SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

CITIZEN SCIENCE COMMITTEE

Lumina Holiday Inn
Wrightsville Beach, North Carolina

December 3, 2024

Citizen Science Committee

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Ashley Oliver
Dr. Mike Shmidtke
Rachael Silvas
Nicholas Smillie
Suzanna Thomas
Greyson Webb
Christina Wiegand
Meg Withers

Attendees and Invited Participants

Monica Smit-Brunello
Dr. Marcel Reichert
Sonny Gwin
Dr. John Walter
Rick Bonney
Dr. Jennifer Sweeny-Tookes
Shepard Grimes
John Sanchez
Haley Stevens

Observers and Participants

Other observers and participants attached.

The Citizen Science Committee of the South Atlantic Fishery Management Council convened at the Lumina Holiday Inn, Wrightsville Beach, North Carolina, on Tuesday, December 3, 2024, and was called to order by Chairman Kerry Marhefka.

MS. MARHEFKA: Okay. We are back in session for the Citizen Science Committee. Just a reminder, and I don't believe this is a committee-of-the whole, and so I'm just going to let you know, and it's myself, Amy Dukes is vice chair, Bob Beal, Carolyn Belcher, Gary Borland, Tim Griner, Judy, Jimmy, Jessica, Trish, Lieutenant Pease, who is not here, Charlie Phillips, Tom Roller, Robert Spottswood, and Andy Strelcheck. Maybe that's everyone. It is everyone. Sorry. I guess we didn't need to do that. I just wanted to make sure everyone is paying attention after lunch. Okay, and so we are a committee-of-the-whole.

With that, I'm wondering if there are any changes to the agenda. All right. Seeing none, the agenda is approved. Any changes to the minutes? Any objection to approving the minutes? All right. Seeing none, the minutes are approved, and we are getting started on the citizen science program, the initial evaluation. We're going to have a great presentation, that some of us were lucky enough to see during the Citizen Science Operations Committee, and I'll hand it over to Julia to do the background.

MS. BYRD: All right. Thanks, Kerry, and so I think some of the discussion at the Citizen Science Committee today will really build kind of on some of the discussions you had earlier, when Christina was talking with everyone about the stakeholder engagement meetings, and so one of the things that was really kind of important, as we were developing our citizen science program, is we want to make sure the program is doing what you guys, the council, wants it to do, and one of the ways we can do that, engage that, is through evaluation.

Today, during this agenda item, we've kind of broken down this initial evaluation into two components. The first thing we're going to focus on is work we were really lucky to be doing with researchers, Rick Bonney and a research team led by Jennifer Sweeney-Tookes, and they focused on kind of gathering baseline information about kind of our stakeholders' knowledge about competence and trust and using kind of the citizen science process to collect information for use in fisheries management.

We're going to hear two great presentations, one from Rick Bonney virtually and one from Jennifer, who's here in the room, about their findings. Then we're going to be asking for you guys to have a discussion and provide us some guidance on how we can use their findings to refine our citizen science program, and so that's the first component of what we'll be talking about. Then the second component of what we'll be talking about is, back in 2020, you guys helped kind of develop and helped the program adopt our goals and objectives.

It's been about five years since those have been adopted, and so we want to kind of go over those goals and objectives and show you what we've accomplished over the past several years and then get guidance from you guys on what we should focus on in the program, kind of moving forward in the upcoming years, and so those are kind of two different components that we'll cover under this agenda item.

Before handing things off to Rick and Jennifer, I wanted to provide a little bit of background on kind of why we're doing this evaluation, and where we've kind of come from, what we've done,

and where we want to go moving forward, just to make sure kind of everyone is on the same page as we go into this discussion.

I think, when talking about evaluation, it's important to kind of think about the big picture for kind of the program, and so we have a vision and mission statement. Our vision is we want to advance science and increase trust, one project at a time, and we want to do that through our mission, by building and maintaining a program that improves information for fisheries management through collaborative science.

The program has four main goals. The first goal is focused about the program itself. We want to build and sustain a program. The second goal is focused on the development of projects, and so we want to make sure we're supporting, and developing, projects that meet the council's research needs. The third goal is really focused on the data. We want the data to be fit for purpose. We want it to be accessible. Then the fourth goal is focused more on learning and engagement and collaboration and trust.

When we're thinking about evaluation, it's kind of easier to wrap your brain around how to evaluate the first three goals, whether you have a program, whether you're developing projects, you're collecting and evaluating your data. It can be more challenging to kind of gather information and evaluate if you're fostering learning, and collaboration, and that sort of thing, and so that led us to start having kind of discussions on what we needed to get in place in order to evaluate our program and all four of those goals.

What I wanted to do is talk a little bit about where we've been, and we've been really lucky, in our program, to be able to be working with Rick Bonney. For those of you who may not be familiar with Rick, he is the Director Emeritus for the Public Engagement in Science Program for the Cornell's Lab of Ornithology. He is our citizen science Yoda. He's like our guru. He is an expert in citizen science, and he's been advising our program since its beginning.

When we started to think about evaluation, we were really lucky to be able to work with Rick and say that we want to make sure we can evaluate our program, and what should we do, and so, back in the winter of 2020, and spring of 2021, Rick put together kind of an evaluation plan, and, again, what we're really trying to do is get baseline data about the attitudes, knowledge about, and trust in kind of the citizen science process of collecting data to inform fisheries management.

We wanted to get that baseline data from kind of our three main stakeholder groups of fishermen, scientists, and managers, and so Rick put together a great plan. It was a three-step plan to kind of collect this baseline information.

The first step was to have him conduct interviews with a small number of fishermen and scientists and managers. The information gained from those interviews would be used to help us develop kind of a method to get information from a much broader, bigger group of fishermen, scientists, and managers, and then we would kind of implement that method and analyze results.

When we initially started this, we only had funding from the first two stages, and so Rick got started. He did interviews with six fishermen, six scientists, and six managers, and, back in the spring of 2022, he shared those findings from those interviews with our Citizen Science Operations

Advisory Group, and then he presented them to you in June. The link at the bottom of the screen, if you're interested in seeing those results, that will link to his report.

I did want to share some of the key conclusions he found through that work. He found that scientists, the scientists he talked to, needed to be convinced that citizen science projects have sound design and that their data are needed. The managers needed to be convinced that scientists would use the citizen science data. Fishermen needed to be convinced that scientists and managers would use this type of data.

One thing that he found, through his initial interviews, is that the fishermen audience needed to be studied in a lot more detail, and so, you know, he framed this as fishermen are really three audiences. There's multiple sectors, right, and there's the commercial fishermen, the for-hire fishermen, and the recreational fishermen, and, within those sectors, there are a lot of different fishermen who may have different perspectives.

He suggested having more interviews with kind of fishermen may kind of help better understand that audience. He also noted that doing an online survey with scientists and managers should work pretty well, but noted that doing an online survey with fishermen may be more challenging, and he also noted that, you know, to help the citizen science program grow, we really needed to better understand the motivations and needs and desires of fishermen and how best to reach them.

He said, you know, in order to do that, we would likely need to find some additional funding in order to kind of do that research, and so were really lucky that, in the summer and fall of 2022, we were able to get some additional funding. Some of that came from NOAA Fisheries, through Russ Dunn, and we're really thankful for that, and then you guys, the council, helped support some of this work, too.

That additional funding allowed us to put out a request for proposals, back in I think it was December of 2022, or January of 2023, and that allowed us to kinds of search for a researcher to help us with this kind of fishermen component of this project.

We're really excited that, once we got through the RFP project, we had Rick Bonney, who was leading kind of the online survey that would collect information from a broader group of scientists and managers, and then we were really excited to be working with Jennifer Sweeney-Tookes, who is the chair of the council's SEP right now, and serves on the SSC, and her research team, which included Tracy Yandel, who was a member of the council's SSC for a long time, and has since moved to New Zealand, and she's online with us today, to help answer questions you guys may have, and then Bryan Fluech, who is with Georgia Sea Grant.

Rick and Jennifer met with our Citizen Science Operations Advisory group, to share their methodologies, get feedback from that group, and then starting in the summer of 2023, they began collecting data, and so Jennifer's research team did fisherman interviews from around July of 2023 through February of 2024, and then Rick kind of implemented and collected data on his survey from March to September of this year.

In May of this year, Jennifer and Rick shared kind of some of their preliminary results with our Operations Advisory Group, who provided some initial feedback. They finalized their reports in October, and met with our kind of Citizen Science Operations Committee, again in October, and

what the Operations Committee did was kind of see their findings and then put forward some recommendations on how we can apply what we've learned through their work to our program.

I'll be sharing their recommendations with you a little later this afternoon, and so here we are in December, and so Rick and Jennifer will be presenting their findings to you. I'll be sharing the recommendations from our Operations Committee, and what we're really looking for feedback from you guys on is do you agree with the recommendations from our Operations Committee on how we can adapt and refine our program, based on the findings from Rick and Jennifer, and then, also, wanting to get a little information on prioritization of any kind of activities or things we want to do to kind of incorporate their findings into our work.

There's a lot of information that we learned through their research, and we are a small, but mighty, team, and so we need to -- We want to make sure we're doing what you guys prioritize and want us to work on, and so that's a little bit of an overview. Before I turn things over to kind of Rick and Jennifer, I just want to pause for a minute and see if you guys have any questions about where we've been or where we're kind of hoping to go with today's discussion.

All right, and so what will happen is I'll kind of turn things over to Rick. Rick will do his presentation, and then we'll have -- You guys can ask him questions, provide some initial feedback, and then we'll turn things over to Jennifer. Jennifer will do her presentation, and you guys can answer questions to her and Tracy, and give some initial feedback, and then what I'll do is we'll present findings from our Operations Committee, and then we'll have the discussion from there, if that sounds good. All right. Rick, it looks like you're unmuted. I'm going to pull up your presentation now, if you want to do a quick audio check to make sure we can hear you.

DR. BONNEY: Can you hear me?

MS. BYRD: We've got you.

DR. BONNEY: All right. Tell me when to go.

MS. BYRD: All right. I think you can take it away.

DR. BONNEY: All right. Well, hello, everybody. I'm sorry that I can't be there. I'm up here sitting in the snow. It turns out that getting from one small city to another small city is hours and hours and hours, and so we're going to have to do this remotely. We're going to have to have Julia advance the slides, because, for me to be able to do that, I would have had to get a remote IT administrator into my computer, and I didn't want to do that. I'm getting a little bit of feedback. I'm hoping it's clearer on your end.

MS. BYRD: You're a little bit staticky on our end. I'm not sure -- I would say keep going, and I'll see if I can figure out where the feedback is coming from.

DR. BONNEY: All right. So, yes, I am the Director Emeritus of the Public Engagement and Science Program at the Lab of Ornithology. A career in ornithology means I don't know that much about fish, and I don't know that much about fisheries management, although I've learned a lot in the last five years from you all, but I do know a lot about citizen science, and I was brought on, several years ago, to guide the program, in its initial stages in getting off the ground, and then

again in doing some evaluation. I'm wondering, Julia, and would it be better if I called on my phone? Would that get rid of this static?

MS. BYRD: Maybe. I'm not sure. It's not so staticky on our end. It sounds like you're talking very close to the microphone. I don't know if you can -- I don't know if you're talking to your microphone or a microphone on your computer, but --

DR. BONNEY: I backed up a little bit. Let's see if that helps. Okay. The central question, ever since we got started in this endeavor, is can data to inform fisheries management be gathered through citizen science? We know that citizen science has been useful for gathering data about a lot of different taxa, all around the world, but trying to do this in an organized fashion with fish, which is very hard to see down in the darkness of the ocean, hasn't been done as much, and we did have some starting assumptions.

The first one is that fishermen are knowledgeable observers. We know that to be true. Just like amateur bird watchers are knowledgeable observers, and often know more than professional ornithologists, we know that fishermen understand what they're seeing out in the open. The second assumption is that fishermen would be eager to participate in citizen science, to gather data as they're fishing, and to submit those data where they could be analyzed and used for fisheries management.

That's an assumption that originally we thought was very true, because we've seen vocal fishermen throwing that out there, that we want to do this. Whether or not that is as true as we thought is a little bit more of an open question, and you'll hear a lot more about that in the next presentation.

The third assumption that we started out was that fishermen have many eyes on the water. They're out all the time, and there's lots of eyeballs out there paying attention and looking at the fish they've caught, and then the fourth assumption was that the citizen science program, in some ways, wasn't all that different from the cooperative research that already was ongoing throughout the fisheries world. By starting with these assumptions, the idea was that it wouldn't be real hard to transfer a lot of what we knew about citizen science with other people to the world of ocean fish.

The thing is it's not just the fishermen. We also have to think about the scientists as well, because it's a stool with three legs. Fishermen are one of those legs, but scientists are another critical leg, because scientists have to be available to suggest what kinds of data might be needed, and also to look at the data that are collected, and to analyze that information to make some conclusions, and so the scientists have to be willing to engage with the fishermen, and with the fishermen's data, in order for this whole effort to be successful.

The third leg of that stool is the managers, because the managers have to say, okay, these data came from the fishermen, the scientists have analyzed them, and now we need to act on those data. Not solely on those data, and they will be combined with other data that come from more traditional methods of data collection, but all three of these groups have to be onboard in order to make a citizen science program effective.

How do we find out if these folks are eager to participate, or at least willing to participate? Well, one way to do that is to build a program, start some projects, get them going, and, in fact, that has happened, and Julia and her team, and, before Julia, Amber started building some very cool

projects, very successfully gathered some data to show that, yes, it looks like this has probably got some legs, and the stool is probably not going to collapse, but another way to find out more about the folks who are part of this triumvirate, and whether they're willing to participate, is to do research and evaluation.

We need to do research and evaluation on all three legs of the stool to gather information on the knowledge, the beliefs, and the attitudes toward three key things, and so the first one is fisheries data. What do all these folks think about fisheries data? Two is fisheries management, and three is citizen science.

What this information is going to do is going to assist with, first, evaluation, as Jennifer -- I mean, as Julia asked me to do a while ago, but also with program evaluation, because evaluation and program development are intertwined. They work together.

If you are working with an evaluator, from the very beginning of your project, to help you set measurable goals and objectives, and you pay attention to the evaluation data, then it's very hard for a program to fail, because you're constantly adapting it. It's just like adaptive management with any kind of ecosystem management. You're adapting it to make sure that, in the end, it can succeed.

As Julia has already said, the fishermen, or the fishers, part of this work was sent off to Jennifer and her team, and you'll hear all about that, and I'm going to be short with my part of this, again, which is the survey of scientists and managers, because I want to -- First of all, a lot of what we've learned through this is what I already learned through those first twelve interviews, which is really good.

Which is really good, because it shows that the interview process is a good way of really getting information, and I learned a lot of what we need to know just from those twelve interviews, but now I have a whole lot more data to back them up, which can be stored for the future so that, in say five more years, we can do a similar survey and look and see if there are changes in the answers in any kind of way that we can draw conclusions about whether these changes are happening, and maybe even as a result of the citizen science program.

To do this survey, to gather data about scientists and managers, first of all, we had many individuals who contributed to the development of this. It wasn't just me. Jennifer says it was fortunate to be working with Rick, but, yes, I'm really fortunate to be working with you, and the committee, because we went through many iterations of the survey. We did a lot of pre-testing. We did a lot of thinking about exactly how to ask these questions, and there were a lot of people that worked again and again and again to make the survey as good as we could.

The second thing to know about it is that we did this on a platform called Qualtrics, which is a commercially-available survey platform that is extremely powerful. In fact, it's probably more powerful than I know what to do with in my retirement, but I learned as much as I could, as fast as I could, to put this together.

The third thing is that we recruited participants by email, and I'll say a little bit more about that in a minute, and then, finally, we got IRB approval from Cornell. That's Institutional Review Board approval from Cornell, which looked at our entire program evaluation, and research plan, and gave

it a green light to go forward, not just this survey, but also the interviews with the fishers, so that we're clean on this front, and, if we ever wanted to publish any of this information, we could do so knowing that we have a Cornell IRB number in our back pocket.

The audience for the survey were members of the Florida Fish and Wildlife Commission, and staff members, the Georgia Department of Natural Resources, the South Carolina DNR, the North Carolina Division of Marine Fisheries, the NOAA Southeast Regional Office, the NOAA Southeast Fisheries Science Center, and then we also had a list of academics that was provided by some committee members, some Citizen Science Committee members, and so we were faced with this issue of how do we find a group of people who are willing to take this survey? Where are we going to get their names? Where are we going to get their emails?

We thought and thought, and it seemed like reaching out to key individuals, at these different agencies, was going to be the best way that we could do that. We sent emails to leaders at each of these agencies, many of whom are council members and have worked with the council before, and we got 150 unique names. There was a lot of overlap, but I weeded them all out, and I got it down to 150 names.

I sent them all an initial email, and three follow-ups, and these are the kinds of things that the Cornell IRB office looks at and makes sure that they're clean, and non-leading, and that you're going to get the kind of information you're looking for. The initial email was pretty boring, and were I to do this over again, it would be less boring, but, as I wrote the three follow-ups, for the people who did not respond right away, I tried to make them more and more interesting, and, normally, in this kind of survey research, you only do two follow-ups, the idea being that you don't want to bother people so many times, but I had a conversation with a lot of folks at the council, and we decided -- I will put somebody on the spot here, and I won't say the last name, but I'll just say that John said, hey, it's these people's job to do this kind of work, and, yes, send them another email.

Then we all talked about it, and we decided to make it as personal as possible. I wouldn't say a first name, but I would say we don't have that great of a response yet from the NOAA Southeast Office, and wouldn't you like more NOAA representation, and darned if that didn't really work, because click on the next slide. Overall, we ended up with a 48 to 53 percent response rate, and at least 10 percent of that came from that final follow-up, which traditional researchers would tell you would never work. If they're not going to answer after two, they're not going to answer after three, but they did, and I think it was because of that personalization that I threw in there.

The reason the response rate is variable is because 48 percent of the respondents answered all of the questions. I mean, 48 percent of the respondents answered some of the questions, in some cases, many of them, but only 53 percent answered all of them. Now, 53 percent would be considered, by many researchers, a really, really good response. I was hoping for more, but I'm happy with what we got, and now what I'm going to do is show you a few slides showing some of the actual data, or not the data, but the summaries.

About two-thirds of the respondents, and remember that we're talking about seventy-five respondents now, out of the 150 unique names. About two-thirds of them were scientists. They were quite equally distributed across states, all four states. About 40 percent were federal employees, about 40 percent state, and about 20 percent were academics, and that number came

up in the end, thanks to the efforts of some folks on the committee that gave me some names of academics.

This is really something, that nearly half of these seventy-five people had worked in the field for at least twenty-one years, and so this is an extremely experienced, highly-knowledgeable group of people, and, of course, that's really what you would expect if you were going to get names and email addresses from leaders at these different agencies. You would kind of expect that these were the folks that you were going to get, but, in one way, that's really good, because what that means is that the data that we're getting here, that we're going to act on and use to draw conclusions about evaluation, and also program development, are from people who really know what they're talking about and have been thinking about fisheries management for a long time.

Now, for any of you who say, okay, this is all well and good, and you're telling me it's two-thirds scientists, and it's 40 percent federal, et cetera, and where are the data, and the data are in the report that I submitted that are all in the website for this meeting, and so all the summaries, in way more detail than you could possibly want to know, are in there.

These respondents, again, are very involved. Nearly all have been involved with the council in some way. I think that something like seventy-one of the seventy-five had been involved with the council. More than half of them had participated in an advisory panel , or a committee, or had been involved in SEDAR, and so, again, we're really talking about a knowledgeable group of people, some of whom, by the way, are in the room, and you know who you are, and thank you very much for responding in such depth.

The first set of questions all had to do with fisheries data and management, and, again, all of these questions, and the summaries of all the answers, are all in the report that I submitted. I'm just pulling out a few highlights here for you right now, to try to make the points that I want to make going forward, and so click, and you'll be blinded by a bar chart, that's going to be really hard to absorb. Again, it's all in the report, and I'm not going to be reading -- I'm not going to go through here reading you all these questions, because you can read them for yourselves, and they're pretty long, and they’re the kind of questions that a lot of people worked together to wordsmith.

I do want to show you this one. To make recommendations for managing fisheries, the council requires reliable data about fish life histories, fishing effort, fish harvest, abundance information, and fisheries socioeconomics. Please indicate the sources of fisheries data used by the council with which you are familiar. Please check all that apply, and so, if you look down at the bottom, you can see the numbers. They go up to seventy-two, and so, for example, surveyed by scientists by was familiar to sixty-nine of the seventy-two people, and so most of these ways of gathering data, these traditional ways of gathering data, were known to most of the respondents.

Onboard observers, fisher logbooks, dockside sampling, port sampling, scientist surveys, vessel monitoring systems, life history studies, and citizen science, and citizen science is on there as a way of collecting data known by almost fifty of the respondents, and so that was encouraging, right off the bat, and so these folks know about all these sources of data.

Here is the question of do you feel that the above sources of data, taken together, currently provide sufficient information on which to base management recommendations, and only three of the respondents said that, yes, sufficient data are currently available for most species. This is the one

finding in this report that surprised me the most, because, doing the twelve interviews that I had done a couple years ago, I was surprised by the number of scientists and managers that said we've got all the data we need, and we're fine.

That just didn't square with what people were telling me in the beginning, and why I was brought onboard to try to help to design this program, and so I was kind of happy to see that, this time, the response was much more like what, anecdotally anyway, the field had been suggesting, and over sixty people said sometimes more data would be helpful to many species, and then twelve of them said, no, insufficient data are available for most species, and we also asked for comments.

You can see that a lot of folks gave us information to back up their claims that insufficient data were available for most species. These responses are not something that I have pored over, but, when I get to my recommendations, I'm going to suggest that the council staff look extremely carefully, and the way I set up the survey is that the staff can't see who said these things, and so the data are confidential, and anything that would be able to personally identify anybody I've removed, as a condition of the IRB, but, all of the stuff that's still in there, the council staff could look at and could get interesting information about what these folks think about the status of data that are available for management right now. Next slide, Julia.

DR. COLLIER: Hold on, Rick. We might need you to start this slide over.

MS. BYRD: We had a technical issue, and so give us just a minute, and say some testing words for us. Sound test.

DR. BONNEY: Hello. I'm sorry you're having technical --

MS. BYRD: All right. Keep talking. Just whatever. We're trying to figure out what's happening.

DR. BONNEY: If you can give me a phone number, I could try calling in. On my end here, it says that there is a connection, an audio connection.

MS. BYRD: Okay, and so I think we're good. There has been some back and forth with people in the room and people on the webinar, but I think we're good to go now, Rick, and so if you can go ahead and start on this slide. I don't think we heard anything that you said on this one, and then start from there, and that would be great.

DR. BONNEY: Okay. Well, what I think I said about this slide, and, if you ever figure out what I said before, and compare it to what I'm about to say, it will be interesting to see whether there's any overlap. What I said about this slide is that the folks who answered, no, insufficient data are available for most species were able to comment, and many of them commented, and all of these comments are in the report, or at least all of the comments that are not personally identifiable are in the report.

Going through these in detail would be something that I would suggest that council staff do, to get a good, solid understanding of what these respondents think about the current status of data available for making management decisions, and recommendations. Could you hear that?

MS. BYRD: We got you loud and clear.

DR. BONNEY: Okay, and, actually, the feedback is better, or there's not as much feedback.

MS. BYRD: Perfect.

DR. BONNEY: Go ahead and click on the next slide. Okay, and this -- We spent a lot of time on the wording for this, for this question. I wanted to know how people felt about different methods of data collection, because I wanted to see how citizen science compared, and so the way we finally asked this was fisheries scientists and managers wish that unlimited resources were available to collect data to inform fisheries management. Knowing that is not possible, how do you think that more data could best be acquired? Please rank these options in order of most (1) to least (8) effective, considering cost and effort.

Now, the reason I did this forced-choice ranking was because, if you just put all eight of these data collection techniques into a matrix, and say, you know, do you think this would be very useful, somewhat useful, not useful, everybody is going to check very useful, for every one, and you don't know what to think of that, and so that's why I did this forced ranking, which is a little bit challenging to understand, and to analyze, but understand, from this slide, that these are the people -- These are the first choice for data collection by the seventy-something people that answered the question.

More of them suggested citizen science as the best way to collect data, moving forward, than any of the other techniques. Now, that doesn't mean a majority of them said that citizen science should be used, because, if you add up all the other techniques, they're more than citizen science, but, still, it's really interesting to see that more people chose citizen science as the number-one way to go than any of the others, with surveys by scientists following, and then onboard observers right after that.

Then you see -- This is all the people who were the sixth-best way, and more people said that citizen science was the sixth best way than any of these other techniques, and so what you have here is a little bit of a bifurcation. Either respondents tended to think it was a really good idea or not as good of an idea, and the next slide shows the means, and the standard deviations, for each of these techniques.

There is a statistically-significant difference between port sampling, at 4.32, and life history studies, at 4.86. There is not a statistically-significant difference between dockside sampling, at 4.33, and citizen science, at 4.44, but still -- You can see, from this, that you want a low mean to indicate something that a lot of people think is a good technique, and so you can see here that citizen science -- Even when you look across all eighty responses, it still ranks, you know, up there as people really think is a good way to proceed, but it also has the largest standard deviation, meaning that the responses were kind of all over the map.

I asked then some questions about beliefs and trust, and somebody could probably get a master's degree out of looking at all the results that we came up with here, but, if you click on the next slide, I just summarized this, and, again, if you want to dig into it, it's all in your report, but here are statements with which the respondents either somewhat or strongly agree.

First, fisheries managers use data to make management recommendations. Okay. That makes sense. Fishermen should have a voice in fishery management decisions. That's very cool. I don't know if I would have suspected that that would come out as a strongly-agreed statement from the scientists and the managers. Okay. They think fishermen should have a voice. Fishermen have a responsibility to participate in fisheries management. That's cool, too. I wouldn't have predicted that necessarily either, and then four is fisheries managers consider the needs of fishermen when making management recommendations, and so the scientists and the managers think that fisheries managers are considering the needs of fishermen. I think we'll hear more about that in a few minutes, from my partners in this research, but now we have these data.

We can look at this, five years down the road, and ask the same questions, to the same people, or as many of the same people that we can find, and we can see whether these have changed. We won't be able to say they've changed because of the citizen science program, but we'll be able to get some ideas of how things are moving forward.

There was also a bunch of responses that the respondents somewhat or strongly disagreed with. They disagreed that scientists trust managers to use data to make management recommendations. That's interesting. They disagreed that fishing industry associations have the best interests of fishermen at heart. That would be a really interesting thing to dig into more. I'm not entirely sure what to make of that. They disagree that South Atlantic fisheries are generally healthy. I don't think that's a huge amount of surprise, and then, finally, the last click here is fishermen trust scientists to collect data that are representative of their fisheries. Okay. Scientists and managers do not believe that fishermen trust scientists to collect data, and so we might have thought that, but now we've got some data to back that up.

Click on to the next slide, and I'll get into the last part of my questions, which were about citizen science. All respondents were somewhat to very familiar with citizen science. Okay. Two-thirds of the respondents had participated in citizen science or used citizen science data. Wow. That surprised me. More than half of the respondents felt that citizen science could be very to extremely useful in collecting data that can be used in fisheries management, and so this is really a wonderful thing to see, because, on that three-legged stool, two of these legs are saying we should do this, that the data will be useful, very likely. We want the data, and we're going to give it our best.

I asked them in what ways they participated in citizen science, and there were a lot of ways, from collecting data to using data. I thought this was pretty cool, and so more than thirty people are responding to those two top categories, either collecting data or sharing or promoting citizen science.

What concerns do you have about citizen science? Please check all that apply. All right, and so a lot of people felt that the data wouldn't be collected according to protocol. A lot of people felt that the data wouldn't be collected randomly. Many respondents thought that fishermen may not be truthful about their data. Many thought that scientists or managers wouldn't use the data, and some thought, many thought, that insufficient data would be collected over time, and then we had another other and please elaborate category.

So, again, these are the questions that we're going to want to re-ask down the road, and see if we're getting changes over time, but we also want to really dig into these data and figure out what information here can be used to improve the program, going forward. Here are some of the others,

some of the comments that are -- That they made about their concerns, and, again, I -- One of my recommendations is that the staff really dig into this and make sure that these are being addressed by the growing citizen science program.

There's another slide, I think, showing even some more of the concerns, and, again, all of these are in the report. You know, think about that, the no QA/QC. Well, I can tell you that Julia, and her team, have built a tremendous amount of QA/QC into these, and so that's a concern that can be alleviated, but how? I'll get to that in a minute.

The last thing that I asked had to do with what topics do you think citizen science should be best used to collect data, and I know these aren't the easiest to read. I'm sorry about that. I've explained to a few people that, before I retired, I only had to yell into another office to get somebody who was smart and young to make a beautiful graph for me, but now I'm old and tired, and all by myself, sitting in the snow out in the country here, and I don't have anybody like that anymore, and so a little bit of you take what you get here.

You can see that the majority of the respondents thought the discard information would be the best way to start, or one of the best ways to use citizen science to gather information, followed by age sampling. The next slide, I did another one of these means and standard deviations. You could just run from the top, the most useful, down to the bottom, which are useful, and see that discard information, age sampling, genetic sampling, and shark and mammal depredation are way up at the top of the list of topics for which scientists and managers thought citizen science would be a good idea, and this will be -- Julia will get back to all of this in a little while.

We asked if people wanted to be or were willing to be contacted, if they would provide their name and email address, and I forget how many did, but I think it was at least half, and so there's a huge number of people saying, yes, contact me, and let me get involved, and I would like to help, and, as soon as they provided that information, they waived their right for confidentiality. I'm now allowed to let the staff know who they are, so they can contact me if they want to.

Okay. I have a few conclusions and recommendations to make, based on all of this. First, this reached needed allies. We got the people that we needed to be able to build this program. Second, we need to take the attitudes and beliefs of this group very seriously. A citizen science program cannot succeed without taking into account the concerns and worries and the great ideas of this group of scientists and managers. Third, citizen science is generally supported by many, or most, of the respondents. I thought this might be true, because of the initial interviews. We've got a lot more data to suggest that, and that's the thing that makes me warm and tingly. Then, fourth, many of the respondents feel that citizen science is the most appropriate tool to use for gathering data on certain topics. Wow, that's really cool.

Okay, and we've got four more things to think about here. First, many do have concerns that need to be understood and addressed. Number one, these concerns are going to be important to build into the program, so it succeeds, but, number two, if they're not, then these folks will be saying, yeah, yeah, yeah, but I told them that this wasn't going to work unless -- So they really have to be listened to right now.

Many of these comments, and concerns, are about the rigor of program design. We want to make sure these are scientifically-defensible programs. In order to do that, to make sure that these

programs are rigorous, and that they do have a good program design, and that the concerns of these audiences are being understood and addressed, I think that the scientists, and the managers, need to be involved as much as possible in the ongoing project design, and many of them gave their name and emails and said that I want to help.

Now, it's always kind of challenging to make recommendations like this, because Amber, before Julia, and now Julia and Meg, and all those folks, they know this. I'm not telling them anything we don't know. I'm just giving them data to back up the idea that they need to involve scientists and managers, and they have been. All of the projects have scientists and managers on the design team, but, fourth, here is the thing that I think is my most important recommendation.

I think the project needs -- The program needs to advertise that scientists and managers are involved, to say this is being designed by teams, and these teams comprise not only fishermen, not only council staff, but scientists and managers who are deeply involved in this and trying to make these projects as good as they can, and so, to do that, one last slide, and then I'll let you move on.

I think reaching out to those folks who have invited further discussion is critical. I think that this could be done through meetings or webinars. I think, you know, almost building a community of practice of the scientists and managers and the professionals who are interested in this. I think that could be really good.

I think comparing the rankings of the appropriate topics, the topics deemed most appropriate for citizen science, that the scientists and managers have given us, with the rankings from the fishermen, is critical, and those rankings from the fishermen will come from the research you're about to hear about, and Julia, and her team, have already started to put together some comparative rankings, and there'll be some discussion about that. Then, finally, preserving the data for future evaluation and comparison. I will make all these data available. This is, in fact, the end of my contract with the council, after nine years.

Whether I'll be involved going forward, I don't know. Whether there'll be any interest in my expertise or funding to keep me going forward, now that I have no salary, I don't know, but what I will make absolutely certain of is that these data will be preserved, and I can also make the survey -- We can preserve that, so that anybody in the future can redeploy it, so that an evaluation of change over time can be accomplished, and that's actually what I was asked to do in the beginning.

As I cede the floor here, I will say one last thing, which is that the results of the most recent election -- Everybody knows that this is going to make challenges for natural resource management going forward, and for science going forward. No matter what your political beliefs may be, this is just going to happen. This has also happened before in history, with other administrations, and, when this has happened, it has always strengthened the environmental movement.

I think that, in some ways, participatory science, community science, collaborative research is really going to start to grow and thrive right now, in this environment, because, number one, it has to, because there isn't going to be any other way to get some of the information that we need to get, but, also, citizen science is populist, and there seems to be a populist movement in this country, and it might be something that could really well be taken advantage of.

So I don't choose to be discouraged about citizen science, and participatory science, going forward, in this milieu of environmental concern, and I like to be optimistic and think how can folks really work together to make this work even better, and, if we had more time, and I had my guitar, I would sing you a song right now called *Power in the Earth*, which I think is more important right now than probably ever before.

Now, I can't remember whether -- I can't remember whether we're going to do questions and answers right now, or just move on, but I was going to say one other thing. Way back, when I started working with Julia, and I was doing these webinars, where I'm talking into my screen, and I can't see you, and I don't know if you're asleep, or looking at me, or doing paper airplanes, or whatever, she wanted a picture of me, and I sent her two. I sent her a picture of me looking serious, with what I hoped was an appealing smile, and then I sent her a joke.

Well, Julia being Julia, she chose to use the joke slide, and so that's the one that she keeps using, of me in that canyon in Arizona, with those glasses on, and it looks like, you know, I'm working with Stevie Wonder there, but I want to assure you that I can see pretty well for a seventy-year-old guy, and I'm even still wearing that same blue fleece that I was using, or wearing, in that picture, and so you can kind of just imagine that, and so thanks for listening.

MS. BYRD: All right. Thanks so much, Rick. So I think, Kerry -- Well, if folks have questions for Rick, we can go ahead and take those, or some initial comments.

MS. MARHEFKA: Well, Rick, I appreciated it, for sure. I see we have a question coming from, or a comment coming from --

DR. BELCHER: Hi, Rick, it's Carolyn Belcher. How are you?

DR. BONNEY: Good.

DR. BELCHER: I want to just say I appreciate all the work you've put into this, because I know this has been a long time coming. I mean, there's been a lot of really good interest in it, and I know, obviously, we've all kind of had heels dug in a little bit, as we're trying to see where the progression is going, but it has been really great to see where it's gone to, the recognition that Julia and her group has gotten, both at the national AFS level and just throughout other branches of our fisheries, and I look forward to seeing what more they can pull together, and hopefully you can stay on board to help continue to guide the process.

MS. MARHEFKA: I personally would like to see the names of the three people who think we have plenty of sufficient data. Raise your hand if -- No, and I'm just kidding.

DR. BONNEY: Well, I have those names. They will forever remain with me, but you're not one of them.

MS. MARHEFKA: Oh, I believe that. Any other questions, or comments, for Rick right now? Rick, are you hanging out, while we hear Jennifer's presentation too, just in case things come to people's minds?

DR. BONNEY: Oh, absolutely. I wouldn't miss that presentation for anything. This is going to be really, really interesting, and I'm so impressed with the way they put together their research, and pulled all that together. I'm looking forward to hearing it.

MS. MARHEFKA: Great. Well, thank you again, and we'll get transitioned over to Jennifer's presentation now.

DR. BONNEY: I am going to mute.

MS. BYRD: Sounds good. Thanks, Rick.

DR. SWEENEY-TOOKES: Well, thank you. Thank you so much to the council for allowing me to be here today and the funding to complete this work, and to the Operations Committee, for their consistent and helpful feedback. We really appreciate that, and, of course, Julia, for her expertise and her skilled, but kind guidance of our work.

For those of you who don't know me, I'm Jennifer Sweeney-Tookes. I'm an applied anthropologist. I'm a member of the SSC, and the chair of the SEP, and I did this work with my collaborators, Tracy Yandle, formerly of the SSC, and she's a political scientist with expertise in fisheries policy, and we've been working together in the South Atlantic since 2013. We were also working with Bryan Fluech at Georgia Sea Grant, and so this was very much a group effort.

Julia and Rick have really done a beautiful job of explaining the context, and so I won't dwell on that. I just want to point out that we came into the story with a potential study population of four states, three sectors, 19,000 commercial and for-hire permits, and untracked, or differentially tracked, recreational anglers.

As we put together a proposal for this project, we couldn't help but thinking of that Desmond Tutu quote that there's only one way to eat an elephant, one bite at a time, and so it's important to note that the entire project was constrained by funding and timing, as they always are, as difficult choices had to be made each step to successfully complete this task.

Very, very briefly, what did we do? Very briefly summarizing how we approached this elephant of a population and a problem, we took that 19,000 permit database, and we eliminated any addresses that weren't on the Atlantic coast, any permits that didn't have addresses, and we chose a focus on two contrasting fisheries, snapper grouper and king mackerel. We identified which fishing communities had high landings in those two fisheries, and then we sorted those into four geographic segments, by fishing culture and affinities.

We ended with the target potential study population that you see in the white chart down in the bottom-left. Then we further refined that group using a random number generator to identify target permit holders as part of a random sample. We were trying very hard to get away from the usual suspects and the people that we always talk to.

Then we commenced really intensive recruitment of commercial and for-hire fishers. I will point out that, throughout the presentation, because I'm summarizing like pages and pages of report into one slide, I do have little boxes on the slide, that you can see up in the top-right corner, where it

tells you what page you can find more information in the report, if you want details. Sorry. I'm a teacher. I can't not.

We did really personalized and targeted recruitment in each of the populations. For for-hire and commercial, we sent an invitation postcard to the home address that's listed in the federal database, and then we used online sources to find phone numbers and sent text messages to people. We would send two or three texts, before we moved on to the next set of names on that randomized list, and you can see the postcards and then the sample texts up on the screen there.

Then, for recreational anglers in each geographic segment, we reached out to fishing organizations in those relevant communities. We approached them with a request for their assistance to help us recruit, through their membership rolls, using social media or email or whatever they felt was the best way to communicate with their participants.

We crafted interview guides. We incorporated citizen science questions and then existing research questions on trust that we had created for previous research projects, MARFIN and S-K projects, and we offered phone, video, and in-person interviews across the four segments. We traveled to each segment once for in-person interviews and then between -- As Julia was saying, between July of 2023 and February of 2024, we did forty semi-structured interviews that ranged anywhere from thirty minutes to two hours in length.

The project incorporated throughout both quantitative and qualitative methods, and so we're looking here quantitative, that you see, of course, on the left. These are our typical closed-ended question surveys, ranking like multiple choice questions. These are really good tools for understanding what people do, but they're limiting. They have limited utility for understanding why people make specific choices, and they limit the respondents to only choosing what the researchers presuppose are the most likely answers.

Qualitative questions provide an opportunity for participants to discuss complexity of decision-making. They give data necessary for analysis to determine barriers and motivations. Of course, both quantitative and qualitative research have rigorous norms. They have rigorous requirements for interpretation. They have clear methodological processes and they're equally valid, and thorough, which makes them really complementary, and so we combine qualitative and quantitative methods to help give insight not only into what people think, when forced to choose, but also why they hold these perceptions, and how their responses can be situated into a larger understanding of their worldviews.

What did they tell us? Well, let me start off by saying that I have a short section on trust and worldview. These do not directly address the topic of citizen science, but they are crucial background issues that will underlie any future citizen science efforts in the region. Research does not take place in a vacuum, and so understanding the potential audience for collaboration will help support the creation of stronger potential projects.

The first topic is management activities, and I know there's a lot going on here. I hope you have the slides on your screens in front of you. You'll see that we have quantitative data, in the chart on the left, and then qualitative themes on the right, and, of course, if you would really like the report, the citation is at the bottom, and you can go to those pages.

There was a series of statements where we asked people how often they did each of these things, never, sometimes, or usually, and you can see, in the chart, the cells are coded in green when over 50 percent of people did that thing, and then the green becomes darker when more people do that thing. The never-do-this cells are coded in red, and, whenever more than 50 percent never did that, and then the shade of red becomes darker as more people never did that.

That helps you to look at the chart quickly and see things like all of the sectors reported participating in easier activities, like discussing fishing with their peers, or reading federal materials, more than the harder ones. The recreational sector engages in those easiest activities the most. Across all the sectors, attending federal meetings remains extremely rare, and speaking at them even less often, and some commercial fishers do report engaging in the harder activities, like attending federal meetings, and actually speaking at them, but recreational and charter have the highest rates of never doing those things.

On the right then, we have some qualitative themes that tell us why. Why are people choosing to attend, or not attend, or have these conversations, and, as we examine the qualitative data, these are the main topics that came through.

The first is that we were told repeatedly there was no point in engaging, that it would have no effect. It was explained to us that the time and the money to travel to meetings was a significant barrier, and the third thing that came up was a lot of confusion about who each agency is and what attending each particular meeting would accomplish, and I'll come back to this in a couple of minutes. There's really a black box of acronyms, and a lot of confusion about who does what.

Next, we asked about trust. Again, the quantitative, on the left, tells us what people think, and so we named a group of people and asked can they be trusted, or are these people that you need to be more careful with, and you can't be too careful with them. They're not outright crooks, but you just need to be more careful, and so this is based on a long established integrated values survey, and Tracy is on the webinar. You can ask her more questions about that later if you would like.

The cells are shaded green if the level of trust, or distrust, is more positive than the level of generalized trust, or distrust, and they're red if that level of trust, or distrust, is more negative than the generalized, and so generalized trust in the United States population is estimated to be 37 percent, and so that's broadly in line with our survey as a whole, but it's definitely differing between the sectors.

Recreational anglers had a notably higher level of generalized trust than the U.S. population, and the commercial and for-hire both had less than the U.S. population, and levels of distrust in federal regulators was high, with for-hire fishers reporting the highest levels of distrust, at 93 percent.

Two questions from the world view section of the survey are also relevant to trust here, and we asked fishers whether they agreed or disagreed with these statements, and, again, here we're showing extremely low levels of trust in federal regulators, and the most stark example is that less than 7 percent of the for-hire sector trusts regulators to make the right decision, and the highest level of trust is shown among recreational anglers, but that's about 25 percent.

So why? Well, the first one is not a surprise to any of us. Each sector thinks that their own sector is getting unfair treatment and other sectors are getting more than their share. There was also a lot

of concern about the people in charge of making regulatory decisions. There wasn't confidence that people were qualified, and there was much speculation that perhaps those decisions reflected people's personal biases. They questioned scientific information. They think that maybe there might be accidental or intentional data manipulation happening in the science being used.

Finally, we addressed general world view questions, in regard to management, and we asked fishers to agree or disagree with statements that we posed to them. Again, agree answers are shaded in red, because they illustrate a negative view, and in green if they illustrate a positive view of fisheries management.

Fisher world view about management is surprisingly consistent across the sectors here, and it presents a really nuanced understanding of management. Broadly speaking, the quantitative data showed that fishers feel welcome at meetings, but they don't think that their voices are heard. They don't agree that their opinions are taken seriously, and they don't agree that regulators are fair to everyone. Less than half of commercial and for-hire fishers believe the information being presented by managers.

Fishers have really complex beliefs about fishing regulations. Across the sectors, they agree that regulations help preserve their fishery, but yet commercial and for-hire fishers also agree that those regulations threaten their livelihoods, right, and so the juxtaposition of these statements suggests that they believe regulation is necessary, but they're frustrated with how it's carried out, and the impact that it has on them, and so, while fishers report relatively low levels of participating in management activities, particularly federal management, a remarkably high proportion, 83 to 100 percent, agree that they have a responsibility to participate in management.

All of the quantitative data shows here that fishers work hard to preserve their fishery. They feel connected to other fishermen. They agree that the environment is important to them. They disagree with the idea that, quote, the ocean is large, and we cannot overfish it, and, so, together, these statements really suggest that fishers perceive themselves as guardians of their fisheries, and the qualitative data helps to tease this apart.

What came through, in their open-ended questions, were ideas about what fishers seeing on the water conflicting with what they're hearing from scientists and what is being communicated through the management process. There's a big conflict for them. There's a concern that the way that scientific sampling is carried out conflicts with their tested and successful ways to find fish, right, and this might be for scientifically-valid reasons, but that's not being effectively communicated to stakeholders, and so that's furthering those concerns.

Many mentioned offering to support scientific efforts and being ignored, or rebuffed. They see, and describe, a really complicated nature of a multispecies ecosystem and are witnessing firsthand the effects of single-species management. They also see, very commonly, non-fishing-related environmental issues affecting their fisheries, but they feel that the problems are being attributed only to fishers, rather than pollution or other things that are happening.

We put these results together, in the report, in what we call key findings, at the end, but I'm going to split them up, throughout this presentation, and touch on things that are relevant, and so what does this tell us about trust and management? Well, firstly, that fishers don't feel valued, or heard, across all sectors and regions. They reported trying to engage with the federal decision-making

process, but withdrawing in frustration. A relatively high number of people mentioned having been involved in meetings or other parts.

That taking time away from their work on the water to make statements in an atmosphere where it felt like the decision was already made, and many mentioned that, while public comment is required, they thought it was more legalistic, and performative, and not really reflective of genuine listening.

Going forward, analysis of when and how fishers can most effectively, and meaningfully, provide information for decision-making may be useful, along with careful consideration of how to listen and incorporate feedback in a meaningful manner. This would be beneficial not only for citizen science, but for fisheries management effectiveness in general.

A second key finding is that the voices at public comment don't necessarily represent the fishery. Commercial fishers were disproportionately most likely to report attending and speaking at federal meetings, but were a very small minority, and so they cannot be considered representative, as it's likely there's some unidentifiable variable, the weather, the income, education, something driving their willingness to engage, and so we have to work on the assumption that there is a silent majority of fishers, in all sectors, whose views are not necessarily being expressed at meetings.

A common theme that came up in the qualitative data as well is mention of environmental groups who can afford to financially support someone to attend a meeting in person, to be paid to sit in a room, to monitor and to comment at meetings, but that's not a luxury that many fishers feel that they have, and so, of course, then a more aggressive, and a systematic approach to engagement, that meets fishers where they are, would be required, and a well-designed citizen science program could be part of this approach.

It doesn't come as news, I'm sure, to anyone that fishers really deeply distrust management, and the lack of trust expressed was pretty profound. The starkest example was that less than 7 percent of the for-hire sector and 15 percent of the commercial sector trusted regulators to, quote, make the right decision. The highest level of trust was among recreational fishers, but even here it was only 25 percent of the sample, and so it's difficult, we know, for any institution to maintain legitimacy with low levels of trust, and so we really need to think about long-term strategies for rebuilding trust among stakeholders.

Fishers are skeptical of the science that's being used by management. When asked whether or not they trust the science that regulators use to make their decisions, a minority agreed, and there's a fundamental disconnect between the regular, often daily, observations of the fishers who are on the water and the information that they hear as part of the management process, and so this dissonance influences their confidence in the validity, and the objectivity, of the best scientific information available.

It is likely that fishers are more inclined to trust the validity of science that they participate in developing, but it's not guaranteed. This needs to be a very careful process, and educational efforts to explain and break down how science has to be used, and how carefully-designed science communications can help rebuild trust in science, in the long term, these are things that we should probably put on the table.

Then, lastly, federal fisheries management really is this black box, right, and it's unlit, completely. It's a really complex system. Many of the people in this room speak fluently the alphabet soup of agencies and committees, of NOAA, NMFS, SAFMC, APs, SSC, SEDAR, MRIP, Florida FWC, Georgia DNR, and I could go on, right? I deleted half of my list here, and so the management process is complex.

It's difficult to navigate, and there's really a fundamental disconnect between the ways that fisheries management operates and people's understanding of the process and the agencies, and frustration with one agency potentially disrupts their perceptions of and engagement with all agencies, and so, if we want folks to understand who is responsible for what, we really need to think about more appropriate, more tailored educational outreach to communities, and I believe we heard some really excellent examples earlier today.

Let's talk about citizen science though. That section was really intended to illuminate the landscape into which citizen science efforts have to venture forth, and so, for the remainder of this presentation, I'll only address citizen science, specifically fisheries experience with, or concerns about, the potential for, and how to encourage engagement.

I'm going to concentrate first on qualitative findings, and I'm going to include some direct quotes. These are all de-identified. I've removed anything that would let you know who said these things, or, for the most part, even what region they're in, but then we'll turn to some summaries and some key findings.

Many fishers that we spoke with had some sort of collaborative research experience. Fish tagging came up very, very frequently. It was very positively received. Many were very enthused to talk about the fish tagging projects that they had engaged with. Most weren't familiar with the term "citizen science", except for one gentleman, who said he had heard Julia Byrd talking about it as he listened to a meeting, and so I had to mention that, but, once they understood what it was, they thought it really could be useful, and they had positive reactions, like the ones that you see on the right.

As one person told us, fishermen are the true scientists. They had many suggestions about how to make fishers want to engage with projects. A lot of this related to being very transparent about project goals, the potential use of the data, or, as this gentleman put it, the more information you give back to us, the more people would be interested in participating.

There was, of course, a fair amount of concern about bias and reliability in the data. Several pointed out there's no room for, quote, a bunch of citizens with their own agenda. Again, if you would like to read more, the page numbers are in the bottom-left corner.

They raised many concerns, and they also mentioned realistic obstacles that need to be considered. This was particularly around the need to make sure that data collection was voluntary and not obligate. One quote is commercial fishermen don't like scientific stuff crammed down their throats. I mean, who does?

They questioned how useful scientists would actually find the data, and pointed -- Several quotes support that. They pointed out that financial and temporal constraints would make engagement very difficult. I mean, there's several quotes there about that, you know, the skill needed to remove

otoliths, or the time needed to carry fin clips to an office, to turn them in. One joked that, at the end of the day, he could barely find his wallet, his phone and his car keys, and he didn't also want to be searching his boat for that bag of otoliths that I cut out today.

They did have thoughts about how to encourage engagement, and suggestions for the best approaches, and the first quote that you see there is probably the most important. This came up in many different ways, but consistently arose, to manage the expectations. They suggested being very transparent about the length of the projects, the uncertainty in the research process, but pointing out that this potentially could positively impact their fishing.

They also stressed the need to be clear, honest and respectful in communication. The way that people are approached makes a huge difference, and one gave a long explanation that you can see on the right there, but he said, really, how you present has everything to do with the reception.

A key topic that arose repeatedly was that, while some fishers may be willing to participate without compensation, many may not have the time to do so, and this was really succinctly summarized by someone who told us everybody is out there to make a dollar, and that's all they want. I mean, that's literally all they want, and he meant "we" at the same time, right? They would have to be paid.

This leads us to several additional key findings. The power dynamics in this situation mean that this may not be a traditional citizen science model. In traditional citizen science, participants are volunteers. They're motivated by their intrinsic values. They love birds, or they really like to look at these historic photographs. It gives them a sense of accomplishment. They're contributing to a greater cause. Another characteristic of the traditional volunteer relationship is that volunteers are not dependent on the entity organizing the project. Indeed, the citizen science project depends on the volunteer.

A fisher citizen science project would have a fundamentally different power dynamic. Fishers are regulated by the organization that could potentially ask them to voluntarily provide data that could be used in regulations that affect their own lives, and so, particularly in a setting that's already rife with distrust, there's a risk of fishers feeling pressured to participate, and, depending on the nature of the project, could be asking people to provide data that could later be used against their own immediate interests, and so any project would really need to consider negative potential consequences and the ability for that to result in an even worse scenario of distrust.

Another key thing that came through in all of these conversations is that this really may be more of a pro bono model than a citizen science model. A citizen science volunteer model is a really logical fit for recreational fishers who are engaged in a hobby, but it may be more problematic for fishers who make their living from fishing. Commercial and for-hire fishers have invested financial capital into their businesses to engage in the industry, time and energy to gain knowledge, to build expertise in fishing.

They are experienced professionals in their chosen careers, and so, rather than thinking of these sectors as volunteers, the more accurate model might be that a citizen science program would be asking them to provide pro bono services, like a lawyer taking on indigent clients, or an accountant providing services to a non-profit, and so we found that it really would be key to recognize the professional nature of commercial and-for hire fishers in the region.

This could maybe shift the perspectives on the information that they could bring to this process, but management, and incorporation of perspectives and respect for that knowledgeable input, could improve the best scientific information available and fisher trust in the process, and so that brings me to what was our last key finding, was that recreational fishers really might be the logical first partner for a fishery citizen science program.

There's not the added complexity for professional fishers, that we just described, and there's the highest levels of trust in the federal fisheries management process. They were also consistently the most interested in participating. This might also be logical, because of the relative lack of data, relative, collected on this sector, and maybe this could be used as supplemental to some of the other programs.

What could this look like? We asked them what could this look like, and what sorts of projects, what sorts of data, do you think fishers could bring to the table, and there was a lot of excitement. Many ideas were proposed. A lot of them centered around the sorts of things you see on this slide, like details about the fish that caught, or discarded, charter boat photography, and lots of ideas for different ways to obtain photography on charter boats, documenting water conditions, tagging fish, projects for charter clientele, especially for people who have children on the boat, right, and really easy things for kids to engage in, and these may be things that are already being done in one place or another.

I'm definitely not the authority on all data being gathered across the entire region, but that's not really relevant, because these are the ideas that fishers expressed, and so, if they say this should be collected, well, then they already don't know that it's being collected either, and so that's maybe a successful hint to all of us about what's being conveyed to stakeholders and what isn't.

So let's quantify that. Let's look at the numbers now. We quantified this willingness to engage. We asked for honest, frank assessments of whether or not they would actually be willing to do these activities. We stressed that you're not going to make my day better by saying yes, if you don't really mean yes, and so, with few exceptions, over half of the fishers in each sector really did express willingness to participate in some citizen science activities.

Of course, this is probably an overestimate, because these were the people who were willing to sit down and talk with us, right, and so there's already a little bit of an issue there, but, broadly speaking, recreational anglers had the greatest enthusiasm for participating, and commercial fishermen the least.

Recording shark depredation is a universally popular activity, as you might see by those really tall three bars on the far right there. Yes, that would be a natural fit. Other popular activities included collecting fin clips and information on data-limited species. We did find that recreational anglers, in central Florida's coast, or the space coast and the Keys, had the greatest interest in participating.

I will note that all of this was described as doing this for free. Any people that answered no to any of these questions, then we went back and said would you do this for money, and the shift in answers was negligible. It was either they were going to do it or they were not going to do it, and the money really had far less impact than we expected to hear.

I always, in my interviews, say what else should I have asked you about, and what else should we know, and I would be remiss in my duties if I did not mention sharks. I understand the complexities of this. We all do, but it is my responsibility to convey to you that sharks are a significant, overwhelming issue across the region, impacting all three sectors. One, one interview, did not bring up sharks. One.

They are eating and damaging and destroying catch. They are following vessels, ramming vessels, eating descending devices, making fishing impossible, and, in fact, it was the most liked idea for citizen science. I will finish with the words of this gentleman, who told us that he would actually love to participate in a citizen science effort about sharks. He said, quote, that would actually give me pleasure. I would love to tell you how many times I said F-you to sharks in a day, and so I had to mention sharks.

Let me conclude. Coming back to our original guiding question, a successful citizen science program has the potential to increase fisher trust in management and to rebuild collaborative fisher management interactions. It has the potential to be a really valuable tool for the council amongst fishers. Most immediately, this might help with filling data gaps. Longer term, it can be part of a solution to more fundamental challenges, like the lack of trust in management, the lack of trust in science, and opening that black box of federal fisheries management.

Co-developed, transparent citizen science for fishers could be a valuable tool, and a change agent, but it would need a genuinely collaborative working relationship, and this -- If it was established, and successful, citizen science could really be a transformative force in natural resource management in the region.

As the project wrapped up, and we finished coding and analyzing all of this data, some things presented themselves, and so I would like to leave you with these sort of design ideas, right, and, when we think about how and why would fishers participate, or not participate, there were some design elements that arose.

Any program that is implemented in the South Atlantic, we would recommend that it be these six things, the first being genuinely collaborative, the idea developed in cooperation with fishers, responding to fisher interests, reflecting of their expertise on the process, and everything from the idea to how to carry out recruitment to further engagement. The entire project, from that brainstorming to the end, should be vetted by fishers, to make sure it's realistic and reasonable.

Secondly, that it's relevant. It needs to address fisher concerns and be perceived by them as being necessary to improve a problem. We're not saying scientist-originated topics are bad, but they really need to be critically evaluated by a group of fishers before trying to use them as citizen science projects. They need to address pressing needs relevant to their professions. It should be simple. It should be clearly explained. All fisher concerns, questions addressed completely, requiring minimal effort, minimal use of materials, minimal time investment, and asking more than that might be perceived as disrespectful, or dismissive, of professional pressures and time commitments.

Number four is really important. This came up over and over and over again. It really should be non-duplicative. It should not replicate information, or data, that's already being gathered in different ways. If information is already being recorded in trip tickets, it should not also be

gathered in the citizen science project. There is a lot of frustration with multiple modes of data gathering right now. If replication is necessary, then it needs to be really clearly explained.

It should be culturally appropriate to the region, to the segment, to the sector, making sure that topics are pertinent to those potential participants, and that data gathered could address a problem applicable to that population. Top interests in the Keys will probably not be the same top interests for fishers in North Carolina, and trying to craft one-size-fits-all projects might be fruitless, and so really thinking hard about what data fishers are being asked to gather and making sure that it's not going to pose moral issues for them, asking for data, of course, about fishing activity and GPS data. Things like these could be fraught topics, right, and can really reduce confidence that citizen science is unbiased.

Lastly, for that first project, or set of projects, those are key, right? Potential citizen science in the region will be most successful if they meet all of those above criteria, but also being thoughtful and deliberate about who to work with, and how. I keep mentioning recreational fishers in Florida with the highest rates of interest. For-hire captains who are interested in fostering clientele involvement might be a good second potential pool of collaborators, but the structure, and the success, of those first few projects, and the relationships built during those projects, will be key to future engagement with projects across the region.

With that, I would like to just again thank the council for the time, the funding, council staff, especially Julia and Christina, for bailing me out with some maps. Christina, thank you, but, also, my dear team of students, who transcribed their hearts out for about a seven-month span there, but, most importantly, the countless commercial charter and recreational fishers, who took time out of their busy lives, who sat down and shared their ideas and their thoughts with us, and so I would love to answer any questions that you have.

MS. MARHEFKA: Thank you so much, Jennifer. That was amazing. It was so informative. Sobering, and a little depressing, but that's okay. You're just -- You're just telling us the truth. Do we have questions for Jennifer? Andy.

MR. STRELCHECK: Thank you for the presentation. It was really informative, and so two questions. One, you mentioned public participation, cost of coming to meetings, maybe unwillingness to provide public testimony because they don't view it as valuable. Any mention about virtual participation, because that's been offered as an option now for a number of years, and it provides, obviously, more flexibility to defer costs and allow people more access to the council process.

DR. SWEENEY-TOOKES: That's a great question. Several fishers mentioned that they would listen in to the webinar, but most did not really see that as being viable, because, even if it's -- Even if you're able to listen virtually, you're still not on the water, you're not fishing, you're not working, and so there's still the taking time off of work to do it.

MR. STRELCHECK: Then the second question is, you know, I didn't find the results surprising, with regard to trust. I'm curious, based on your experience and research and work, if you find kind of the findings about trust consistent with work of regulatory agencies, and so I use the example of like, within the government, NASA has a lot more favorable rating than the Internal Revenue

Service, right, for justifiable reasons, right, and so I'm just curious if this is consistent with regulatory agencies, or findings of that --

DR. SWEENEY-TOOKES: That's a great question. I don't have a lot of experience with trust in other regulatory agencies. Tracy is on the webinar, if she feels like waving her hand at us. I'm not sure if that's something she has more expertise in.

DR. YANDLE: Yes, and so I would just add in that I agree with you that trust varies tremendously by agency, and even I would say there's a pattern of trust in the government, perhaps not surprisingly, has been going down considerably over the last decade. Even with that, these levels of trust were surprisingly low, and so I think there is a warning to be had here. Does it mean that North Charleston is about to get hit by an asteroid? No, but it is something to be very definitely aware of, and looking for ways to rebuild.

MR. STRELCHECK: Yes, and I'll just comment to that. I agree, right, that there is a warning here, and I'm not trying to dismiss it as, you know, we're like every other agency, but, obviously, people that are, you know, being regulated by us are going to be either negatively or positively impacted by the work we do, and so they have, obviously, immediate reaction to that, and so thank you. This is super helpful. I appreciate the response to my questions.

MS. MARHEFKA: Well, and the great thing is that this is setting us up to look at this in the future, and hopefully we will make a change with this, and so we'll know whether or not -- Hopefully we'll only see up from here. Please.

DR. SWEENEY-TOOKES: I want to reinforce that, because I know there are a lot of different programs in place being started, and I think each one of those things has the potential to really let this be the bottom baseline, and see, you know, these rates, and trust, and worldview only improve from here.

MS. MARHEFKA: Any other questions for Jennifer? John.

DR. WALTER: Thanks for the really insightful and somewhat sobering analyses. I think that we're all taking that, whatever our role in the process is, and seeing how -- Taking this to heart, as to how this could be improved, and I wanted to also follow-up, and I think it is useful, maybe, to think about how other processes for natural resource allocation and management decisions happen, and I think we do have the benefit, in the council process, of stakeholder involvement being codified, having an actual council process, an appointed council, having APs, having public comment.

There's not too many processes, I think, that have as much opportunity codified in regulation, and I contrast this with say the leasing of natural resources, of oil and gas and offshore wind, where the process is really much less open for stakeholder engagement, and so I think we've got to see the positives that we have here, in terms of the opportunities for involvement, and then say where, in those already available opportunities, are we missing things, and I think that's the thing, and so, maybe if we think about all the things that already exist, which ones could be improved, because there's a lot -- I think there is a lot already there in this process, and so I don't think we're -- I think, while trust may be low now, we're gaining that feedback, which is actually a good step, and so thanks.

MS. DUKES: Jennifer, this is very insightful. Thank you very much, and my opinion is that these two reports, both you and what Rick have been able to do, has really been able to quantify a lot of what the council has been hearing from an anecdotal perspective, and, when I hear, and see, getting almost smacked in the face, the trust issue, it kind of makes me look at John's comment and say, although the council process is very transparent, and there are opportunities for engagement, if the constituents don't trust us, they're not going to engage, and so, to me, this is a validation opportunity for us to say, man, we hear you, and we want to gain your trust.

I think this council is already moving in those directions, with the conversations we're having with our constituents, and I think this next opportunity for -- Not stakeholder engagement meetings, but whatever the name is that going to come up with it, is a next-step opportunity for us to really be able to engage, because we've got to build that trust back, to get people back in the door, to get re-engaged with us, so that they can be a part of this process, moving forward. Thank you.

DR. SWEENEY-TOOKES: I think that you've both nailed that right on the head, that this is just showing you how to improve from here, and what this can look like, and steps are already being made.

MS. MARHEFKA: Okay. If I don't see any other questions, we're going to move on to our program evaluation, and overview, and I'm going to hand things over to Julia. Let's take a five-minute recess, and we'll come back. Thanks.

(Whereupon, a recess was taken.)

MS. MARHEFKA: If everyone can start thinking about heading back to the table, please. We're in the final stretch. No dinner until we finish this. All right, and we're going to reconvene the Citizen Science Committee, and I'm going to hand it over to Julia, where we're going to talk about our program evaluation and come up with some recommendations for the future.

MS. BYRD: All right, and so I first just wanted to really thank Jennifer and Rick for their work. I think there was limited funding, there was limited time for them to do this kind of survey and interview work, and I think it's pretty amazing all that they were able to accomplish with the resources we had, and I think the information they gathered will be really helpful for our citizen science program, but I think it will be really helpful for the council in general, too.

I think some of you guys kind of already alluded to this, but some of kind of what Jennifer's presentation was was a lot of tough love, right, and so, when you read kind of the -- Or kind of hear the results about trust, and things like that, that can be kind of tough to hear, but I was also really excited from some of the information that they found out through their interviews, too.

I think there's a lot of opportunity for citizen science, even though people that they -- Fishermen that they talk to kind of distrust the system, but there was still a lot of interest, and a lot of kind of positive motivations for kind of citizen science-related work, and so, although I think -- Some of you called it sobering, and I've been calling it tough love in this research, I think there's a lot of opportunity coming out from it, and I think there's a lot of things that we're already doing in the citizen science program, where we're trying to address some of the findings that they've had, but I

think their research will help us better refine what we're doing to try to address some of the issues they identified.

What I'm planning to do now is I've just pulled up Attachment 1f under the Citizen Science Committee, and I first just wanted to share a couple of resources we put together. I'm not going to go over them kind of in great detail, but I just wanted to let you guys know they were there, and your kind of resources that you can use when you're having this discussion, and then I really want to focus on some of the recommendations that our Citizen Science Operations Committee made that I want to share and get feedback from on you guys.

When we first got kind of the information, and the final reports, from Jennifer and Rick, it was a lot of information all at once, and we were trying to figure out how we could apply their findings to our program. We wanted to think more about kind of comparing the findings between the two kind of efforts and trying to find common themes.

When you look in this table, Table 1, which is in Attachment f, we kind of tried to do a comparison of some of the key findings from Rick's work with scientists and managers and then Jennifer and her team's work from fishermen, and so comparing the study populations, the respondents, the methods, their familiarity with citizen science, trust issues, that sort of thing, and so this is kind of like a cheat-sheet to help you get kind of the key findings from their work, and council staff kind of pulled this together as a way to help us digest the information.

Scrolling down to Tables kind of 2 and 3, I think Jennifer and Rick did a great job kind of covering the trust issues that were kind of brought up during their work, but, again, this kind of summarizes some of the key trust issues described by their work that you can refer to, and then this last page is one of the ones that I wanted to kind of share with you guys. I'm going to make this a little bit smaller, just so you can see the tables all at once.

Both Jennifer and Rick went over this, but what they did -- What Rick did, for the kind of scientist and manager -- For the scientist and manager survey, he asked the scientists, and the managers, what topics they thought would provide the most useful data to the citizen science program, using kind of a citizen science approach. Then Jennifer, through her team's work, asked fishermen what their willingness was to participate in different citizen science activities.

The activities they provided, or the topics they provided, were based on our research recommendations, our citizen science research recommendations that you guys update every two years, and so we tried to summarize this in a table form. Sorry, guys, for popping around, and so what I did is you can see Table A, Table B, Table C, and what Table A does is it kind of ranks -- It shows you the ranking of what scientists and managers thought would be the most useful citizen science data that would be collected. B shows the willingness of fishermen to participate in different citizen science activities by sector. C shows fishermen willingness to participate in these same activities by region, and so I tried to color-code everything.

If you see kind of this purple color is recording discard information, and that purple color kind of follows through each of the tables, so you can quickly look at kind of how the different research priorities fall out between the different groups. When you're looking at the fishermen tables, if you're looking down a table, by column, you can see that some topics have asterisks beside them, or carets beside them, and that basically means that the percent of fishermen who said they were

willing to do that were the same between those two asterisk items in that column, if that makes sense.

This is just our first take at trying to digest the information about what topics may be good for us to kind of pursue for citizen science projects, trying to find kind of that balance between what the scientists and managers are saying and what the fishermen are willing to do, and so, again, providing this kind of as a resource, and I'm going to move on and talk about some of the key findings.

Let me blow this back up, so you all can read it, and so our Citizen Science Operations Committee met at the end of October, and Jennifer and Rick did these presentations for them, and so they provided some recommendations overall to the program of how we can take what we've learned through Jennifer and Rick's findings and adapt it to our program.

They provided some kind of general findings, and then specifically dug into each of the key findings from Rick and Jennifer's report, and so what I wanted to do was quickly kind of give an overview of their general findings, and overall recommendations, and then dig into Jennifer's key findings, to tell you guys a little bit about some of the work we're already doing to help address some of those issues that she identified, and then talk a little bit about kind of future activities that the operations team recommended we pursue.

When we talk about that, I think it's helpful for you guys to help us prioritize which of those activities you think are most important for us to focus on, and so, first, to just talk a little bit about kind of the overall recommendations from the operations kind of advisory group, is, in general, the group is really impressed, and supportive, of the work that Rick and Jennifer did and of their recommendations coming out of their key findings.

The operations group noted that our program is already doing many activities that overlap with these recommendations, and they suggested additional efforts, and activities, that we can do as a citizen science program, but also as a broader council, to help address some of those issues that were raised through their work.

I think Amy mentioned this earlier, but these findings have really helped kind of quantify the concerns we've been hearing from stakeholders, and they really do a good job articulating some of the challenges for citizen science projects in the kind of marine fisheries world, but it also -- Again, I think it highlighted a lot of opportunities for our program, and I think the operations committee felt that our citizen science program, and the work we're doing, could help kind of chip away at some of those issues identified through this research and help kind of build relationships and work to help build trust.

Speaking of trust, another thing that the group noticed is that, you know, working through these trust issues isn't something that the citizen science program can do alone. It's a big issue. Our program doesn't work in a vacuum, and so I think the trust issue is going to require work on a much broader scale by the council, and our kind of wider fisheries community, to be able to kind of address that, and so I think, for our program, it's important for us to be aware of and acknowledge that dynamic when we're doing our work.

I also, again, think it's a big opportunity, and I think our program could maybe help start to address some of these trust issues, and hopefully encourage participation in not only our projects, but the broader council process.

In general, the committee felt that -- They recommended kind of continuing our overall program approach, and following our goals and objectives, and encouraged us to kind of use Jennifer and Rick's findings to help us further refine and focus our efforts, and I think this was mentioned by Jennifer and Rick, and by you guys already, but they supported doing similar research to this in the future, kind of after some of the data we've collected through our projects have been used, or considered for use, in assessment and management, and to do the same kind of survey and interview work again, to see if any of the perceptions and attitudes and opinions have changed over time.

The next thing I'm going to do is quickly walk through some of their key findings and some of the work we're doing, and, while I go through this, I guess there's two kind of -- I say discussion questions, but things to think about that we're hoping to get feedback from you guys on in this discussion, and so, I guess, in general, do you support the recommendations I'm going to go over that the operations committee developed, and we would be interested if you think there are additional ways the citizen science program could be refined, based on Jennifer and Rick's research efforts.

Then, again, helping with prioritizing our work, and so, you know, we're a small team. We're a mighty team, but having an idea of what you guys feel would be most important for us to focus on would be really helpful, and so what I'm going to do is going to show you a series of tables, and hopefully these tables are on your screen.

I'm going to make this just a little smaller, but, basically, what they do is we were trying to figure out a way to visualize kind of what the program is already doing and which of the key issues that Jennifer's project identified we were helping to address, and so, at the top of these pages, you can see kind of the key findings from Jennifer's team's work at the top. Fishermen don't feel valued, voices at public hearings don't necessarily represent the fishery, and then you'll see a colored circle underneath.

In the tables that we'll be walking through, there'll be an activity, or an effort, and then you'll see circles to the left of that. Those circles identify which of those key findings we're helping address through those actions. This initial table has the circles that are filled in. If a circle is filled in, that shows that that's an activity that we're already doing in the program. If there's a non-filled, an unfilled-in circle, that's a recommendation for a future activity.

What I'll do is I'll go through, first, the kind of activities that the council is currently doing, and see if you guys have any kind of feedback on that, and then we'll talk a little bit about future activities, and that's where we're hoping to kind of get the most input from you guys on prioritizing kind of our work moving forward.

First off, I think you guys have gotten many presentations on that, but the council has really been doing a concerted effort to increase our outreach initiatives and to build relationships with key stakeholders and organizations within the fishing communities through our outreach for the citizen science program and a lot of our best fishing practices work. We're trying to go into fishing

communities and meet fishermen where they are, tackle shop visits, doing seminars with fishing clubs, going to fishing expos.

We're really trying to partner with other groups, to kind of leverage resources, and extend our reach, and we're really starting to see benefits from this kind of increased outreach. We did a presentation, back in June, that kind of showed you how some of the relationships that a lot of our outreach team, in particular Meg, Ashley, and Greyson have made, and we've seen those relationships grow over time and increase our opportunities for kind of engaging with fishermen in a variety of ways.

I think that increased outreach initiative, that we're already doing, is helping us to address kind of fishermen not being heard or valued. We're going to where they are. We're listening to them. We're giving them opportunities to engage with us that aren't at a council meeting, and, also, we're working to build kind of relationships with a lot of folks in fishing communities, and that relationship building is key to starting to rebuild the trust between the fishermen and the scientists and managers in our region, but I think it's important to acknowledge here that relationship building is a long-term process. It takes time, and so it's important that we continue those efforts, moving forward.

Another activity that we're doing is we're starting to see some fishermen who are engaged in our citizen science projects participating in other council-related activities, and so I know some of our kind of Release participants have come to the Best Fishing Practices MVP workshops that Ashley is doing. We've seen some of our Release participants make public comment for the first time at a council meeting, and so I think the citizen science program, and folks who are getting involved in projects, are encouraged to participate in the council in broader ways.

Then I think this was mentioned earlier, but, a lot of what you guys as a council are doing, you're supporting these broader kind of outreach efforts, like the stakeholder engagement meetings, to be renamed, the port meetings that Christina did, the BFP MVP workshops.

There's lots of different outreach activities that you guys are kind of supporting, and engaging in, that are helping with this kind of issue of fishermen not feeling valued, or heard, by trying to engage people that aren't already engaged in the fishery management process, and that also is helping break down that federal fisheries is a black box, and nobody knows who does what, and so, a lot of those issues, you guys are already doing a lot of work on, and not just with our program, but with the council more broadly.

I think something that we really try to emphasize, when we do communication for folks who are participating in our citizen science program, is we emphasize that we're listening to the fishermen's perspectives and appreciate their participation and knowledge. I can't tell you how much Meg and I have learned about bottom fishing from the folks who've been participating in our Release project, or how much I've learned about the historic fishery from scanning photos with kind of fishing clubs and fishermen throughout the region.

I think we're trying to increase opportunities for those outside of the council network to share ideas with the program. We launched our citizen science project idea portal this year, where anyone can share their citizen science project ideas with us. One of the things we heard, through Jennifer and Rick's findings, is that, you know, it's really key that clear communication, be transparent, and

manage expectations are really critical to the program, and so I think we try to very clearly communicate project goals, what data can or cannot do, potential impacts of the data. We're always trying to keep expectation management front of mind for folks.

There's this issue where fishermen don't necessarily trust the data that are used to make decisions, and so we're really trying to focus our program on supporting projects that fill specific data gaps that meet specific South Atlantic Council research needs, and when we kind of message, and try to recruit different fishermen, or volunteers, for our projects, we're really highlighting this as an opportunity for fishermen to share what they're seeing on the water and to share their knowledge, and their expertise, with us and with the council that's making management decisions.

Just to continue on with some of the kind of activities that we're already kind of doing to address these issues, we regularly communicate with project participants, kind of addressing their questions. I know there are a number of examples that I can think of. There's one fisherman in particular who has become a pretty avid user of our kind of SciFish app for our Release project.

He's reached out to Meg a ton over the past couple of months, asking questions about red snapper, about the management process, and so I think, these regular communications we're having with participants, were hopefully helping kind of communicate and break down that black box of federal fisheries management, and we're encouraging people not just to participate in our projects, but in broader council engagement.

I think one of the trickiest things that came out of Jennifer's findings is this power dynamic in marine fisheries citizen science. The fishermen are participating in our project, or providing data, that could affect their fishing activities, and it's really challenging to figure out how best to address that issue, other than to acknowledge it, and we know that that influences kind of motivations and increases barriers for participation, and so we try to think about that when we're trying to determine which projects our program should pursue.

We think a lot about projects, and try to focus projects that have different audiences, and so, right now, we have a project with fishermen, one with divers and one with a broader public, to try to figure out which audience may work best for our program, and then the last thing I wanted to say, in terms of things that we're doing, is Jennifer and her team provided a lot of suggestions for what we needed to focus on when we're developing citizen science projects, based on what they heard from fishermen, and I think there are a lot of things that we're doing already to try to help address those issues.

Kind of our overall program's approach is that we're trying to support projects that are helping fill data gaps. We don't want to collect data that's duplicative and that's being collected in other data sources. We're really trying to complement existing data sources.

We really want to have intentional project design, and so we heard, loud and clear from fishermen, from the very first workshop we had, if they want to provide data, they want it to be kind of considered for use in management, and so we're thinking about that, from the project idea all the way through the project implementation, and one thing we're really encouraging is the use of design teams is what we call them, but what it is is it's a workgroup, when we develop a project, where fishermen and scientists are working together to develop that project, and so it's really trying to include the fishermen and the scientists, who you're hoping to use the data, in the whole process.

I think one of the other things that we find challenging, based on some of the findings from this work, is you're trying to select projects that are a win-win, and have no risk to fishermen, and I think that's really challenging, and difficult, for us to do. We're trying to make sure our projects are filling data gaps, and we want the data to be used in decision-making, but we often don't know what the outcome or impact of a project can be, and so we try to be very clear and communicate that to fishermen when they're participating in a project.

A lot of times we don't know what the data are going to look like until they're collected, and so I think we try to prioritize projects that are of interest to fishermen, and scientists, and managers, but I think it's very hard to have a project that's no risk, and so that's just a little information on kind of all that we're already doing to try to address some of the issues that Jennifer brought up.

The next thing I wanted to do, and where I'm hoping to get a lot of feedback from you guys, is future efforts that the program can do to help address some of these issues. Again, it's the same kind of table you'll see at the top, the key findings from Jennifer and her team, and so then we'll go through these kind of future program activities, and you can see, on the side, which key finding it helps address.

A lot of the recommendations that the operations committee provided did deal with this issue of fishermen not being valued or heard, or not feeling like they're being valued or heard, and so one of the things that the operations committee said that it was really important to do is to formally acknowledge this trust issue between stakeholders, and it's not just that fishermen feel this distrust. Through Rick's work, we found that scientists and managers recognize this distrust, and recognize that fishermen do not feel heard, and so I think it's just important to kind of make a formal acknowledgement of that.

They also thought it was important to acknowledge the experience and knowledge of fishermen and think about how citizen science can help turn their knowledge into data streams that can be used to make management decisions.

Folks also recommended that not only is important to demonstrate what the citizen science program has done, but also to personalize the program's story and talk about how projects came to fruition, and try to not only share results, but to tie the program back to stakeholders, and to really try to view the projects, and the project ideas, through the lens of this research, and so how do our projects amplify fishermen's voices being heard?

This is something that I think kind of has been hit on already, but the operations committee felt that it was critically important to continue investment in the outreach initiatives that the council is doing in fishing communities, and that would address kind of many of the -- Help address many of the issues that Jennifer's team identified.

Some other ideas that they recommended to kind of acknowledge that fishermen's viewpoints aren't necessarily -- Or don't feel like they're being heard is to -- When we're doing communication, through the council's platforms, is to acknowledge the fishermen's viewpoints. When describing rationale for a management decision, or something like that, I think it's okay to acknowledge that a decision may be made that didn't agree with all of the fishermen's viewpoints, but to kind of

acknowledge those viewpoints and then provide information on why the rationale to make that decision was made.

I think John Walter hit on this earlier, but he noted that the council process kind of offered many opportunities for stakeholder engagement. That's something that was brought up by our operations committee too, and they suggested it could be helpful to quantify the opportunities for engagement and summarize those. in kind of an annual engagement statistic, or annual engagement information, trying to quantify the number of people who were engaged within the council process per sector, per state, per engagement type and to try to share that information, because some people may not know that there are a lot of opportunities for engagement within the council process.

Many stakeholders, they also found, don't know kind of the limitations of what actions the council can take, and so I think this goes back to some of this fisheries management being a black box, and so it may be helpful to develop messaging and outreach products that can help describe kind of fisheries management 101, or kind of Magnuson-Stevens 101, and managing expectations is critical.

I think this has come up a little bit earlier, during the stakeholder engagement discussion, but, a lot of times, the public, and the fishermen, notice that the council is using older data for management decisions, and that may not match what fishermen are seeing on the water, and so it's important to develop kind of communication, and messaging, kind of explaining the limitations of the data that the council is using to make decisions.

I think they also noted that it's important to not just highlight negative things, but to highlight positive things. There's been some work with folks at NOAA, led by Laura Oremland, who kind of highlighted how citizen science data have been used in assessment nationally, and to kind of highlight those good results in communication and messaging as well.

To help address the issue of voices not being heard at -- Voices at public hearings not representing the fishery, and this is something that was brought up during the stakeholder engagement discussion as well, but council meeting locations impact participation, and engagement, and so we need to be cognizant of that when selecting meeting locations.

Project selection is really important, and trying to support win-win projects is something that the operations committee found would be key. They also noted that, as Jennifer's team found, it may be helpful to focus on the recreational sector, for some of our citizen science projects, as that level -- That sector had the highest levels of trust, and, through the research that Jennifer did, and that recreational sector also has many kind of data challenges, and, in trying to address some of the trust issues, they also suggested the use of program ambassadors.

I think we've been really lucky to have several people, some of whom are sitting around this table, be ambassadors for our program, and I think, a lot of times, fishermen communicating directly to one another can mean more, and the message will be heard more than it coming from us as a regulatory agency.

I'm going to go ahead and skip down a little bit to some of the issues down here, of some of the recommendations down here. To address this federal fisheries management being a black box, the council, or, I mean, the operations committee suggested hosting mini seminars, where you can go

over fisheries management issues, or create videos to share on these topics, and they also acknowledged that putting together kind of management 101 information and materials would be helpful.

I think this is something that we're going to try to address through the stakeholder engagement meetings, to address this power dynamic issue. The committee felt that it would be helpful to use that as our criteria when deciding if a project is a good fit for a citizen science program, and just acknowledging this power dynamic can help demonstrate that these fishermen's views are being listened to, and we're trying to address them.

I think one of the things that I kind of took away, or the group took away, from Jennifer's research too is to really think about the audience when you're developing a project. Jennifer mentioned this when she kinds of suggested that working with commercial and for-hire fishermen are more pro bono. They're out on the water to do a job, and so they suggested we need to keep that in mind, when developing projects to work with those sectors, and so perhaps focusing projects with these sectors on more passive data collection efforts, and so putting a data logger on a net, where you can just kind of set it and forget it, may be better, when focusing with the commercial and for-hire sectors.

The group suggested using kind of the findings from this research on what research topics are important to fishermen and managers, not only to help us identify projects to pursue, but to help identify our target audiences for those projects.

I think other recommendations from the group, to help us address program design issues, is looking for those areas where fishermen and scientists' interests overlap and constantly make sure that we're thinking about transparency, and expectation management, as we develop and pursue projects.

That's a lot of information all at once, and I feel like I was talking very quickly to you guys, but what I want to get feedback from you on is, one, do you think these recommendations, and these activities, that the operations committee is recommending the program consider moving forward are things you agree with? Are there certain ones that you think we should make a higher priority than others? Are there things not on this list that we should help to pursue to address some of the needs and issues that Jennifer's findings found for the program?

What I'm hoping to do is get a little feedback from you guys on which of these may be most important for us to pursue. If you think some of them we shouldn't pursue, that would be good to know. If there's something not on this list that you think we should pursue, we would be all ears. Thank you Madam Chair.

MS. MARHEFKA: Charlie.

MR. PHILLIPS: Thank you, Madam Chair. You know, I keep thinking about the black box, and, you know, I've known Jennifer a long time, and I talked to her in the hall. She said one of the fishermen was complaining that they catch red snapper in the Gulf of Mexico, and they can't catch them over here, and they don't understand why. They don't know the difference between the management areas.

I look at the bars on sharks as high, and we don't control sharks. I mean, should we be trying to further educate people on who they really need to talk to about some of these things? If they want to talk about sharks, we can talk about it, but we can't control it, but they can talk to HMS, or they can talk to their congressman that outlawed to ban on shark fin sales, which made it harder for commercial guys to catch sharks, or whatever, or the NGOs that told people not to eat shark meat.

I mean, how far do we want to go, and what would be practical, and useful, for the stakeholders? I think they can make -- If they really know what dots connect to what, then they can know who to talk to about a particular problem, and, if it's red snapper, yes, we own it. I hate to say it, but we own it, but some of this other stuff we really don't own, and, if we can help them direct their energies, you know, in a more constructive manner, should we be trying to do that? Just a question.

MS. BYRD: What I'll say -- So it sounds like there is maybe some interest in helping to develop, or distribute, this management 101, or council 101, federal fisheries management 101, kind of information, and I think expand what's available and to try to help folks understand the lay of the land, so to speak. I think that's something that came up from our operations committee. That's something that's come up through the stakeholder engagement meetings. I think that's something that the citizen science program can help with, but it's not necessarily completely under our purview. If that's something that the council feels like is a priority, that's something that we can work on within our program, and maybe we can work on within kind of the greater kind of council outreach group.

MS. MARHEFKA: Yes, and I love the concept of sort of like a rapid MREP. I mean, MREP is that, right, but it's very hard for people. It's been so successful, but it's a week, you know, and so I love the concept of that. I have Judy, and then Carolyn.

MS. HELMEY: Well, I was -- What Charlie was saying is a great idea, because a lot of people -- They don't know what to do or who to contact for information. If we could give them like the information for dummies, and I don't mean calling them dummies, but, you know, the dummies book will give you all the information in layman terms, and that might give the stakeholders a lot more opportunity on what they could do to get the information. You know, like he said, if you need to talk about charts, who do you talk to? Do you call your congressman, or what do you do, the options that they would have, so that we get some movement from them.

MS. BYRD: Yes, and I think another thing that I'll just say, to kind of give kudos to some of our kind of outreach boots-on-the-ground folks, Meg and Ashley and Greyson, when they're going out to tackle shops, and talking to folks, they have cards of everybody in the office, or contact information for HMS, or other folks, so, when people have questions, they can say I'm not the right person, and so here's the person that you need to contact, and so some of that work is already being done, but it sounds like developing some outreach products to kind of help with that information might be important.

MS. MARHEFKA: Carolyn, then Andy.

DR. BELCHER: As I was looking through your list, especially like Table 6, I was kind of focusing on the fact of which of these are getting you the more bang for your buck, right, and so you've got those things like critically important to continue investment and outreach initiatives in the community, and so it's putting into the best fishing practices, the stakeholder engagements, and so,

to me, it seems like some of the other ones that you proposed further down, that are in the blues and the purples, that somehow -- Is there a way that you could further collapse those into what is beneficial in-person, versus something that's a resource that's available, and like you're talking about mini-seminars, and things like that, and does it have to be done in-person, or can it be done as a webinar, like we've done with our professional webinars, and so is there a way to kind of capture some of those, to figure out where you would put your manpower into -- Again, it's low-hanging fruit, as Charlie is saying, because it seems like there's a lot of opportunity to hit your areas, especially where the fishermen do not feel valued or heard.

There's a lot of gold open circles, that is just curious to me. Can you kind of bring them up into another level, where you might, again, get more circles, and address more things at one time, and then just figure out what the vector is? That would be one suggestion, but I -- Regionally, I had the same thing, was that understanding the shark depredation is a huge issue, and we know it goes around into the Gulf Coast and all of that too, but, again, having the -- Is there a way to do a global CitSci at that point, because it's going to be bigger than just HMS, right, because HMS can do it, but we're going to be in a situation where you're doing it in a vacuum, because HMS is doing an HMS perspective, and then the council could be doing its own perspective, and then the question is how are we matching up?

It almost feels like some overarching larger group, and kind of like they did a shark summit, a number of years ago, in Florida, when the shark attacks were kind of making the news, in the early 2000s, and they brought all these people together to talk about shark attacks, and educating people on shark attacks, and so maybe the depredation would be a bigger CitSci summit and what would be a good CitSci project that would get the global scope of what's going on with sharks, and see what could be done that way.

MS. BYRD: So I guess I'll address kind of what you first said, Carolyn, is, you know, where can we get our biggest bang for the buck, and where can we get the most circles under one of these activities, and I think, when you look at all of the tables, one of the places where we get the biggest bang for our activities are boots-on-the-ground activities, when we're going and we're doing kind of outreach in communities.

I think, by investing, and continuing to pursue some of those outreach activities, we're going to be able to fold many of these gold circles, the fishermen can't be heard, and so acknowledging some of the trust issues, acknowledging the experience and the knowledge of fishermen, and a lot of those things I think can be wrapped into some of the outreach initiatives we're already doing and some of the work that the council will be doing in the upcoming year with the stakeholder engagement meetings, and so, to me, a lot of -- I think it is critically important for us to address these trust issues.

I think the -- So, when I'm looking at Jennifer's kind of key findings, along the top, I think the fishermen don't feel valued, that people at public hearings don't necessarily represent the fishery, these trust issues, and these are all things that are critically important, not just for the citizen science program, but for the council in general, and I think a lot of that, and a lot of the activities that have been identified underneath, we can roll into some of our in-person outreach, but I think it's -- We can also roll that into some of our kind of communication and outreach.

I guess that's my kind of comment on getting bang for your buck, and then the shark depredation issue, and I guess it's shark and mammal depredation issue, that has come up, and it has come up a lot. It's of interest to fishermen, and, again, you know, I don't know that the council is the right program to house a project like that, because we don't manage sharks, but there are many people who are interested in citizen science projects for shark depredation.

I think one of the key things, when thinking about that, is how will data be used. When we've talked to fishermen in our program, we want to know how data will be used, and so, if you were to collect shark depredation data, then what do you do with it, and so I think it's an issue. It's a hot topic. There's lots of entities that need to be involved. We may be able to help facilitate some of those discussions, but I don't know that we're the right entity to like run a program like that.

DR. BELCHER: Yes, and so, basically, you just said exactly what I was trying to say, and probably didn't articulate it well, because that was exactly where I was going. I was just thinking about, again, where we are with permits. HMS has got its thing going on, and we've got SEFHIER, and we've got GARFO, and we've got all these things that are designed to do the same thing, but we're all doing it very differently, and frustrating people, because none of them line up well, or not as well as they should, and I'll put it that way, and so, similarly, with this, it's recognizing it's a much larger problem.

It's not going to be solved by us, but we don't want people being frustrated with us, thinking that we're just not listening to what they're saying. It's just that we're not the right body, but knowing that our -- Again, I'm putting this kudos to you. Our CitSci, in my opinion, is ahead of everybody else, and, you know, if that's tooting it too much, then somebody can come kick me later, off the record, but I really do think that you guys have done a lot, and the fact that it would be nice to know that there would be our presence, recognizing our folks are asking for help with this problem, and helping get to the right body, but making sure that the right body is guided in a way that -- Don't make the pitfalls that we did.

Avoid the pitfalls, and we're here to help you guide those. We're not going to tell you the process, but we're here to help, as you said, facilitate it. I really do think that -- Like I said, put the feather in your hat, and go forward and try to at least be the facilitator, to make sure that we're getting something that's just not adding more frustration to that problem.

MS. MARHEFKA: Thank you. Andy.

MR. STRELCHECK: Great conversation. I appreciated the comments about, you know, bang for your buck, and, you know, one of the things I guess I was thinking about, kind of going through this list, is we can all sit around here and potentially come up with a priority list, and think that's kind of what's going to get the greatest big bang for our buck, but that might not be where the industry or stakeholders are at, right, and it could be a very different perspective, depending on where you sit, or how you participate in the process.

You know, there's some things in here that I feel like are easy, kind of low-hanging fruit, but maybe not a lot of bang for the buck, like encouraging participation in MREP. That's a great program. We run thirty or forty people through that program every year, right, and it's a small opportunity that has a big payoff for those who go through that program.

Things that resonated with me, and I really liked, is really trying to convey how is the citizen science being used, right, and these are the programs that we've run, and collected data on, and this is actually how it was implemented and used for science or management, right, and there was comments, you know, about distrust, like managers did not use my input, when I came and gave public testimony, right, and so how often do we hear public testimony about things that we can't do, because we're mandated, by law, to do certain activities, but there's a lot of examples where we've changed our preferred alternatives and we have made, you know, decisions based on public input.

Figuring out how we can convey where we have utilized public input, and really listened to stakeholders, I think is really important, and, you know, then this is where I think the line blurs, for me, between citizen science and kind of outreach and education, which it all merges together.

We're in a day and age, as you well know, where everyone lives by Twitter messages and soundbites and Instagram, and, you know, one-minute videos, right, and so, to me, I'm thinking, I'm not, obviously, in a space where I'm involved in a lot of that, that that is probably an avenue we need to pursue a lot more of, in terms of how we communicate out information, is in those short kind of snippets and information. I realize education takes a lot more than that, but there might be at least a little bit broader audience, and a little bit faster uptake of information, that can be passed along, and so just a suggestion.

MS. MARHEFKA: Thanks. So, Julia, we always run up against this, don't we? This little clock always gets us. I'm trying to figure out the best way to get you what is going to be most useful in the period of time we have left. I think we're all passionate about this, and could talk about this forever. I have like ten questions I want to ask, or ten things I want to point out, but how can we really be succinct to give you what you need?

MS. BYRD: I think what would be helpful for this is -- You know, thank you for the suggestions you've already made about what you kind of think are kind of key priorities for us to work on, and where we can get some bang for the buck, and so I think what might be helpful for -- I guess we have fifteen minutes to cover a lot of ground.

If there are specific activities, or I'm thinking of -- So, if they're specific -- At the top of this chart, you can see the different colored circles, and they're kind of addressing different issues that Jennifer identified. If there are certain issues that you feel are the highest priority for us to address, that would be helpful to know. Underneath, then we have a lot of activities that we can try to use to address those issues. I'm thinking that may be the easiest way to get feedback from you guys, in a very short amount of time.

What I can also think would be helpful is, if you guys agree with the recommendations, and the activities that the operations committee suggested that we pursue, that would be good to know, and then, if none of these are -- You know, if all of them are a high priority for you, you can say we defer to you, council staff, to kind of tackle these as you're able, based on the capacity you have, and so those are the kind of discussions, or kind of information, that I think would be helpful at this point.

MS. MARHEFKA: Great, and I'm sorry to put you on the spot, because there's so much good information there. I will speak for myself, personally, quickly, in that I did have the luxury of --

Amy and I were able to sit in on the Citizen Science Operations Committee. It is a body of experts who had the privilege of time to really delve into this, and so, in my mind, I have no problem accepting their recommendations as advisors to us, but I am going to -- That's just me summarizing my feelings. I'm going to look to the committee to hear -- I'm seeing lots of thumbs-up and yeses. I'm seeing a lot of those.

Now, it's easy to say we accept them all. Then the next question is prioritizing them all. Does anyone have strong feelings on areas of prioritization? Do you want to put it in the hands of our small but mighty team? Jimmy, I see your hand raised.

MR. HULL: Thank you. I was just going to say to try -- To help answer some of those, all of these program efforts for consideration I agree with are very important, and most of them you're already tackling, to different degrees. I mean, you're way ahead of the curve. It's just a matter of time before you reach success for a lot of them, but, for me, the federal fisheries management is a black box.

It's very important, and they need to understand much further what we're dealing with here, and the other two greens. They're skeptical of the science, and they deeply distrust management. They need outreach and education on those, but, again, all those efforts for consideration will cover that, and you're already doing them. I mean, you're well on your way to these, and, in these future meetings that we have, you'll be able to maybe address further, and spend a few more minutes on them, and develop outreach in that effort way. Thanks.

MS. MARHEFKA: Amy.

MS. DUKES: Thank you, Madam Chair, and I will just echo briefly that the recommendations from the very passionate Citizen Science Operations Committee is beyond evident, not only in that room, but also in these documents. It's very thorough. It's very complete, and I agree with everything that has been said around the table.

I think taking some of these priorities and lumping them up, figuring out ways to make those connections, would be something that we could maybe task for staff, as well as the actual committee, to mold them a little bit together, and I think just this idea of the program team, or the design team, and making sure that the scientists are working with the fishermen to develop any of our future projects is really important, and I think that's a way for us to perhaps use citizen science to build upon our weak relationships that we have, and it's all connected. It's not one path or another.

They all come full circle, and I think it will hit on a lot of those trust issues, if we bring them into the fold with us a little bit, and I just wanted to commend you and your team, and we fully support what the Operations Committee is doing. You guys are obviously doing a great job, and we can't wait to see what's coming down the pipes from you guys.

MS. MARHEFKA: Carolyn.

DR. BELCHER: I kind of have a question that crosses over into the stakeholder group, too. It says three council members. The assumption is it's the three council members within that state. I would argue maybe we need to talk about whether or not we can have folks from the Science

Center, because, again, you've got a state representative in that group. You've got a voice for commercial, recreational, or however we're defining those now, but we're -- We have those interactions, but there's a lot of times that the NOAA group isn't always present at that table, and I think that would be beneficial.

I mean, I understand timing, and I understand locality and all of that, but it just seems like that's part of that partnership that's not represented when we do these things. I'm just thinking building the trust part of it, if that's -- Again, it's to both of you all, on how you want to take that into account.

MS. MARHEFKA: Thanks, Carolyn. I see John Sanchez's hand raised.

MR. SANCHEZ: Thank you, and I might add too -- I don't know if it was mentioned. I had to step out a minute, but we do have a lot of opportunity now, because I'm sympathetic that some people can't always make it to a meeting. They've got their day-to-day, you know, family commitments, and work, and what have you, but we do offer now, ever since COVID, more than ever, the opportunity to testify virtually and to participate and watch the meetings virtually.

I'm here to tell you, after following this process for, I don't know, thirty years or so, it works, if you work it, and, if you feel that you're being disenfranchised, or you're not happy about a regulation, many a time, as Andy had mentioned, I have seen the council sway their testimony, and their direction, their position on an action item, based on a lot of public testimony, and so it is a system that works if you work it, and it's very simple. If you're not at the table, if you're not present, you're on the menu. I mean, that's just how it is.

MS. MARHEFKA: Well put. Any other comments? I had one real quick one, if I may. I wonder if there's any utility -- So much of this is overlap with outreach, and I wonder if there's utility in having, whether it's Jennifer and Rick's entire presentation, or just Jennifer's presentation, or a summary of that, given to the Outreach AP at their next meeting, because using their expertise to solve some of these problems, too. The more brains, the better. I mean, there's scientist people, and there's managers, and then there's people whose expertise is outreach, and we have them, and so I wonder if we just shouldn't use them.

MS. BYRD: I will say I think that's a great idea, and I also think -- We have two citizen science advisory groups. One is our Operations Committee, and one is our kind of Projects Advisory Committee. The Projects Advisory Committee is made up of a group of representatives from all the other different APs, and a lot of those folks are fishermen, and so I think -- I haven't asked Jennifer this yet, but I would love for her to present to that group, and a lot of these --

Many of these issues are kind of driven by kind of communication and outreach with fishermen and communities, and there are a lot of fishermen on that group, and so I think they would be able to provide some good insight, now that we have these recommendations, and how do we actually do them on the ground, in a way that fishermen will respond to, and so I think that's another group that may be helpful to kind of share this information with.

I want to do a quick kind of recap of what I took in, to make sure that it matches what you guys have said. So, in general, you guys agreed with all the recommendations from the Operations Committee to continue kind of the work we're doing and to try to kind of accomplish and tackle

some of these future efforts to address kind of the issues that were raised through Jennifer and Rick's work.

Some of the issues that I heard were a priority, which the citizen science program can work to tackle, but we'll have to work with a broader group within the council's outreach team, are to address this federal fisheries management as a black box kind of issue, and then these trust issues, and a lot of those trust issues are driven by a lot of the outreach that we do and fishermen not feeling their voices kind of heard, and the skepticism of the science, and so being able to clearly communicate, through our citizen science program, how the data we are collecting will be considered for use, and then, on a broader council scale, to try to make sure to communicate when fishermen's comments, or engagement, has changed, or refined, kind of a management action, that sort of thing.

That's, in general, what I -- Kind of some of the key points that I took out of the conversation, and I want to make sure that that resonates with you all as kind of what you were communicating, what I should have heard and taken away from the conversation. I see heads nodding. Okay. Great.

MS. MARHEFKA: Unfortunately, we have a little bit of a hard stop, because of our evening activities, but I know one of the things that we can tackle really quickly, which is a little name change, and I hate to rob you of the programmatic update, but it seems -- You can do it fast, but I don't know if you can do it that fast.

MS. BYRD: I'll say there's two other things that I would like to kind of do, and one is just to let you guys know about a very exciting thing that happened at the end of October for the citizen science program, and so, over the past four or five years, ever since Amber ran the program, we've been working really hard to try to get a memorandum of understanding with the Atlantic States Marines Fisheries Commission.

What that will do is it -- The council is really limited in the grants that it can apply for. We're really limited about what funding we can get, and so we've been working to develop this MOU with ASMFC to help expand the opportunities for funding the program may be able to pursue, and so we've been working really hard with Monica and Ann Kersting, who is a lawyer who has been working with her to develop this MOU, to get it through the Department of Commerce, and working very closely with Bob and the Atlantic States, so that now we have an MOU that will allow us to partner with ASMFC.

They'll serve as a co-PI and as the financial partner for grants, and so we'll be able to apply for a large number of grants now, through this MOU with ASMFC, where they will be the financial partner, and we'll just be supporting some of the work on the ground, and I can't tell you -- It sounds boring, but it's super exciting, and it's really going to open a lot of opportunities for the program and one of the things -- There are a lot of things that are challenging with the program, but one of the things that's most challenging is being able to find the resources to do this work.

You know, right now, you guys are funding me, and that's it, and so, in order to get projects up and running, we have to have additional funds, and, to make projects work well, you need a Meg to be running the project. You need people to be running the program, and so having this MOU in place is going to open up a lot of opportunities, I think, and so I just want to give kudos and thanks to Monica and Ann and Bob and all of the folks who've been working on this over the past

several years. It's been a long time coming. It's super exciting, and I think it's going to open a lot of doors for the program, and so kudos to you guys for that. I just wanted to share that with you all.

Then the last thing is easy, I think, and so the citizen science program has two advisory groups, the Citizen Science Operations Committee and the Citizen Science Projects Advisory Committee. When the program was developed, we called those advisory groups committees, and we then realized, several years later, that that may be confusing, because the council has committees, and the council advisory groups typically are called advisory panels, and so we are recommending that the council consider changing the name of the citizen science advisory groups from committees to advisory panels, because that better kind of explains the role of those committees and will cause less confusion, I think, with council committees and citizen science advisory committees. The operations team was in support of that name change, and so we just wanted to run that by you guys, to see if you are comfortable with that, and, if so, we can make it official.

MS. MARHEFKA: I was the dummy that couldn't differentiate them. I'm seeing all heads nodding in the affirmative, and so --

MS. BYRD: All right, and then the last couple of things I'll say is I know we don't have time to do everything and cover everything we had with the Citizen Science Committee. If you're interested in seeing what we've done to accomplish the goals and objectives that we've set out so far, look at Attachment 1a, b, c, d, e, f, and g, 1g, and, if you have any thoughts or feelings about that, you can get in touch with me, and the other thing I will say too is there's a citizen science update presentation, and that just updates you on some of the projects we have underway.

The last few things I'll mention is, just as a highlight, I want to make sure you guys are aware of there's an upcoming stock assessment for red snapper, and so both our Release data and our FISHstory data will be kind of analyzed and presented to be considered for use in that stock assessment, and so that's kind of a milestone that we're really excited about, and so I just wanted to make sure you guys were aware of that too, but, if anyone has any other questions about the projects that we have going on, just let me know, and I would be happy to address them.

MS. MARHEFKA: Thank you so much, Julia, and the reason you always have to rush is because you're doing so much that it cannot be contained in a committee meeting. That will conclude the Citizen Science Committee.

(Whereupon, the meeting adjourned on December 3 , 2024.)

- - -

Certified By: _____ Date: _____

Transcribed By
Amanda Thomas
January 29, 2025

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

Cit Sci Tue 12/3

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C&S
Tue 12/3

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Cit Sc.
Tue 12/3

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Attendee Report: SAFMC Dec. 2024 Council Meeting (12/2/24 - 12/6/24)

Report Generated:

12/09/2024 09:40 AM EST

Webinar ID	Actual Start Date/Time
887-478-187	12/03/2024 07:31 AM EST

Staff Details

Attended	Interest Rating
Yes	Not applicable for staff

Attendee Details

Last Name	First Name
Allen	Shanae
Atkinson	Seth
Baker	Scott
Barile	Peter
Barrows	Katline
Beal	Bob
Bianchi	Alan
Bogdan	Jennifer
Bonney	Rick
Brennan	Ken
Brouwer	Myra
Bubley	Walter
Bunting	Matthew
Byrd	Julia
Calay	Shannon
Cermak	Bridget
Clinton	Haley
Coffill-Rivera	Manuel
Curtis	Judd
DeVictor	Rick
Dover	Miles
Dukes	Amy
Dyar	Ben
Feller	Skip
Finch	Margaret
Floyd	Brad
Foor	Brandon
Foss	Kristin

Garber	Chip
Gentner	BRAD
Glazier	Edward
Gore	Karla
Green	Matthew
Guyas	Martha
Hadley	John
Helmey	Judy
Hemilright	Dewey
Hiers	Homer
Howington	Kathleen
Hull	Jimmy
Iberle	Allie
Iverson	Kim
Kalinowsky	Chris
Keppler	Blaik
Kimmel	Courtney
Klasnick	01Kelly
Klibansky	Lara
Knowlton	Kathy
Kolmos	Kevin
Lazarre	Dominique
Lee	Jennifer
Lee	Max
Lenox	Scott
Leone	Melissa
Long	Stephen
M Borland	Gary
MCCLAIR	GENINE
Marhefka	00Kerry
Markwith	Anne
Martin	Rob
Mason	Gina
McWaters	Mark
Meehan	Sean
Mehta	Nikhil
Meyers	S
Miller	Andrew
Miller	Shana
Murphey	Trish
Newman	Thomas
O'Malley	Rachel
Oliver	Ashley
Ott	Emily

Package-Ward	Christina
Paskiewicz	James
Patten	Willow
Perkinson	Matt
Peterson	Cassidy
Phillips	Charlie
Poholek	Ariel
Poland	Stephen
Reichert	Marcel
Roller	00Tom
Runde	Brendan
SCHLICK	CJ
Salmon	Brandi
Seward	McLean
Shipman	Thomas
Silvas	Rachael
Sinkus	Wiley
Smarrito	Mike
Smillie	Nick
Spottswood	Robert
Spurgin	Kali
Sramek	Mark
Stemle	Adam
Stephen	Jessica
Stephens	Haley
Stephens	Haley
Sweetman	CJ
Vecchio	Julie
Vincent	Matthew
Waldo	Jennifer
Walia	Matt
Walsh	Mick
Walsh	Jason
Walter	John
Wamer	David
Weaver	ALWTRT -- Sierra
White	Geoff
Willis	Michelle
Withers	Meg
Yandle	Tracy
Zapf	Daniel
collier	chip
gloeckner	david
griner	tim

sandorf	scott
thomas	suz
Alhale	Sydney
Bauer	Tracey
Beyea	Taylor
Cox	Jack
Cross	Tiffanie
Crosson	Scott
Curtis	Joe
Cvach	Sarah
Delrosario	Leeanne
Didden	Jason
Dobbs	Jeffrey
Fitz-Gerald	Claire
Franco	Crystal
Gahm	Meghan
Gamboa-Salazar	Keilin
Griner	00Tim
Gwin	earl sonny
Harker	John
Helies	Frank
Hollensead	Lisa
Hordyk	Adrian
Howell	Mary
Kellison	Todd
Lam	Sarah
Malinowski	Richard
Masi	Michelle
Mathews	Joe
Matter	Vivian
Ostroff	Jenny
Pelletier	Claire
Records	David
Reding	Brandon
Sartwell	Tim
Sartwell	Tim
Schlenker	Lela
Sedberry	George
Solinger	Laura
Soltanoff	Carrie
Spanik	Kevin
Stam	Geoff
Stancil	Mackenzie

Vital	Victoria
Waldrep	Megan
Warren	Camilla
Williams	Erik
Willingham	Darrin
carvalho	avelino
moss	david
murphy	allison
zales	bob

Duration	# Registered
9 hours 32 minutes	169

Last Name	First Name
Council	South Atlantic