their techniques or local knowledge not accepted • Regulations on single species and other environmental impacts affect ecosystems in broad ways that are not acknowledged

Comparisons of citizen science research priorities / topics

Fishermen interviewees were asked to provide their willingness to participate in various citizen science activities. Scientists and managers were asked (via a survey question) to rank the top five topics they thought would provide the most useful data to the Citizen Science Program. The list of topics provided to the interviewees and survey respondents were both based on the Citizen Science Research Priorities. Due to the timing of the interviews and surveys – the lists between research methods were slightly different due to the SAFMC’s research priorities being updated in December 2023. The tables below summarize results from these questions. *The topics are color coded – so that the same topics are highlighted in the same color among the tables.*

Table 4. **A)** Topics scientists and managers thought would provide the most useful data to the SAFMC Citizen Science Program. The lower the mean value the higher the rank and more useful the data (e.g., 1 = most useful, 5 = least useful). Source: Bonney et al. 2024.; **B)** Fishermen’s willingness to participate in citizen science activities by sector. Only activities where over 50% of interviewees responded positively are included in the table. *, ^, - within a column on the table indicate identical numbers/percentages in willingness to participate. **C)** Fishermen’s willingness to participate in citizen science activities by geographic region. Only activities where over 50% of interviewees responded positively are included in the table. *, ^, - within a column on the table indicate identical numbers/percentages in willingness to participate.

A) Science and Managers (Bonney 2024)

Topic	Mean	SD
Record discard info	2.18	1.49
Age sampling	2.63	1.41
Genetic sampling	2.85	1.65
Shark and mammal depredation	2.93	1.49
Shifting species / rare event observations	3.2	1.51
Movement & migration	3.26	1.55
Environ info	3.42	1.35
Historic photos	3.44	1.93
Fishing infrastructure	3.45	2.11
Observations in management areas	3.71	2.45
Fishing oral histories	3.83	2.1
Habitat characterization	3.85	2.1
Spiny lobster data	4.64	3.37

B) Fishermen by Sector (Sweeney-Tookes et al. 2024)

Commercial	For-Hire	Recreational
Shark depredation	Shark Depredation*	Shark Depredation*
Data limited species / rare event*	Data limited species / rare event*	Data limited species / rare event*
GIS infrastructure*	Collect fin clips*	Collect fin clips*
Record environ info	Record discard info	Record catch info*
Record discard info	GIS infrastructure^	Record environ info
Record catch info	Record environ info^	Record discard info^
Save gonads	Save gonads	Save gonads^
	Record catch info	Save otoliths^
	Save otoliths	GIS infrastructure

C) Fishermen by Geographic Region (Sweeney-Tookes et al. 2024)

Carolinas	GA/FL	Space Coast	Keys
Shark depredation	Shark depredation	Shark depredation*	Shark depredation*
Data limited species/Rare event*	GIS infrastructure*	Record discard info*	Collect fin clips*
Record Catch info*	Data limited species/Rare event*	Record catch info^	Data limited species/Rare event*
GIS infrastructure*	Record discard info^	Record environ info^	Collect environ info
Record environ info*	Record environ info^	Data limited species/Rare event^	Save gonads
Collect fin clips	Collect fin clips-	Collect fin clips-	Record discard info^
Save gonads^	Save gonads-	Save gonads-	Record catch info^
Save otoliths^	Save otoliths	GIS infrastructure	Save otoliths^
	Record catch info	Save otoliths	GIS infrastructure

Key Findings & Relevant Citizen Science Program Efforts

Table 6. Sweeney Tookes et al. 2024 key findings and current Citizen Science Program efforts and ideas for the future.

Summarized Sweeney Tookes et al. Key Findings & Recommendations	Current CitSci Program Efforts & Thoughts	Future CitSci Program Efforts for Consideration
<p>Fishermen do not feel valued or heard</p> <ul style="list-style-type: none"> • Be aware of and acknowledge this dynamic • CitSci projects, if carefully designed, could help address this problem and encourage participation in projects and broader Council processes 	<ul style="list-style-type: none"> • Outreach initiatives – working to build relationships with key stakeholders, organizations; trying to go into fishing communities (e.g., tackle shop visits, seminars partnering with leaders in fishing communities, fishing expos, etc.); partnership with Best Fishing Practices team leverages resources, extends reach, increases outreach opportunities • Have had some project participants engage in other Council related activities • Other Council outreach efforts – Stakeholder Engagement Workshops hoping to help with this • Participant communication emphasizes that we are listening to their perspectives and appreciate their participation 	
<p>Voices at public hearings don't represent the fishery</p> <ul style="list-style-type: none"> • CitSci projects could help with engagement in broader Council process 	<ul style="list-style-type: none"> • Council (via CitSci Program, BFP, general Council) has increased outreach initiatives to hopefully increase engagement by those both in and out of the Council network • Opportunities for those outside of Council network to share ideas with Program (e.g., Citizen Science Project Idea Portal) 	<ul style="list-style-type: none"> • Continued outreach critical
<p>Fishermen deeply distrust management</p> <ul style="list-style-type: none"> • Level of distrust high, staff were surprised with the positive opportunities for CitSci • Highest level of trust from recreational sector • Burden of proof on CitSci projects to be transparent about project goals, data use, impact on management 	<ul style="list-style-type: none"> • Council (via CitSci Program, BFP, broader initiatives) has increased outreach to work on building relationships within fishing communities; starting to see some positive benefits but this is a long-term process • CitSci Program's projects try to clearly communicate about project goals, how data can or cannot be used, potential impacts; try to keep expectation management front of mind 	<ul style="list-style-type: none"> • Project selection important – try to support 'win-win' projects • Continued outreach critical
<p>Fishermen skeptical of science used by management</p> <ul style="list-style-type: none"> • Lack of trust of science both a barrier and could be an 	<ul style="list-style-type: none"> • Focus on projects filling data gaps that meet specified research priorities • Messaging for projects and volunteer recruitment – opportunity to share on the water knowledge and 	<ul style="list-style-type: none"> • Consider more neutral parties for partnership

opportunity for CitSci Program	expertise	
Federal fisheries management is a black box	<ul style="list-style-type: none"> • Communication with project participants; address questions and encourage opportunities to share public comment • Broader Council outreach – BFP MVP workshops, SAFMC overview presentation, Stakeholder Engagement Workshops, etc. – working to improve this 	
Power dynamics mean this is NOT traditional citizen science	<ul style="list-style-type: none"> • Aware of this dynamic; challenging trying to figure out how best to address; influences motivations and barriers for participation 	
'Pro Bono' services for commercial and for-hire sectors & Recreational fishermen as partners for citizen science	<ul style="list-style-type: none"> • Current projects focus on different audiences (fishermen, recreational divers, broader public) 	<ul style="list-style-type: none"> • Focus more projects / collaboration with recreational sector; often less avid • May be more helpful to focus commercial / for-hire projects on more passive data collection efforts • Use these findings to inform project development and identify audiences
<p>Recommendations for well-designed projects</p> <ul style="list-style-type: none"> • Genuinely collaborative • Relevant • Simple • Non-duplicative • Culturally appropriate • Carefully selected initial projects 	<ul style="list-style-type: none"> • CitSci Program Approach: support projects that meet identified South Atlantic research priorities / data gaps; complement / supplement existing data sources and partners; intentional project design – direct application to assessment and management; encourage scientist and fishermen collaboration • CitSci research priorities updated every two years to keep relevant; informed by SAFMC, SAFMC APs, Project Idea Portal • Encourage use of project Design Teams – diverse stakeholder work groups to design and develop projects; include scientists & fishermen • Use tools / resources (e.g., Pocock et al. 2014) to decide if project idea/research question would work well with a citizen science approach (e.g., simple protocol, motivation of participants, resources available) • Challenging to select projects with no risk for fishermen; trying to fill data gaps and want data to be used in decision making; often don't know what outcome/impact could be 	<ul style="list-style-type: none"> • Try to prioritize topics where fishermen and scientist interest overlaps • Project selection important – try to support 'win-win' projects • Constant transparency and managing expectations critical

Table 6. Bonney 2024 key findings and current Citizen Science Program efforts and ideas for the future.

Summarized Bonney Key Findings & Recommendations	Current CitSci Program Efforts & Thoughts	Future CitSci Program Efforts for Consideration
Increase involvement of scientists and managers in project design and development	<ul style="list-style-type: none"> Encourage use of project Design Teams – diverse stakeholder work groups to design and develop projects; include scientists & fishermen 	<ul style="list-style-type: none"> Work to increase involvement of scientists and managers in Design Teams Work to increase diversity of organizations/agencies involved in Design Teams
Advertise that project design is accomplished through collaborations among scientists, managers, and fishermen	<ul style="list-style-type: none"> Whenever staff present on the overall CitSci Program we try to include information on the Program’s Approach and project selection and development which includes info on use of Design Teams 	<ul style="list-style-type: none"> Highlight use of Design Teams in project development through other CitSci Program communication efforts
Engage with willing survey respondents in current and future projects / project design		<ul style="list-style-type: none"> Encourage willing survey respondents to apply for the CitSci pool Work to incorporate interested and willing individuals into project Design Teams
Engage with willing survey respondents that were less supportive of citizen science to better understand, explore, and address their concerns		<ul style="list-style-type: none"> Consider holding an online meeting with relevant scientists and managers to better understand, explore, and address their concerns with CitSci
Work to support / develop citizen science projects where there was overlapping interest between scientists/managers (Bonney 2024) and fishermen (Sweeney Tookes et al 2024)		<ul style="list-style-type: none"> Use the findings from these research efforts to inform the CitSci research priorities when they are updated in 2025 Consider overlapping interests when developing new CitSci projects
Consider conducting similar survey with scientists and fishermen in future to compare with these survey results		<ul style="list-style-type: none"> Strive to conduct similar survey in the upcoming years; what timeline would be appropriate?