SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

SOCIAL AND ECONOMIC PANEL

Webinar

February 17, 2026

Transcript

Socio-Economic Panel of the SSC

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Jason Walsh, Vice-Chair
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Dr. Eugene Frimpong
Dr. Kevin Hunt
Dr. Christina Package-Ward
Dr. Adam Stemle
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Attendees and Invited Participants

Observers and Participants

Other observers and participants attached.

The Social and Economic Panel of the South Atlantic Fishery Management Council convened via webinar on February 17, 2026, and was called to order by Dr. Jennifer Sweeney-Tookes.

WELCOME AND INTRODUCTIONS

DR. SWEENEY-TOOKES: Welcome. It is our Tuesday, February 17th Social and Economic Panel webinar meeting. I'm excited to hear about the information on our agenda today, and so, to get started, we always do introductions, and I wanted to just briefly mention that there are two SEP members who are not on the committee anymore at this point, and I wanted to recognize their many years of dedicated service, and all their good work, and that would be Scott Crosson and John Whitehead, and so many thanks to both of you for all of your contributions to the Social and Economic Panel over the years.

We do have one new member, Kathi Kitner, and so I would like to especially welcome her to the panel, and we'll ask her to introduce herself, as well as everyone else on the group, and so, John has a list for us over on the side, I believe, and we'll go in the order he has listed there, and so it looks it's like starting with me. Okay. I am Jennifer Sweeney-Tookes. I'm an Applied Cultural Anthropologist at Georgia Southern University. I am a member of the SSC, and the chair of this Social and Economic Panel. Jason, you are up next.

MR. WALSH: Awesome. My name is Jason Walsh. I'm a fisheries economist for North Carolina Division of Marine Fisheries. I'm also a member of the SSC, and I'm vice chair of the SEP.

DR. CRANDALL: Hi all. I'm guessing I just go ahead. I'm Chelsey Crandall. I'm a social scientist with Florida Fish and Wildlife Conservation Commission and a member of the SEP.

DR. SWEENEY-TOOKES: Eugene, you're up next. Well, maybe if Kevin is ready, we'll circle back to Eugene. Kevin, would you like to start?

DR. HUNT: Kevin Hunt. I am a retired professor of human dimensions at Mississippi State University.

MS. PACKAGE-WARD: I'm Christina Package-Ward. I'm an anthropologist for the National Marine Fisheries Service, the Southeast Regional Office, and I'm also a member of the SSC.

MR. STEMLE: My name is Adam Stemle. I'm an economist with the Southeast Regional Office with NOAA as well. I am just a member of the SEP.

DR. KITNER: This is Kathi Kitner, and I used to be on council staff, many, many years ago. I've just been awarded a spot in the SSC, which is a lot of fun, and I am an applied anthropologist working in many different areas. I'm very thrilled to be here for my first official meeting. Thank you.

DR. SWEENEY-TOOKES: Welcome, Kathi. Thank you. Eugene, are you with us?

MR. HADLEY: Eugene, you're able to mute and unmute on your end, but you might be having microphone issues, and so, if you can't hear from him, maybe we'll check in with Eugene to make sure everything is working on the technical side of things.

DR. SWEENEY-TOOKES: All right, and so then we will carry on, I believe. Our first item of business is to approve the agenda for today, and so does anyone have any changes they would like to make to the agenda? Does anyone object to approving the agenda? I have no indication of any hands raised. I assume John would let me know. Excellent. Thank you very much, and so we will -- This agenda can be considered approved, and we'll now turn to public comment.

MR. HADLEY: All right. I will take over that part of the agenda. If there's anyone on the webinar from the public that would like to make a comment right now, please raise your hand, and we will get you unmuted to do so. I'll give it just a minute. I'm not seeing any hands so far. It's looking like there are no hands for public comment.

DR. SWEENEY-TOOKES: All right. Then this takes us to our main item of the day, Recreational Angler Attitudes and Preferences in the South Atlantic Snapper Grouper Fishery, and we'll be hearing a presentation from Dr. Kai Lorenzen. This, of course, relates to Attachments 2a and 2b, and I believe, John, that I hand it back to you to give a brief introduction and for you to set Kai's presentation up.

RECREATIONAL ANGLER ATTITUDES AND PREFERENCES IN THE SOUTH ATLANTIC SNAPPER GROUPER FISHERY

MR. HADLEY: Absolutely. Thank you, and I wanted to thank everyone for being here today, and I'm going to hand it over to Kai and his team in just a minute here, but, as I tee this up, I wanted to mention -- You know, just give a little background and kind set the stage what this presentation is all about, and really the webinar today, and so Kai and his team have been working on this research in the South Atlantic region, in the recreational snapper grouper fishery, and, as part of this research, it's going to tie in to some of the decision-making that's going to be part of the snapper grouper management strategy evaluation that the South Atlantic Council has been working on and is going to continue to work on.

This research is intended to help inform some of those decisions that are going to be made through the management strategy evaluation process, and really, today, this is kind of hot off the press, very recent research, and so, as typically custom, before research goes before the council for potential use in management decisions, it goes through a review by the Social and Statistical Committee, SSC, or Scientific and Statistical Committee, excuse me, the SSC.

With this being the -- This is social science research really, and so we felt that it would be most appropriate to bring this to the Social and Economic Panel for your input, being a subset of the SSC, and so, in doing so, what we'll do is we'll go over the presentation.

There will be time for any questions, clarifying questions, and then we have a few questions for the SEP, at the end, to help guide your discussion and provide some just general discussion and feedback on this research, and so, with that, I'm going to hand it over to Kai to start the presentation.

DR. LORENZEN: Great. Thank you very much, John, and thanks all for having us today. I want to quickly introduce the team, and so I'm Kai Lorenzen. I'm a Professor of Fisheries at the University of Florida, and a South Atlantic SSC member, and this has been really very much a team effort.

I was the PI of this project, but the whole team was really very important, and so the other team members here are Edward Camp, Associate Professor of Fisheries Governance at the University of Florida, Kotryna Klizentyte, who is an Assistant Professor of Natural Resource Economics and Policy, Susana Hervas, who was a post-doc in this project, and she specializes in qualitative social research, and Joy Hazell, who works on facilitation and participatory processes, and so all of these had important parts in the project, but, really, the two main brains behind the survey that we'll be talking about mostly today are Edward Camp and Katrina Klizentyte.

The presentation, I will start off, and then I will hand the presentation off to Edward. That's the plan at the moment, if everything goes all right with our communications and connections here, for the more detailed look at the survey, and both Edward and Katrina are here for questions. Basically, I'll do a quick overview of the project, and then we'll get into details of methods and, of course, results.

A very brief background on the snapper grouper MSE, and so this is a council initiative that started in 2022. The main modeling part of the initiative, the actual management strategy evaluation model, is contracted to Blue Matter Science, and the University of Florida, our group, has been contracted previously for a situation assessment of the stakeholder landscape and for this current recreational angler attitudes and preferences project.

The focus of the MSE is on strategies to reduce the number of released fish, and that's because releases of fish are associated with a level of release mortality, and our stock assessments tell us that that is a very big component of the overall fishing mortality in our region, and so dealing with that is a really important issue, and this is to improve yields throughout the snapper grouper fishery. It's considering the need for fishery access and resource use, while preventing overfishing and rebuilding overfished stocks, and it provides an opportunity to evaluate different management strategies and the associated biological, social, and economic tradeoffs.

This is just one snapshot of the MSE model that has been developed by Blue Matter Science. At the moment, that model has fairly detailed management, you know, sort of population dynamics and management models for red snapper, gag grouper and black sea bass, and it will probably be extended to additional species, just to give you that background that that model exists, and you will have heard about some of the model developments and simulations, and what we are looking to do is to inform the two things of scenarios that go into -- The management scenarios that go into the model and how stakeholders might look at those different scenarios and how they might respond.

This project had three components. It had a stakeholder working group. We did a literature review and a survey of recreational anglers to help us better understand attitudes and behaviors, and so, the stakeholder working group, you can see a picture here. The purpose of that group was to discuss management options in greater detail, provide input to survey design, and help pre-test the

survey, and also to be available to provide feedback on survey results and continue to be engaged with the MSE in the future.

Management strategy evaluation, of course, is meant to work closely with the stakeholders, and we put this group together in part so that it would be available to be, you know, continuously involved in the MSE. I would also add here that, initially, we thought that the group might help us refine particular scenarios that we would put into the survey, but it turned out, as we were starting this up, that neither the council, nor in fact this group, really converged towards very specific scenarios that would be put on the table, but rather wanted to understand attitudes to a sort of a menu of management options, and so that's what we went with.

We did do some literature review, and I just wanted to highlight a few things that actually are a good segue into some of the things we found in the survey, and so what we did was a systematic review to synthesize literature on recreational fisher preferences for and responses to management, with a particular focus on the South Atlantic region, but not exclusively, and among the things that we found was that angler heterogeneity and preferences and responses was observed both across and within the study, and so that's a very important feature. Not all anglers are the same.

Generally, anglers prefer regulations that affect aspects of harvest, such as size limits, over those that more fundamentally restrict fishing activity and affect the fishing experience, and, also, importantly, anglers sort of respond to regulations based on two things, how the regulations will affect them and their fishing, but also how they like it in general, and so it's not just the effect on the angler, but there are more fundamental values and perceptions that are involved in how anglers view regulations, and so it's not only how they are directly affected. Okay, and I think this is actually where I hand over to Edward Camp.

DR. CAMP: Hi. Thank you, Kai. Thank you all for being here. A quick caveat for you is I am out of the country, and it's early where I am, and I've been unable to find coffee, and so, if I yawn, it has nothing to do with my interest in this.

I believe that everyone here knows this context well. I'm going to go over a little bit of the context, because I think it's important to understand what we had in our minds when we were trying to develop the survey instrument, and so, as we know, recreational reef fish, most of them are federally managed in the South Atlantic, and the Magnuson-Stevens Act provides mandates for preventing or ending overfishing, and, also, these recreational fisheries tend to be open access, in that they're not limited or constrained in the total number of participants, nor the total number of trips that may be exerted in any given year.

They're rather output controlled, via typically restrictive regulations intended to limit the overall mortality, and constrain it to sustainable levels, but the mortality here is removals, and not just the harvest, as well as the discards, which for a lot of the reef fish are non-trivial.

These are a couple of assumptions that we had going into about recreational fishers in the South Atlantic. Also, tell me if my volume is off here. I've got multiple things working, but I can speak louder or more quietly, depending on what is best. Is everything okay?

MR. HADLEY: Yes, and I think we're hearing you very well. Thank you.

DR. CAMP: Okay. Very good. Thank you. All right, and so what we assumed is that recreational fishers want, most of all, access to fish. They want to have -- In economic terms, this would be termed an option value. They want to be able to target reef fish, and they want also to be able to have access to harvest. Sometimes this is termed ,in popular literature, or in the scientific literature, as just access, but there's two different types, access to be able to target the fish, access to be able to harvest the fish, and they also want trip quality.

This comes out of a series of meta-analyses, including reef fish studies, looking at both the quantity and the size of the catches and harvest as important components of the overall utility. We also understood that they wanted perceived fairness and predictability of regulations, and, again, this comes from broader literature review and previous work.

What these things seem to realize for us is the short-term tradeoff, where, in the short-term, anglers want access to harvest a fish, but that access to, targeting, and to harvesting the fish can lead to high reef fish mortality, triggering these constraining regulations that can lead to anglers being dissatisfied.

These trade-offs, again, they traditionally have been addressed with restrictive regulations, things like harvest season, size limit, bag limit, and some gear restrictions, and, of these, the most powerful has probably been the harvest season, but there's challenges that, again, you may be well familiar with, which is that short harvest seasons tend to be very unpopular with anglers.

Again, in economic terms, this is a loss of option value. If there's only a two-day season, or if there's only a two-week season, there's very few days that they can take a trip. Many anglers have other things in their life, whether it's other commitments, family, work, whatever, and, if they wanted to, for example, take a family member fishing, a lot of stuff has to line up for that to occur, in terms of weather, schedule availability, you know, with the harvest season.

Folks tend to not like the short harvest seasons, but, through these negative feedbacks with the discard mortality, as the shorter harvest seasons are implemented to decrease the overall mortality, they can decrease the harvest, but there's two things that go on.

One is sort of non-linearity, or disproportionality, in how much a harvest season changes the actual harvest, and so, for example, if one went from a three-month season to a one-month season, it's typically less than a two-thirds reduction in the actual harvest, because of compression of when folks take the trips, but the other thing is that, as the harvest season decreases, it increases the discards, which, in the context of your building plans can lead to even shorter harvest seasons, and so sometimes I think -- I can't be sure who said this first, but it's sort of the death spiral of shorter seasons.

The regulations vary by species, time, and somewhat by space, and some of the species here may be harder for anglers to avoid, and so there's probably target switching that goes on. There's probably preferred species and less preferred species, and probably, as these regulations sort of blink on and blink off in different places, there's effort shunted around the ecosystem, and so that was the background that we brought into this.

The study question that we tried to focus on here was what were the most preferred management options that have a chance of meeting sustainability requirements, and, when we phrased it like

that, we were not expecting that these would be necessarily management options that have a positive utility. You could also see that as what would be the least dispreferred, and so we're considering current and novel management actions, and/or levels, and considering behavioral responses to potentially get unimplemented actions.

Of course, those sort of constraints are going to point us towards choice experiments, stated preference choice experiments or discrete choice experiments, depending on what you want to call them. These are survey questions in which the respondent is asked to choose between hypothetical options for something occurring in the future, and so it's a tool that is commonly used in natural resource economics, and economics overall, and specifically in fisheries economics, and so that was the approach that we used for our survey. As Kai mentioned, this was all informed by the working group and the oversight team.

All right, and so I'm going to go over just a little bit of the methods, and then, when we get to the results, I'm going to hand it off to my colleague Katrina, who will walk us through those, and so we're in the middle zone here of methods.

The frame for the survey for the population of interest is marine recreational reef fishers in the South Atlantic. That's the spatial zone here, and so the Atlantic coast of Florida, Georgia, South Carolina, North Carolina. Obviously, there is some challenges here, because people can fish those areas while not necessarily residing in those areas, but that's the spatial frame that we took with here, and the temporal frame was looking for folks who had reef fished in this spatial zone, South Atlantic waters, in the last two years.

This survey was implemented through Dynata, using the Qualtrics interface. That selection was made based off budgetary concerns, and their quotes for what they could get us for panels, and so they were looking at panel data here.

The panel was selected for two reasons. The first ,and most driving of them, is that we don't have access to publicly-available contact information for marine recreational fishers in North Carolina, South Carolina, and Georgia, and so that's pretty much a non-starter, and, as well as this, we've had, or I've had at least, very low response rates on surveys in recent years, and so in that like 1 to 2 percent response rate category, which is really difficult to make a case for management implications with such a low response rate, and so that's with the email survey, and so the panel addresses some of those. We did conduct, as a secondary approach, an email survey only for Florida recreational fishers. Those results are not going to be presented here today.

This is the overview of how the survey was laid out. There's a couple different components of it. The first component -- I'm going to walk you through this now, and then give you a little bit of additional information of each of these in a second here, and so the first component was the informed consent in the background, and this notably featured a qualifying question to try to select for what we thought were actual reef fishers, people who were actually fishing. It's a bit of a concern with panel data.

The second set of questions was about fishing behavior and experience. These could potentially be used as covariates, to try to understand and interpret differences in the classes, and so we're asking questions about how they identify, in terms of are you primarily a recreational fisher, or are you primarily something else, avidity, measured in terms of both trips per year and also a direct

question regarding how important recreational reef fishing in the South Atlantic is, and the species that they target.

The third component of the survey were stated preference, and not choice experiments, but just stated preference questions about overall attitudes and opinions on management as well as general tradeoffs, and you'll see what I mean in a minute, but, basically, these are general tradeoffs between, you know, would you accept stricter regulations if it led to some fishing improvement, those sort of high-level type of trade-offs.

Then there's the actual discrete choice experiment. That was the majority of the survey. We consider it to be the most cognitively taxing. We're asking about specific levels, different attributes of the management, and this split out into two specific versions, a gag version and a red snapper version, and that will be explained more in a minute.

Then we asked if -- Each person was asked about one novel management strategy, three for the overall survey, and I'll describe those and then, finally, wrap up with demographics, and so let me go through some of the details here. The qualifying question is important, because my understanding of panel data is that the people taking the surveys receive some monetary compensation for a completed survey, and that allows for the potential incentive to take a survey about something that you don't actually know much about and to say that you do.

The first question that folks were asked, before they received the title of the survey or anything else, was this question, what you see here, asking folks, you know, which of the following outdoor activities have you participated in in the last two years in South Atlantic waters, and you'll see that there's five options here, four real options and three of those that are reasonable, right, and one is recreational reef fishing, and that's reasonable. Then there's kayaking, and that's great, and paddleboarding, and that's fine.

Recreational ice fishing, that's not reasonable, and that doesn't happen in the South Atlantic. This was developed with advice from other people, including Chelsey Crandall, who said this is a way to try to select for folks who did actually reef fish, and so we only analyzed results of people who said that they recreationally reef fished and said that they did not recreational ice fish.

I've skipped over the questions about, you know, how long is your boat, and how many trips do you do, and we'll show those in the results, but, for the methods, this is the types of questions that we're asking for general attitudes towards regulations, and so these were Likert-scale questions asking things about, you know, do you agree or disagree with the statement that regulations are necessary to prevent overfishing, and the same for, you know, are stricter reef fish regulations going to lead to increased reef fish populations?

Do you agree that you would rather have less restrictive regulations now, even if it led to being harder to catch keeper-sized reef fish in the next ten years? Do you agree that you would rather have more restrictive regulations in the next two years if it led to better fishing in the next ten years, and so these are just general trying to understand how do they say that they perceive regulations overall.

The reason that we want to do this is, if we get to the discrete choice experiments, and people say that they strongly dislike all of these options, we want some idea of is that because we chose

options that they really strongly dislike, or is it because they actually don't necessarily believe that regulations are important here.

Then these were the tradeoff questions, and so these questions were implemented in the context, or in the framework, you know, of stricter regulations would be more acceptable to me if they led to -- Again, this is a Likert-scale of agree or disagree. Catching more reef fish per trip, catching larger reef fish, needing to travel shorter distances, or this sort of opt-out of I don't believe stricter regulations would lead to any of these.

Then the DCE. As we mentioned we developed separate DCE versions for red snapper and gag grouper. This is necessary because the harvest seasons differ quite a bit. Red snapper last year was two days, and gag grouper was fifty-seven in federal waters, and it's possible that reasonable attribute levels are going to differ by the species.

What we did in the survey was ask folks, of these two species, red snapper and gag grouper, which do you care about most, and then the survey logic routed respondents to the appropriate DCE, and I'll point out here, and I think that Katrina may go over this, but we did not include, in our DCE design, a status quo as a third option.

What that means is the DCEs usually say, hey, Option A is this level of this attribute, this level of this attribute, and so forth, and you'll see that in a second, and then here's Option B, which they compare it to, and then some DCEs are going to have a third option, which is going to be all status quo, the way that things are currently, as a third option.

Some DCEs will class that status quo as an opt-out. Other DCEs, especially in fisheries, will separate that and actually have a opt-out as a choice, instead of choosing Option A or choosing Option B or, if they have the status quo, choosing Option C, they can select I would not fish for this species under any of these options, and so as an explicit opt-out. We did include an explicit opt-out. We did not include the status quo.

The reason we did not include the status quo was because we believe that there was some -- That these fisheries were not necessarily at equilibrium. We believe that a two-day red snapper season wasn't socio-politically sustainable, and we believe that the fifty-seven-day gag grouper season may not be ecologically sustainable, given current productivity levels, and so including the status quo, you know, in more economic terms for gag was likely to dominate all the other options, and that was considered to be problematic. We didn't expect that we would get useful results, and, including the status quo for red snapper, we expected that very few people would select that.

What we did do is integrate the status quo levels in Option A and Option B, and then one final note on this. As you saw in Kai's introduction, Blue Matter is going forward with red snapper, gag grouper, and black sea bass. We trimmed black sea bass, not because we didn't think it was important, but because it was pretty challenging to implement in the DCE, and, also, the survey was getting pretty long, and it’s very difficult to have this many different options tracking.

Black sea bass federal regulations are split within North Carolina, and that proves a little bit of a challenge to having the relevant regulations for the DCE, and, also, black sea bass regulations are relatively lenient right now, compared to the other two, in terms of harvest season, and that meant

that it might be challenging to come up with cases that were -- It might be challenging for us to do a good job developing good tradeoffs, which is what the DCE is best at doing.

For example, if the harvest season is year-round, you can't have a more than year-round harvest season. You can't go up greater than that, and so the specific nature of black sea bass made it challenging in a way that we decided to just focus on red snapper and gag grouper.

In discrete choice experiments, we've talked about attributes and levels. Attributes are the components of the sort of categories of things that we are going to ask people about, and then each of the different levels of those are the levels, and so the harvest season is one of the attributes, and we tried to have a short, a medium, and a longer harvest season for the levels, and so, for red snapper, the short is currently at two days, the medium is fifteen days, and the longer is sixty days.

This isn't ideal . What we would rather have is we would rather have the current in the middle, but we thought it was silly to have the current as the medium is two days and the short is one day, and so we deviated from that in a couple ways.

The other attributes are were there a reef fish targeting closure, and the current or status quo level was none, and we also asked about a three-month targeting closure and a six-month targeting closure. We asked about a reef fish aggregate bag. This required some careful descriptions to be correct, because there are current aggregate bags for the grouper family and for the snapper family. There is not currently a reef fish aggregate bag in the South Atlantic, and so, technically, this is unlimited, although, again, there's a grouper aggregate bag, and a snapper aggregate bag, and so we had that as one level. A medium is five to seven reef fish overall, and the high is ten to fifteen.

A mandatory stopping rule was described as there would be a rule on the book saying that you have to stop fishing once your bag, whether that was species or aggregate, was reached, and then the South Atlantic reef fish permit, and that doesn't exist right now, and so zero was the current level, and then we asked about fifty, 100, and 150. This, in economic terms, would be the payment vehicle, and it's useful to have something that's at least hypothetically tied to cost in the discrete choice experiments. That allows us to scale the parameters in terms of willingness to pay.

This is an example of what I was talking about earlier, where here you have the attributes, in that left-hand column, and then you're seeing Option 1. This is one hypothetical situation. It's a sixty-day season, but it's got a six-month closure, and it has an aggregate bag, a reef fish aggregate bag, and it's got a mandatory stopping rule, and there's a permit, or would you rather have a shorter season, with no mandatory with no targeting closer, a larger reef fish aggregate bag, no stopping rule, and no permit, and then they can select Option 1 or Option 2 or they can opt out and say I would not fish under either option.

As you can see here, the status quo levels are integrated. The status quo level of the mandatory stopping rule is no. The status quo level of the South Atlantic reef fish permit is zero. Reef fish, that's status quo, area fished targeting closure, and so status quo levels are integrated into the options, but we did include a third option there. We just include the opt-out.

Finally, what were the novel management options that we asked about, and we picked three that were a mix of what we've seen in the literature, what folks have asked about before, what seemed

to be -- To have a chance of being ecologically reasonable, and, you know, basically what could potentially work.

The first one was harvest tags. There's been some research done on this before, and these are individual tags needed to harvest fish, but they sort of obviate the need for a season, a bag, or a size limit, meaning, if you have a tag, you can harvest the fish when you want, and they match that options value in a sense, but they require that you have that harvest tag to be able to access that higher option value.

I'm using the term "option value" because I like it, and I think it's neat, but it's basically as -- I understand it as an economic term to describe the benefit to a person, in this case a consumer, of having the option of making different choices, and so that's how I'm going to use that term here.

We described, in the survey, that the number of harvest tags would be dependent on the allowable harvest, and we said that anglers might not get one. We said that the allocation would be random, and the tags wouldn't cost money, and it looks like I've written that twice, and I so apologize for that.

The second option was spatial closures. This is a little ad hoc, but we wanted to provide something more concrete when we were describing these novel strategies, instead of saying, well, there will be some spatial closures, and so we said half the waters adjacent to a state would be closed for nine months, close the targeting and harvesting, and open for three months, and half the waters adjacent to a state would be open year-round.

Then these, you know, which waters were closed or open, would rotate on an annual basis, and so, essentially, this is describing really large-scale spatial closures for most of the year. All of the water could be fished for some of the year, and there would be always some water that could be fished, and so that was spatial closures, and then an education requirement is definitely novel. I don't know of this being done in recreational fisheries in the U.S. It is more common in some other countries, but not many.

What we described here was that participants, reef fishers, would need to pass an intensive course to receive a South Atlantic reef fish permit, and the course would teach best practices for catch and release, and for ethical fishing, and the cost would be twenty-five dollars, with that going to cover the instructor and class costs here.

If there's questions, I can go into why we pick these strategies more, and I don't want to belabor these before we get on here to the actual results, which I believe Katrina will take over and run with now.

DR. KLIZENTYTE: Howdy. Well, i just want to thank Ed for being awake at four in the morning his time, because that sounds like a lot, and so thanks, Ed. Okay, and so I am going to go over the results now, and so next slide, please.

After -- We had a total sample size of about 7,300 folks, and, after all of the attention checks and some data cleaning, we actually only ended up with about 1,900, and so that tells you how many people even checked recreational ice fishing, and so this describes our total sample information. We're looking at mostly male, but something interesting here is we had 40 percent female

responses, and that is probably just a reflection on panel data, right, and like we probably wouldn't really expect this as much with, you know, the email surveys to targeted licensing groups. We're seeing higher incomes, generally between thirty-five and sixty-four years old, and most of our surveys came from Florida.

This just shows which reef fish the total sample targeted in the last twelve months in the South Atlantic, and so, by far, we see red snapper up there percentage-wise, followed by other grouper, and then we see black sea bass, as Ed described, as another popular choice, and then gag grouper, but, you know, just due to the complications of the black sea bass, we didn't include that.

Let's talk about the red snapper-specific results, and so, as Ed said, just a refresher on what our attributes and levels look like for the discrete choice experiment, and he went into this in a lot of detail, and so I'll just quickly skip through.

This is the same thing, just a quick refresher for the choice sets, and I will stop here, and so discrete choice experiments, to my economists in the room who know, are very challenging to the respondent, and so people don't just see one of these. This is called a choice set, and people usually see three to five, or three to six, of these, and so they're randomized, so we can kind of understand the pattern of what they're trading off, specifically with the attributes and levels.

Ours got very complicated. Initially, we had respondents seeing six of these choice sets, which is a lot, and so we decided to only have a maximum of three choice sets shown for the respondent, to make it easier on them, but then it was a little harder on us, because that meant that we had to segment our sample more, and so we had ten blocks, meaning that we had basically thirty choice set questions that we had to do, and I'm mostly speaking to the economists that have done this, or understand that, and that is a lot to code and clean and manage, but we did that to make it easier on the participant.

This is the result for our red snapper discrete choice experiment, and so I don't know why the sample size isn't showing up. It's about 1,600, but let's go through what these results mean, and so, first and foremost, that permit is the -- It represents our payment vehicle, and so how we actually calculated the mean willingness to pay. It is negative, and statistically significant, but that doesn't mean that people don't want to pay. It's just consistent with economic theory, and that's basically like, the higher the price, the less people want to pay, right, which is very obvious. I don't want to pay for something if it's very expensive, and so that's just a little note to those that are not familiar with DCEs.

Let's go through the actual attributes, and so, with harvest seasons, you can see that, compared to the baseline of two days for red snapper, most people wanted to see a thirty-day harvest season. They were very into the fifteen-day harvest season as well, but, obviously, people -- You know, no surprise here, I think, and most people wanted the thirty-day harvest season.

Related to target closures, we actually saw that people were onboard for these. They most preferred the three-month target closure over the six-month, but still kind of cool to see that, you know, for the most part, the red snapper sample was open to this management alternative.

The aggregate bags were not statistically significant, and so I have a couple of thoughts. They were very difficult to explain, and so that could be -- The fact that they're not statistically

significant could be a result of that being really confusing to try to explain to people, or it could also mean that, you know, people didn't really care about that as an attribute when they were making those tradeoff decisions. They were looking at those choice sets, and they were like all I care about is a thirty-day harvest season, and I don't care what it says with aggregate bag, or anything like that, and so I'm just going to choose the harvest season.

It's a little hard to differentiate at this point. We do our best to explain, and we have attention checks, and Edward even included like a test question on it as well, and so we do our best to kind of manage that, but it's kind of hard to differentiate, but it's not all lost, because we did a later analysis, that we'll talk about, that kind of dissects who prefers the aggregate bags.

Then our mandatory stopping rule, to have one, was also not statistically significant, and so people either didn't prefer this, or that was not a big decision-maker in their choices, and then, finally, this choice that says opt-out, and so that is looking at how many people just chose that opt-out option, right, and so they looked at Option 1, and they looked at Option 2, but they were like, no, I don't want to fish for the species at all, given these two options, and so it's negative, and statistically significant, and so that means that most people were more likely to choose a management option than to stop fishing altogether, which is great news, right, because they're open to change, and it's -- You know, these changes are not enough to stop them from fishing for the species altogether.

Okay, and so this is where it starts to get a little more technical, and so LCA stands for latent class analysis, and so, for my strictly social science folks on the call, it's very similar to kind of like cluster analysis, and so, basically, what we did was we put people in different classes, and I'll show you a slide of what those class-specific utilities look like after this one.

We were just trying to be very nice, and give you kind of like the story and the qualitative -- You know, the story behind each class, instead of just showing you the numbers, and so, basically, what we had was we had three classes, and the classes are set based on optimal AIC and VIC values, optimal loglikelihoods and things like that, and so we didn't just like guess and do this. We followed the statistics, and it told us that these three classes were distinct enough to be a class in and of itself, and so that means that each class was basically clustered together, and they answered very similarly.

We named Class 1 -- I'm very bad at titles, by the way, and so sorry in advance, but Class 1 is called the harvest-oriented group, because they were more likely to prioritize access and opportunity, and so they were really into having either a fifteen-day or a thirty-day harvest season, but they didn't really like anything that restricted their -- That had effort-restricting rules, like closures and mandatory stopping, and they kind of had a mixed view on aggregate bags. They didn't really prefer the five to seven reef fish aggregate bag, but they did really like the ten to fifteen reef fish aggregate bag, and so, again, right, prioritizing access and opportunity. They were actually least likely to opt out, and so they were really choosing between those management options.

Class 2 is what I call conservation-oriented, and so they really favored closures and mandatory stopping rules. They disliked the aggregate bag options, and they also had a negative utility for longer harvest seasons, and so they were like, yes, let's like protect the fishery by doing these target closures and stopping rules and things like that. They were very least likely to opt out, and I'll

show you in the next slide, but, by far, they were more likely to choose some kind of a management scenario with an alternative management option.

Then Class 3 are our flexible pragmatists, and so these people were more balanced and realistic, and so you'll see that their class-specific utility coefficients were lower than the other classes, meaning that maybe they were more realistic about it. They were open to more moderate controls, like the -- They were into target closures, and the five to seven aggregate bag reef fish, and mandatory stopping, but they were the most likely to opt out, and so that is kind of an interesting dichotomy here.

That's what it looks like, and so, instead of showing you this boring thing, I try to do most of the talking on a nice little qualitative story, and so something else to note here is the class shares, and so you can see that Class 1 and 2 compromise the majority of the sample, and then Class 3, which are those flexible pragmatists, most likely to opt out, are 20 -- About 25 percent of the sample, and so these are latent class-specific utilities, and so these are basically utility parameters that represent the strength and direction of preferences, and so think about it like a regular regression-type model.

After we had these classes, we wanted to see if there was any big demographic differences between them, and so we performed a simple chi-square test. We found that Class 1 was mostly male, high income, slightly older. Class 2 was male, middle income, more working age, and then Class 3 was kind of more gender balance, lower income, and then slightly older, and another note on this is like I would take this with a grain of salt, just because the chi-square is very sensitive to larger sample sizes, as well as this is only showing you the percentage, and the actual analysis is based on counts, and so it can look like it's not very practically significant, but, beyond a reason of a doubt, the demographics aren't the drivers of the differences between the classes. It's definitely their preferences in the in the attributes.

That's just showing the age, and then the state resident, and so pretty evenly distributed across all um geographies in the question, and so now these are the general fishing regulations and tradeoffs questions, and so these are basically very similar to the profiles we expect for each class, and so, if you remember, Class 3 are flexible pragmatists, and so they're more likely to opt out, and, basically, they, throughout all of these items, are more anti-regulation, anti-stricter reef regulations.

When you look from top to bottom, you can see that, compared to Class 1 and 2, which Class 1 and 2 are like very similar in how they answered this, and Class 3 is less likely to think that regulations prevent overfishing, and they are less likely to think that stricter reef fish regulations lead to increased reef fish populations. They are more likely to want less restrictive regulations now , even if it led to better outcomes in the next ten years, and they are less likely to want more restrictive regulations now if it led to better reef fishing outcomes.

This is another regulation perception question, and then just keep in mind this is a check all that apply, and so we can kind of see the same story here as well. Class 3 overall, compared to Class 1 and 2, has lower percentages, meaning that they don't think stricter regulations are as acceptable, despite the outcome, and you can see that really with the final item here that says I don't believe stricter regulations would lead to any of these, right, and it's 18 percent for them, compared to 8 across Class 1 and 2.

Then, finally, we asked about their -- This is the Likert-type-scale question that Ed described earlier, and so, you know, what they think about these novel management action options, which are harvest tag, spatial management, and education.

Surprisingly, we see that -- The yellow and blue, or the top two columns towards the top of the graph, are predominant across these novel management options, and we see a slight skew towards people preferring spatial management as a novel management option.

Then, finally, and hang in there with me for red snapper, and so, after each choice set, and so after each person went in and they decided between Option 1 and Option 2 or not even fishing anymore, we asked, okay, based on your preferred option that you chose, how would this change the number of trips that you would take targeting red snapper or gag grouper, and so we basically see that most people's fishing for the species that they chose would stay the same, right, followed by maybe increasing a little. We don't really see it decrease a little bit, or a lot, increase a lot or decrease a lot, and so this was this was kind of interesting, to see that it might not change their changes in trips overall.

Okay, and so now we're going to do the same thing with gag grouper, and then I'm going to hand it off to Ed to put a better story on it, and so this is, again, the same thing, except different harvest season lengths for -- That should say gag grouper. Excuse me, and so that should be gag grouper.

This is the discrete choice experiment for the gag grouper, and so you can see much lower sample size, right, and we're looking at 287, and we're seeing almost no statistical significance, and so it could be a factor of the small sample size, but it could also mean that these anglers don't show strong statistically significant preferences for gag grouper management, and so same story with the permit, right, which is the not the fish, but the actual South Atlantic permit option, and the opt-out option was also negative, and statistically significant, again meaning that most people were going to pick an option, although it was not statistically significant.

You know, we can still look at these coefficients and see that, you know, hey, most people didn't like target closures, and they preferred a three-month closure. They preferred to have a fifty-seven-day harvest, but not the 114 days, and, for aggregate bags, this was their heaviest tradeoff option, with wanting more aggregate bags here, and open to mandatory stopping, but, again, right, a grain of salt, because it was not statistically significant.

We did the same thing with the latent class analysis, and it also told us to do three classes, and so you'll note that Class 1 and 2 are smaller than Class 3, and so Class 1 and 2 -- Class 1 was about 19 percent of the sample, and Class 2 was about 14 percent of the sample. Class 3 was like 68 percent of the sample, and so really like, yes, we followed what the statistics told us, but, maybe in reality, we could have kind of combined Class 1 and 2. Anyway, this was just me getting too into the weeds, and we don't need to worry about that.

I'm going to actually go to the next slide, where we can talk about this nicer story outlined, instead of having numbers in front of you, and so what we see is Class 1 is super supportive of these controls, of any controls that we got, and they liked it, and so they favor strong management. They disliked the longer harvest season, and they had the strongest like for the mandatory stopping rules, and they had the extremely negative opt out, meaning that they didn't -- They almost never opted out, compared to the other classes.

For Class 2, I'm calling them moderate conservationists, because they would opt out if regulations were overly burdensome, or restricted their catch. They were willing to accept the closures and stopping rules, but, again, if it became overly burdensome, then we saw that they really kind of, you know, were more likely to opt out there.

Then Class 3 were access-oriented pragmatists, and again sorry about the titles, but they were very flexible, and they valued continued access, and were more unlikely to leave the fishery than Class 2. They were pretty neutral towards the targeting closure. They were the only ones that had a negative class-specific utility, but still they were, you know, more neutral on that. You know, it wasn't that strong of a negative response, and they really just by far preferred a larger aggregate bag, and so that's where that continued access point was important for them.

Then, again, the same thing with the chi-square analysis. This time, we didn't really have statistical significance, and I am also hesitant of these results, just because Class 3 dominated, in terms of numbers across the sample size, and so obviously it's going to skew towards Class 3, right,, and so, basically, we can see that there was -- For the gender, we can see 22 percent female in Class 1, 19 percent female in Class 2, and 60 percent female in Class 3, which was kind of interesting to just see, you know, in general.

Then the only statistical significance, and barely so, was an age, and so we did see that there was about 64 percent of the sample in C3 was eighteen to thirty-four years old, compared to 15 percent and 22 percent, and so that's where I'm gathering is like a big difference there, and kind of the same story with state residence, where Florida is pretty um pretty dominant in there.

For the general fishing regulation and tradeoff questions, these are a little bit different, and so we kind of expected Class 3 to be a little more hesitant towards the regulations and tradeoffs, but what we found was Class 2, which was our moderate conservationists, were actually the most likely to not want regulations, in this sense, and so, when we look at the first item, we can see that they are the least likely to believe that regulations are necessary to prevent overfishing, and they are the least likely to think that reef regulations lead to increased reef fish populations, but then there's -- Then they would rather have less restrictive.

Class 3 would rather have less restrictive regulations now, which was kind of interesting, and so Class 2 and 3 kind of went together there, and Class 1 differed on that item, and then, finally, they would -- They do not want to have more restrictive regulations now, compared to Class 1 and 3, and so that's our weird moderate conservation-oriented Class 2, and, again, they are more likely to opt-out, and so it does make sense that they don't want these stricter regulations right here.

So, again, Class 2 is showing the same story as the previous slide, where they are less onboard with stricter regulations, even if they led to these more positive outcomes. Again, looking at that, I don't believe stricter regulations would lead to any of these items. They're at 14 percent, compared to, you know, 9 percent and 10 percent for Class 3 and 1.

Finally, we asked the same question, and analyzed the same data for this like or dislike for novel management options, and it looks pretty much the same, except I would say that, for gag grouper, they are less interested in the harvest tag than it with red snapper, but, overall, they are more favorable to spatial management over education and harvest tags, and I'm handing it off to Ed.

DR. CAMP: All right. Thank you very much, Katrina and so these are the summary of the results. Overall, most responses thought regulations were necessary, and they would actually prefer regulations if they thought this would improve their catch. Most of our respondents cared more about red snapper than they did gag.

The red snapper respondents overall were actually -- You know, as an entire group, they were actually -- They had positive utility for target closures. They were generally, as an entire group, in favor of additional restrictions. If you look at the classes, there was a slightly larger class, about 42 percent, that wanted the longer harvest seasons, but had those negative utilities for target closures and other restrictions, and then there was the smaller class that wanted more restrictions, and, again, those positive utilities, and then the third class also tended to be more in the line of being open to the restrictions.

The classes didn't differ much at all by demographics, or by general regulation preference, and this was surprising to me, and that's why I'm pointing it out here. When we first saw the classes, I thought, okay, well, maybe what we're dealing with is there's some folks who, you know, really fish, and they're going to be sort of anti-regulation, and it's going to skew in a certain demographic, and that's going to be Class 1, and then sort of everyone else who are more casual, or maybe not as serious about it, they're going to be Class 2, but we didn't see any evidence of that, and I was looking for it.

Overall, the classes, the discrete choice experiment, showed positive willingness to pay for restrictions, especially for targeting closures, and then the other thing that's pretty surprising is that over 50 percent of the red snapper respondents liked, meaning either strongly liked or strongly approved, or approved, strongly agreed or agreed, that they would approve of these novel management options, including spatial closures, and very few disliked the novel options, and so that in between this is either like nor dislike, but only -- Less than 20 percent dislike any of those novel options.

There were some slight differences between them, but you saw that they were pretty similar there, and then the gag responses suffered from smaller sample size. It had this larger sort of -- I should use a different term, but, you know, a larger class that was not as -- I think Katrina called them more pragmatists.

These were the inferences that we took away. It was broad support for restrictive regulations in general. The split opinions of red snapper-focused anglers regarding restrictive harvest and targeting regs, that's important. Even though there is broad support, it's not the same thing as saying everyone is supportive. There's certainly a large, potentially vocal, group that would strongly dislike some of the options that overall were preferred.

Most fishers seem open and interested in novel reef fish management options, especially spatial closures. I thought this is important, especially important, because it seems to run counter to some narratives that we've gotten from largely non-panel results, and so, from these results, restrictive reef fish regulations may well increase the overall satisfaction of fishers, even those targeting red snapper, if they improve fishing, but we can expect they're likely to be opposed, and potentially strongly opposed, by a subgroup.

There's a number of key uncertainties here. The first is its panel data. As a person, and scientist, I've had some skepticism of panel data before, because sometimes you see results, and you say, huh, that's a really surprising result, and I'm not sure that that that meshes with my existing narrative of what certain type of fishers want.

We do expect panel studies to be more representative to the general angler population and not to favor the most avid or regulation-opposed anglers. These are the folks that we expect to hear from disproportionately when we do our surveys, for example the surveys are coming out of Florida that are using the public reef fish data. We expect typically our respondents there will be more avid, and maybe more -- Have more strong opinions about preventing regulation that they don't like, and so uncertainty is panel data.

I think that the checks among classes did a lot to sort of assuage my concerns that the results we're giving you were some artifact. I think what's more likely here is that the reason we're surprised by the results that we got was that we are hearing from folks that don't normally hear from.

Another key uncertainty was species-specific uncertainty, and so we're most confident about the red snapper results. There's some indication the gag respondents were less interested, or perhaps less open to change, and I think it is also possible that these differences may be related to the current status and state of regulations with the red snapper regulations being really strict. It's possible that folks were more open to alternative approaches when they're looking down a two-day season, as opposed to when they have the current fifty-seven day season.

Then, finally, you all probably are aware of this, but discrete choice surveys have some hypothetical bias. We're asking folks what they would do under yet unimplemented management actions, and there are a handful of studies that demonstrate that what people say they would do is not necessarily what they will actually do facing the choice. I personally wondered if this came into play a lot when we asked folks, you know, under the choice if you selected would you fish more or less, and my guess is that it's hard for a fisher to be willing to say on paper with -- You know, with themselves, that they're actually going to fish less in the future, and so that was one place where I think this may have come into play quite a bit, but that's a -- That's a recognized and acknowledged limitation of any of the DCE or stated preference choice experiments.

Implications for the MSE, we believe that we compiled some key information in recreational management preferences in the responses. We hope this will help inform some of the scenario development and modeling of angler responses, and we -- Remember that the stakeholder working group remains available for feedback on that, including looking at some of these responses here. We're just thanking the working group, all the participants in the survey, and the South Atlantic Fishery Management Council for funding, and we will take questions as they come. Thank you.

DR. SWEENEY-TOOKES: Thank you very much. That was that was very interesting. I really appreciated hearing from so many members of your team. That was excellent. I think you've given us a lot to think about.

If the presenters have no objection, I might ask that we take a five minute bio break, so that folks can leave their computer for just a couple of moments, and then come back fresh, with all sorts of clarifying questions first, and then some general discussion. Unless I hear objection from anyone on council staff, or Kai and Ed and your team, then I'm going to ask that we break now and come

back at two o'clock on the dot, ready to jump into clarifying questions. Hearing no objections, I'll see you all in five minutes.

(Whereupon, a recess was taken.)

DR. SWEENEY-TOOKES: Thank you again to the presenters for a really excellent presentation on some truly fascinating work. This is a really exciting thing to see, and so, to the panel, what are some clarifying questions we have? If you could raise your hand please, and John will put your name over there on the side, and we would like to hear all of your questions. Jason, please go ahead.

MR. WALSH: Can you hear me?

DR. SWEENEY-TOOKES: Yes. Just fine.

MR. WALSH: Awesome. Thank you, guys, for this presentation. This is really interesting, and relevant, obviously, work that you're doing. I had a question, and it didn't come up in your presentation, but it was in the report that you sent over. There was something where you asked about, when you're reef fishing, what mode do you fish, and in your narrative, you were surprised, as I was, to see that like a third, I think, of respondents said that they reef fished from shore. I was unclear whether that demographic, or those people, were in this final 1,800 survey, and in this analysis, and does that make sense?

DR. CAMP: I'm going to jump in, and someone on the team can stop me if they if they disagree with the answer. Because we're all in different places, we're going to have to do it this way. If someone said that their primary mode of reef fishing was from shore, they could be included in the analysis. there are reef fish species that can be targeted from shore. Obviously, they're going to be outside of the federal management zone, but we didn't consider that as a disqualifying factor if they said that the predominant mode that they targeted reef fish was from shore.

Remember that a number of the species that can be targeted here in reef fish include mangrove snapper and black sea bass, and can target them, in certain cases, from breakwaters, jetties, and other places, and not so much beaches, but there is possibilities of getting reef fish, including gag grouper, from shore in some places throughout the study.

DR. SWEENEY-TOOKES: Thank you, Ed. Jason did you have a follow-up question for that? If so, feel free to jump in.

MR. WALSH: I mean, that makes sense. It just might be interesting to look, at least with red snapper, without, you know, that group of people, because I don't know if it makes sense. They might -- Yes, and it might be interesting to look at excluding those people for the red snapper analysis. Just a thought.

DR. CAMP: Yes, that is a possibility. You know, there's a couple places where you can target red snapper for sure, but I'm not aware of where you could do it in the South Atlantic. That's Panhandle stuff, but do keep in mind that, where we asked this, you know, how do you most commonly target reef fish, so someone could, for example, commonly target black sea bass, or

mangrove snapper, or potentially even gag from shore, but they still might be going out caring about red snapper regulations, and occasionally fishing red snappers.

For example, the most common type of fishing that I do is not for reef fish, but I do care a lot about the reef fishing that I do, and so, if someone asked me the most common type of fishing, I would say, well, it's this type of inshore fishing, but I would hope to not be excluded from a sample if I was -- Based off that, because I do reef fish, and do care about those regulations, and so we absolutely could explore doing it. Those were the reasons that we didn't -- That we didn't remove those folks a priori.

MR. WALSH: Awesome. Thank you.

DR. SWEENEY-TOOKES: Thank you. Christina Package-Ward.

MS. PACKAGE-WARD: Hi. I was just wondering if you could maybe expand a little bit more on what a panel involves, and the recruitment design that was used, and maybe how that leads to a more representative sample.

DR. KLIZENTYTE: I guess can -- I can jump in. Yes, and panels are basically like these -- Maybe Chelsey also can help me on this, because I don't know the actual term for it, but they're these integrated people in the public that get asked, and, I mean, maybe you've gotten an email before that says like, you know, qualify for this and get airline points, or something like that, and so these companies have access to the general public, and then, based on the quota systems that you create, they find those people and incentivize them in some way to answer your questions.

For us, for example, our only indicators were that they reef fished in the South Atlantic in the last twelve months, I believe, as well as being eighteen years or and older, and so we only had two quota questions, and we weren't normally looking for like, you know, a balance of genders, or, you know, what the general census data looks like for people in North Carolina for example, and we are just looking for interest in, you know, the reef fish sector, and, again, I'm probably leaving out a lot of details, and so I hope that answered your question, Christina.

DR. CAMP: Katrina, what did we ask Dynata with respect to the specific states, because we did specify that, you know, we couldn't get all of the samples from Florida, even though that did dominate, and did we wind up giving -- Asking them for a specific state, or a state-specific, quota at all?

DR. KLIZENTYTE: No, and they just ended up giving us the maximum that they could promise, and so it ended up being mostly Florida, and so they can only like promise you a certain standard error before -- You know, a certain whatever, range, that they can promise you, and so they gave us like -- You know like, initially, 600 people in Florida, and only like 200 in South Carolina, or something crazy.

They actually ended up oversampling, because they were able to find more people, but initially, in the contract phase, they just protect themselves, and they're like we can't really, you know, promise this much, because it's such a narrow scope of study, basically.

DR. CAMP: Thank you, Katrina. I'm just going to give a little bit to try to address the last component of the question. The reason that we think that these data will not have the same avidity bias as the email-based surveys is essentially because there's some incentive for the folks to answer, and so it would be -- What we have seen consistently in email-based surveys is that we have strong avidity bias, the most avid people, and potentially the people who are not just most avid fishers, but most invested in a certain type of management change answer, and so we're getting more of those folks than we are getting folks who might, for example, be relatively satisfied with the current situation, or might be open to management making different changes, or might just not be as tuned into email-based surveys.

Because we're basically going with a general population, as opposed to an email-based database, or email list, we expect that their respondents will be probably more representative of the overall fishing population, as opposed to one component of that fishing population.

The preliminary results, which we didn't show you, and so I'm not going to say a ton about them, but the preliminary results from the email version of the survey really did seem to bear that out, that we were dealing with folks in the email who were much more avid, in terms of -- Or much had much stronger opinions against regulations.

DR. SWEENEY-TOOKES: Thanks to both of you. Christina, if you have any follow-up questions, please feel free to unmute and ask them, and, while I wait for that, I do have a follow-up question then, because the panels are not something I've used in the past, and so I have all sorts of questions, but I will limit them.

I believe that you said that you told the panel you needed, you know, X number of people, but also then they had to be eighteen, and they had to fish reef fish, and I'm so curious about how that was able to be determined for you to be able to have this sample, and I realize that maybe going into the methods that the that the Dynata, or whatever it was used, but I wonder if you could talk a little bit about that.

DR. CAMP: Correct me if I'm wrong, but essentially what happens, I believe, is that Dynata is sending the survey out, and we're contracting them for responses of people that have to make it through our qualifying question, and so we would be charged more if, for example, we had given three different qualifying questions, and we said, hey, you have to reef fish, and you have to drive this type of car, or you have to, you know, be in this demographic or whatever, and that would have cost us a lot more, and, you know, if we got too picky with it, they would have said, look, we can't guarantee that number of responses.

It's the qualifying question that is determining whether they recreationally reef fish or not. Dynata is not finding that out on their own, and that's right, Katrina?

DR. SWEENEY-TOOKES: So Dynata is just sending massive quantities of emails, in order to capture the folks that answered that qualifying question the way that you needed it to be, in my understanding.

DR. CAMP: I don't know their exact way of contacting folks. I would assume that it's email, and I presume that these are folks that they have pre-contacted in some way, that they have on panels, and I don't actually know the inner workings of how these survey-based companies maintain,

sustain, augment their panels, but we do know that Dynata was not searching out, with some sort of criteria, people who recreationally fish. What they were saying is they were giving our survey to their predetermined groups of people, and we were only basically paying for the folks that could pass our qualifying question.

DR. SWEENEY-TOOKES: Got it. Thank you. I appreciate you all, you know, illuminating that as much as possible. Thank you. Christina, I did not see that you put your hand back up. If you did have a follow-up question that I didn't already harass them with, please jump in now. Otherwise, we will turn to Eugene's question. Eugene, please go ahead.

DR. FRIMPONG: All right. Thank you. Thanks for sharing this insightful work, and so I guess it's okay to say that a hypothetical mitigation techniques have become standard in stated preference surveys, and I was wondering if you plotted any techniques to mitigate any potential hypothetical bias in your choice experiment.

DR. CAMP: I don't believe that there was any question we asked that could be used to identify the amount of hypothetical bias that we might be dealing with here, and I personally am not aware of a question that we could have done that could have addressed that. I know that there are some nice pairings that folks have done between hypothetical say preference choice experiment and some reveal choice work, but we did not do any analysis on real preference work here.

DR. KLIZENTYTE: I'll just jump in, and so we did not include anything like cheap talk scripts or anything like that. We were just assuming that having the opt-out option would kind of imply the more realistic approach, but that's definitely something we could have included in the survey, for sure.

DR. FRIMPONG: All right. Thank you. That came to mind, especially that you mentioned there's a potential -- There could be, I mean, a hypothetical bias, especially the estimate in implied welfare implications, and I was wondering if that was something that was looked at, and also, with the attributes that were used, whether people ignored some of the attributes or considered all of them.

DR. KLIZENTYTE: Eugene, that's a good point, and that was kind of like what I was thinking with the aggregate bag attributes, because it was very complicated to try to explain them, and so they were not statistically significant in, you know, the DCE for red snapper, and so we were kind of thinking that maybe people were skipping them because it was overly complicated, but that's definitely a shortcoming here, is we didn't explicitly test for that, or answer like a follow-up question, and so, yes, you're totally right.

DR. SWEENEY-TOOKES: Thank you. I know it’s hard for everyone to not be able to see each other, to know whether to jump in or not, and so, especially the presenting team, feel free to always cut me off, or jump in at whim, but we will move on then to Kevin has a question.

DR. HUNT: Hello. Great job, team, and I’ll start off there. I don't have any qualms really with the survey, but more just the presentations of results. I have done these, and, about fifteen years ago, did a very similar study for Texas Parks and Wildlife, and one of the things one of the administrators asked for, to understand this very complicated study design, was a table ranking the scenarios.

You had mentioned that the status quo was built into the choice sets, and so, you know, basically, what we had was that status quo in our study was the 50th ranked scenario in terms of choice probability, and we listed all the scenarios, forty-nine scenarios, above that status quo, and so it seems to me like you guys could do something similar, and it was very easy, for somebody who doesn't understand this, to look at all the forty-nine scenarios above the status quo.

Now, the first one was obvious, and people want more fish, bigger fish, keep as many as they can, right in their backyard, but somewhere in between there is likely, you know, an amicable solution, and so that's just a suggestion, and you could also probably do it -- I don't think we did that in our study, and you had your three class levels too, which you could rate those scenarios in a similar fashion, in a table-like fashion, where people could see those three classes and how they rated them.

The third thing, going to the panel, you know, the gender breakdown was -- You know, with the incentives, and knowing that females have always had a better response rate on fishing surveys, that I've done it, I can see that skewness in the sample, and you could possibly look at it, you know, much more from a theoretical perspective, but it may build in, is to run the analysis separately with males and females.

I don't know if the creel surveys on the coast have a true proportion of males and females in their samples, but that may help weight the data, and maybe not statistically, but weight that in you guys' minds, how much that over sampling of females may be, you know, pulling the results one way or the other, but I could -- I think -- I would have to dig it up, but I could send you a report with that table, and hopefully you guys, one of you, understood what I was mentioning there on the choice probability table, but that's it, and I think guys did a great job.

DR. CAMP: Thank you. I think I understand what you mean, and you're asking if -- You know, there were a lot of them, but there were a limited number of total different combinations that were presented people, and we could look at the ones that were chosen most commonly. I think that's something that we can attempt to calculate.

With respect to males and females in the survey, what I was really encouraged by was that those proportions were virtually, or exactly, identical across the Class 1 and Class 2 for red snapper. My concern was that, if we were seeing large differences in that demographic across those classes, that we would need to look at something different, but the fact that the proportions male and female were virtually identical across those gave me a lot more confidence in the results, that it wasn't a situation where there's one type of person, or one person of a certain characteristic, who is really changing the results of the survey. They were really constant across Class 1 and Class 2 for red snapper.

DR. HUNT: I was more thinking of the true population, that 40 percent women in the snapper and grouper fishery is probably not likely. It's probably some percentage less than that, and so, when you're generalizing results, is what I'm talking about, to the population, that, if women are only 10 percent of this population, and 40 percent of your , they are pulling your data one way or the other, and, if you looked at them separately, you may be able to distinguish between, you know, their preferences and probably the more dominant male preferences, you know, in the true population.

DR. CAMP: Okay. I understand what you're talking about. It's likely that doing a calculation, or attempting to reweight it, would fall sort of outside of the remit of what we're contracted to do here, because, yes, we would have to be pulling from the intercept data. The email survey respondents are also going to be biased, but in a different direction, and I could take a look at that. I do a lot with MRIP data, and so I could take a look at that and look, but I don't expect that we're going to be reweighting the parameter estimates based off that.

DR. SWEENEY-TOOKES: Thank you. Thank you, Ed, for responding to that, and, just in the interest of time, I want to make sure that -- Adam and Christina have their hands up, and I want to make sure they have their clarifying questions responded to, because we did have some discussion questions that the SEP might have to address in emails, because I know some people -- I know many people have lots of other commitments, and so, in these last couple of minutes, Adam, did you have a clarifying question that we can make sure gets addressed?

MR. STEMLE: Perhaps, and I just wanted to ask a quick question about the spatial management portion of the survey, if that's clarifying.

DR. SWEENEY-TOOKES: It sounds that way to me, please.

MR. STEMLE: Okay, and so, first off, thank you for allowing us to take a look at this paper. In the speed reading I did this morning, it's wonderful, and so the question I had was is it -- In the spatial management, it says that respondents were told that 50 percent of the waters will remain open year-round, and the other 50 percent would rotate.

I was wondering if you guys considered the respondents location in the responses to this survey, and whether there's kind of like a -- I want to say like a geographic -- Not a bias, but maybe like optimism for like people that are residents of northeast Florida thinking that maybe they're not going to see this closure in their area specifically, because that is where red snapper is most commonly caught, and that's where it's concentrated, and so it wouldn't really make sense to put the closure in that area to start out with, and so they're thinking that they're just going to get an expansion of their fishing opportunities, versus somebody in say, you know, very south Florida, or up in North Carolina, where they don't see a whole lot of red snapper, and they're already kind of thinking, well, maybe we're just going to be part of the closure group. Thanks.

DR. CAMP: Sure, and so what I can clarify is that what the respondents were told is that, yes, about 50 percent of the waters adjacent to the state that you're fishing from would be open year-round, and the other 50 percent of the waters would be closed for nine months, and open for three, and so that's what they were told.

We have not done analysis of this novel management question by state. As you saw the results, we did present them by -- We did look at them by classes, and then, you know, so if there's if there's interest in state-specific there, we can look at that. I think it would be difficult for us to really infer what the folks were thinking, because someone else might say, well, there are a lot of red snapper in northeast Florida, and so maybe that's one of the areas that they would close more, to limit harvest, and so it's hard for me to want to speculate too much about why a person answered question the way that they did. We were overall somewhat surprised with how popular some of the novel management strategies were, and it should be relatively simple to go back and look and see if there were big differences in those responses state-to-state. Thanks.

DR. SWEENEY-TOOKES: Thank you. I appreciate that response. Adam, let me know if you had a follow-up question on that.

MR. STEMLE: All good. Thank you very much.

DR. SWEENEY-TOOKES: Thank you, and, Christina, did you have a clarifying question that you wanted to ask?

MS. PACKAGE-WARD: It's okay, Jennifer. We can just move on, if it seems like we're getting short for time.

DR. SWEENEY-TOOKES: I'm sorry. You know I would be happy to talk about this all day, but I suppose other people have other things we have to do. I am looking at the agenda, and I do want to mention, SEP members, we have been tasked with three questions to consider, and so, in light of the time, we are going to email these questions to you again. As a reminder -- John is very conveniently pulling them up. Thanks, John.

The first being does the SEP have comments on the survey instrument or methods, and the second being the key uncertainties, and were they adequately covered, and then, lastly, do we have any additional comments on the research presented, and so a few of those things were mentioned today. If you did give comments, I would ask that you please put those in the email, and I'll be emailing all of you and asking you to send back your responses to these three questions, and just a little bit of homework for us, since we didn't quite get to discuss them as much as we probably would have liked to.

In the interest of time, I do need to wrap up the meeting. I do have Other Business here on the agenda, John, but nothing underneath it. do you have other business, other than announcing the next meeting, that I should be addressing?

MR. HADLEY: No, and not at all. No other business here, and if there's no other -- I guess, if no other members have any other business, we can certainly wrap things up.

DR. SWEENEY-TOOKES: Any business from other members? Give us a hand, or unmute yourself, and I don't know if we need to check in for public comment again at the end, John, or if that's not necessary.

MR. HADLEY: We didn't have that on the agenda. Only at the beginning.

DR. SWEENEY-TOOKES: Okay. All right.

MR. HADLEY: Thank you for asking.

DR. SWEENEY-TOOKES: I'm trying to remember to check all the boxes of this, and so our next Social and Economic Panel meeting is in Charleston, in-person, and that's April 13th to the 14th, and that, of course, leads right into the SSC meeting in Charleston as well, and so I am very much hoping that everyone is able to attend that one in-person. It's been a little bit since we've all been

in-person in the same room, and so I guess, in my attempts to keep us on time, I maybe am ending this three minutes early, John that feels wrong, and should I riff? Do we discuss something?

MR. HADLEY: That's up to you as chair.

DR. SWEENEY-TOOKES: Any any last burning questions, or any thoughts for our presenters? I do want to say this was a quite a huge task that you all took on. I understand that very, very well, very viscerally in my soul, and I'm really impressed with the work that you've done, and the presentation that you gave, and the report that came along with it, and so I do really want to thank you all for your excellent work here. I thought I heard someone talking. No? All right. Well, with that, it is --

DR. LORENZEN: It was me, and I just unmuted myself to thank you all for that really useful feedback.

DR. SWEENEY-TOOKES: Excellent. Thank you, Kai. Yes, and thank you very much for so many members of your team being here, and even from all the way on the other side of the world, Ed, and we appreciate you calling in from New Zealand, and so, with that, it is 2:29 on my clock, and so I will go ahead and end this particular meeting, the webinar of the Social and Economic Panel. Thank you so much, everyone.

(Whereupon, the meeting adjourned on February 17, 2026.)

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