GULF OF MEXICO FISHERY MANAGEMENT COUNCIL

MEETING OF THE STANDING & SPECIAL REEF FISH, SOCIOECONOMIC &
ECOSYSTEM SCIENTIFIC AND STATISTICAL COMMITTEES

WEBINAR

NOVEMBER 18, 2021

STANDING SSC VOTING MEMBERS
James Nance...
Lee Anderson..
Luiz Barbieri...
Harry Blanchet..
David Chagaris..
Roy Crabtree..
Benny Gallaway..
Douglas Gregory...
David Griffith..
Paul Mickle...
Trevor Moncrief...
Will Patterson..
Sean Powers...
Steven Scyphers...
Jim Tolan...
Richard Woodward..

SPECIAL REEF FISH SSC VOTING MEMBERS
Jason Adriance..
Michael Allen...

SPECIAL SOCIOECONOMIC SSC VOTING MEMBERS
Luke Fairbanks..
Cynthia Grace-McCaskey..
Jack Isaacs...

SPECIAL ECOSYSTEM SSC VOTING MEMBERS
Mandy Karnauskas..
Joshua Kilborn..
Steven Saul...

STAFF
John Froeschke....................................Deputy Director
Lisa Hollensead.................................Fishery Biologist
Jessica Matos.........Document Editor & Administrative Assistant
Emily Muehlstein....................Public Information Officer
Ryan Rindone..............Lead Fisheries Biologist/SEDAR Liaison
Carrie Simmons................................Executive Director

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 1  Carly Somerset......................Fisheries Outreach Specialist
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 3  OTHER PARTICIPANTS
 4  Lisa Ailloud...............................................SEFSC
 5  Shannon Calay..............................................SEFSC
 6  Mara Levy.................................................NOAA GC
 7  Julie Neer.................................................SEDAR
 8  Eric Schmidt........................................Fort Myers, FL
 9  Katie Siegfried............................................SEFSC
10  Rick Warren...................................................FL
11  Bob Zales.........................................Panama City, FL
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1 The Meeting of the Gulf of Mexico Fishery Management Council
2 Standing and Special Reef Fish, Special Socioeconomic & Special
3 Ecosystem Scientific and Statistical Committees convened on
4 Thursday morning, November 18, 2021, and was called to order by
5 Chairman Jim Nance.
6
7   **INTRODUCTIONS**
8   **ADOPTION OF AGENDA**
9
10 **CHAIRMAN JIM NANCE:** Okay. We're going to go ahead and start our
11 SSC meeting this morning. I have a statement to read. Good
12 morning. My name is Jim Nance, and I am the Chair of the Scientific
13 and Statistical Committee for the Gulf of Mexico Fishery Management
14 Council. We appreciate your attendance on this webinar and input
15 into this meeting. Representing the council is Leann Bosarge.
16 Council staff in attendance include Carrie Simmons, John
17 Froeschke, Lisa Hollensead, and Jessica Matos.
18
19 Notice of this meeting was provided to the Federal Register, sent
20 via email to subscribers of the council's press release email list,
21 and was posted on the council's website. Today's meeting will
22 include the following topics: Adoption of the Agenda; Approval of
23 our September meeting minutes; Evaluation of SEDAR 70 Projections
24 for Greater Amberjack; Evaluation of SEDAR 72 Projections for Gulf
25 Gag Grouper; Review of SEDAR 68: Gulf Scamp Research Track
26 Assessment; and then terms of reference for SEDAR 68, which is for
27 the operational assessment. We'll then have public comment and
28 other business.
29
30 This webinar is open to the public and is being streamed live and
31 recorded. A summary of the meeting and verbatim minutes will be
32 produced and made available to the public via the council's
33 website.
34
35 For the purpose of voice identification, and to ensure that you
36 are able to mute and unmute your line, please identify yourself by
37 stating your full name when your name is called for attendance.
38 Once you have identified yourself, please re-mute your line. To
39 signal you wish to speak during the meeting, please use your hand-
40 raise function, and the staff will display your name. Please
41 remember to identify yourself before speaking and to also to re-
42 mute your line each time you finish speaking. For members of the
43 SSC on the webinar, we will be using the hand-raise function for
44 the SSC Chair to help recognize you to speak. Let's go ahead and
45 go through our roll call now.
46
47 **MS. JESSICA MATOS:** Lee Anderson.
48

1   **DR. LEE ANDERSON:** Lee Anderson.
2
3   **MS. MATOS:** Luiz Barbieri.
4
5   **DR. LUIZ BARBIERI:** Luiz Barbieri.
6
7   **MS. MATOS:** Harry Blanchet. David Chagaris.
8
9   **DR. DAVID CHAGARIS:** David Chagaris.
10
11   **MS. MATOS:** Roy Crabtree.
12
13   **DR. CRABTREE:** Roy Crabtree.
14
15   **MS. MATOS:** Benny Gallaway. Doug Gregory.
16
17   **MR. DOUGLAS GREGORY:** Douglas Gregory.
18
19   **MS. MATOS:** David Griffith.
20
21   **DR. DAVID GRIFFITH:** David Griffith.
22
23   **MS. MATOS:** Paul Mickle.
24
25   **DR. PAUL MICKLE:** Paul Mickle.
26
27   **MS. MATOS:** Trevor Moncrief. I don't see your audio connected,
28   Trevor. I see you're there, but no audio. Jim Nance.
29
30   **CHAIRMAN NANCE:** Jim Nance is here.
31
32   **MS. MATOS:** Will Patterson.
33
34   **DR. WILL PATTERSON:** Will Patterson.
35
36   **MS. MATOS:** Sean Powers.
37
38   **DR. SEAN POWERS:** Sean Powers is here.
39
40   **MS. MATOS:** Steven Scyphers.
41
42   **DR. STEVEN SCYPHERS:** Steven Scyphers is here.
43
44   **MS. MATOS:** Jim Tolan.
45
46   **DR. JIM TOLAN:** Jim Tolan.
47
48   **MS. MATOS:** Rich Woodward.

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1
2  DR. RICH WOODWARD:  Rich Woodward.
3
4  MS. MATOS:  Jason Adriance.
5
6  MR. JASON ADRIANCE:  Jason Adriance.
7
8  MS. MATOS:  Michael Allen.
9
10 DR. MICHAEL ALLEN:  Mike Allen.
11
12 MS. MATOS:  John Mareska.  Luke Fairbanks.
13
14 DR. LUKE FAIRBANKS:  Luke Fairbanks.
15
16 MS. MATOS:  Cindy Grace-McCaskey.
17
18 DR. CYNTHIA GRACE-MCCASKEY: Cindy Grace-McCaskey.
19
20 MS. MATOS:  Jack Isaacs.
21
22 DR. JACK ISAACS:  Jack Isaacs.
23
24 MS. MATOS:  Mandy Karnauskas.  Josh Kilborn.
25
26 DR. JOSH KILBORN:  Josh Kilborn.
27
28 MS. MATOS:  Steve Saul.
29
30 DR. STEVEN SAUL:  Steve Saul.
31
32 MS. MATOS:  Leann Bosarge.
33
34 MS. LEANN BOSARGE:  Leann Bosarge.
35
36 MS. MATOS:  Thank you.
37
38 CHAIRMAN NANCE:  Thank you.  I just want to say that I greatly
39 appreciate each of you for the SSC members being present.  I
40 appreciate your input every time, and I think we have good
41 discussions, and I look forward to some today.  I would like to go
42 over the Adoption of the Agenda.  Any changes?  If so, let's go
43 over those.  Steve, please.
44
45 DR. SCYPHERS:  Thank you, Mr. Chair.  I would like to propose a
46 small amendment to the agenda, and that is that we split the public
47 comment, so that we can take it at the beginning and the end of
48 the meeting.  Through some of our recent work with stakeholders,
```

1 it's been brought up that there are, at times, some really
2 important questions, or issues, that stakeholders might raise that
3 could be important for us to consider in our discussions, and so,
4 if you are amenable to it, having an opportunity for public input
5 at the beginning and the end of the meeting would be my proposal.
6
7 **CHAIRMAN NANCE:** Let me ask, and is there any opposition to doing
8 that? Okay, and so let's go ahead and have a section after probably
9 we talk about -- I would put it between III and IV, after we go
10 through our Scope of Work, so we know what we're going to be doing,
11 and then we can go through. Dave, please.
12
13 **DR. GRIFFITH:** Thanks, Jim. I just wanted to, right at the
14 beginning -- Would they be commenting then on what we did during
15 the September meeting, because, if they have these comments right
16 at the beginning, we haven't really discussed anything for them to
17 talk about.
18
19 **CHAIRMAN NANCE:** I think, from my perspective, what we would be
20 looking for is their input on what we're about to do today, any
21 input, and, if they have something that they want to talk about
22 for projections for greater amberjack, or gag grouper, those types
23 of things, and not to go back in history and say why didn't you do
24 this last time and that type of thing, but give us some input on
25 what we're doing today, so we have that before we talk, and then
26 we still have public comment at the end, where we can then hear
27 comments at the end.
28
29 **DR. GRIFFITH:** Okay. I'm fine with that. Thank you.
30
31 **CHAIRMAN NANCE:** Okay. You're welcome. Will.
32
33 **DR. PATTERSON:** I don't have an issue with this. I think,
34 oftentimes, we learn things from public comment that we maybe
35 overlooked. However, I think, if we do this at the beginning of
36 meetings, we just need to remind the commenters that these are
37 scientific deliberations and not management deliberations and make
38 sure that they're bringing information to us and not just
39 commentary.
40
41 **CHAIRMAN NANCE:** Okay. Thank you, Will, and so, from a public
42 standpoint, we need to be reminded of that, that we want to be
43 able to hear things that you're interested in from a scientific
44 perspective. With no opposition, we will put that between III and
45 IV and allow for public comment to be there, and then we'll also
46 have public comment at the end. We need to remember, for the
47 public comment, to keep it short and keep it concise and keep it
48 on the things that we're about to do from a scientific perspective.

1
2 I also have -- I see, for Other Business, I need to add the Alaska
3 meeting, just to talk about that, if anybody had input for that,
4 and so we'll add that to the Other Business. Paul.
5
6 **DR. MICKLE:** Thank you, Mr. Chair. Just, maybe in Other Business,
7 just a request to maybe talk about, as a group, if we have time,
8 the January meeting. I think a lot of the SSC are academics, and,
9 when we come back for the spring semester, it's around the 3rd,
10 and, as the materials come up, it would be good to get a head start
11 on it, if we're going to talk about the abundance reports,
12 Louisiana and Gulf-wide. Just a little bit of a heads-up of what
13 might be coming at us in January would allow some of the SSC
14 members to maybe try to get ahead a little bit, or at least not be
15 overwhelmed the first couple of days of January, as we're preparing
16 for the next meeting.
17
18 **CHAIRMAN NANCE:** Okay. Paul, that's a very good point. I think
19 the Center -- I appreciate the Center getting the materials for
20 this meeting to us in real good time, so we had an opportunity to
21 look at it. I think, for that January meeting, I think that will
22 be important also, and so thank you, Paul.
23
24 **DR. MICKLE:** Jim, just one last thing, and I tried to count them
25 at the last meeting, but I think there was four, five, or six SSC
26 standings that were never on the SSC when the Great Red Snapper
27 Count was reviewed, and so there is some catchup there, and I just
28 wanted to emphasize that it's a good opportunity for those new
29 members, me included, to get completely caught up on the previous
30 conversations and materials, so we can review it as a group, if we
31 intend to do so in January, or whenever it happens, and so thank
32 you.
33
34 **APPROVAL OF MEETING SUMMARY: SEPTEMBER 27-30, 2021**
35
36 **CHAIRMAN NANCE:** Okay. Thank you. Do I have a motion for adoption
37 of the agenda? Thank you, Sean and Roy. Any opposition to adoption
38 of the agenda? The agenda is adopted. Approval of Minutes, any
39 issues to bring up on the minutes? Roy.
40
41 **DR. CRABTREE:** I don't believe we have the minutes yet. I have an
42 email with Ryan asking about them yesterday, and he said they
43 hadn't been transcribed yet, and so I don't believe we have
44 minutes, and so I don't believe we can approve them.
45
46 **CHAIRMAN NANCE:** I guess it's the meeting summary. We have that?
47
48 **DR. CRABTREE:** We have that.

1
2 **CHAIRMAN NANCE:** You didn't get up at four and read them?
3
4 **DR. CRABTREE:** I meant to, Jim, and --
5
6 **CHAIRMAN NANCE:** Okay. Let's go ahead and -- Do we need to approve
7 the minutes summary? If I could ask for a motion to -- If there
8 are any issues on the meeting summary, which we've had for a while,
9 a motion to adopt those.
10
11 **DR. CRABTREE:** So moved.
12
13 **CHAIRMAN NANCE:** Thank you. It's been moved and seconded. Any
14 opposition to approving the meeting summary from the last time?
15 Thank you. Doug, go ahead.
16
17 **MR. GREGORY:** I see the verbatim minutes online. They are
18 available now.
19
20 **CHAIRMAN NANCE:** They are available now, and I think they just got
21 on there at 4:00 in the morning, and so I think what we'll do,
22 Doug, is, so that people have time to look at them and review them
23 before we approve them, we'll do that at our January meeting, if
24 that's okay.
25
26 **MR. GREGORY:** That's fine with me.
27
28 **CHAIRMAN NANCE:** Okay. Thank you. John, would you take us through
29 the scope of work, please?
30
31   **SCOPE OF WORK**
32
33 **DR. JOHN FROESCHKE:** Yes. Sure.   My recommendation, given how
34 meaty each of these topics are, is to go through them one at a
35 time as we come to them, and so we'll start with the evaluation of
36 SEDAR 70 projections for Gulf greater amberjack, and so the results
37 of the SEDAR 70 were first reviewed by the SSC in January and then,
38 subsequent to that, there were some clarifications of the
39 methodology and the results that we reviewed at subsequent
40 meetings.
41
42 In the September meeting, the SSC determined the projection
43 settings for a base run, and we have discussed -- Because this
44 assessment makes use of the FES landings and sets the baseline to
45 consider revised allocation ratios, the Science Center has
46 prepared a presentation and a report that provides projections at
47 various allocation ratios that were previously decided and are
48 included in the report as well as some further descriptions of the

1 changes that have been made based on the changes into the code,
2 and, in a couple of cases, a couple of corrections to the
3 assessment, and so she's going to give a presentation and describe
4 those changes, and then there are going to be projections for you
5 to review, and, if they're appropriate, we'll be looking for OFL
6 and ABC recommendations for each of the allocation scenarios.
7
8 **CHAIRMAN NANCE:** Okay. Thank you. Just go ahead through, John,
9 and could we have Agenda Item V, and just kind of go through that
10 quickly, and also VI, just so the public knows what we're trying
11 to accomplish in each of those. Then I think public comment, and
12 then we'll be able to go back to greater amberjack.
13
14 **DR. FROESCHKE:** Agenda Item V is, in some ways, similar to Agenda
15 Item IV, in that we're going to be evaluating projections based on
16 the results of SEDAR 72 for Gulf gag grouper, and so we're going
17 to get a presentation from the Science Center, and the SSC is going
18 to be looking to make recommendations on the OFL and ABC
19 projections, and then Item Number VI is the SEDAR 68, and so this,
20 as you know, has been a long-standing project, and this is the
21 first research track that has been completed, and it's for Gulf of
22 Mexico scamp, and so there's going to be a full assessment report.
23
24 Unlike the other SEDAR assessments that we've seen to this point,
25 this does not contain or ask for management advice. What we're
26 going to be looking for is a review of the research track report
27 and any recommendations that the SSC has to be considered for
28 incorporation in the upcoming operational assessment that will be
29 based on this, and you'll be seeing that next year, and so,
30 following that, then we'll be looking at the terms of reference
31 for that operational assessment.
32
33 **CHAIRMAN NANCE:** Okay. Thank you. We'll now have a turn for any
34 public comment. Please keep it concise and keep it to the science.
35 Any public comment at this time? Bob.
36
37   **PUBLIC COMMENT**
38
39 **MR. BOB ZALES, II:** Bob Zales, II, representing the Southern
40 Offshore Fishing Association and also NACO, and I don't know if
41 this qualifies for past stuff or not, but, in the gag grouper
42 assessment, and also in the amberjack, you've got the whole use of
43 this whole FES stuff, and now you've got Florida with their Gulf
44 Reef Fish Survey and their FCAL comparison, which, from what I
45 understand, is the Florida version of FES calculations.
46
47 In the past, you all have -- With red grouper, you all have accepted
48 the FES as the best available science. In this one so far, and

11

1 I'm assuming that you may go down that same road, but there's clear
2 controversy all over the place about how this data is being used
3 and how it's going back in time with history and how it is changing
4 the whole perimeter of stock biomass and allocations and everything
5 else.
6
7 This confusion is not only for us as stakeholders, but the council
8 is confused, because, at their August meeting, they passed a motion
9 to where apparently Congress has gotten involved with this, and so
10 they're trying to determine -- They're trying to get some
11 independent people to determine what is the best recreational data
12 system, and apparently nobody really knows what is the best, and
13 so, in this, I would like to see you all caution accepting this as
14 the best available until we get some kind of determination, and I
15 understand there's supposed to be some kind of workshop in January
16 about the MRIP folks talking about this again, but apparently there
17 is an issue, from my experience of over thirty years of playing
18 with this.
19
20 There is clearly an issue somewhere in the way that they go back
21 and recalibrate this data, and, until there is some kind of pretty
22 much certain explanation as to how all this happens and what it
23 does, we need to get some kind of -- I don't know what you would
24 call it, but some kind of determination on where we are, because,
25 when you're shifting allocations based on this arbitrary change in
26 recreational data, which arbitrarily changes stock biomass, you're
27 affecting everybody, and not just recreational fishers or
28 commercial fishers, but you're affecting consumers and anybody
29 that is involved in a fish, from the time that it's caught to the
30 time that it's eaten by whoever, and so that's just my comment on
31 that particular issue.
32
33 **CHAIRMAN NANCE:** Thank you, Bob. Any SSC that wants to respond or
34 has questions? Sean.
35
36 **DR. POWERS:** This has come up a couple of times, and I don't think,
37 and I could be -- We can have Ryan look in the minutes at exactly
38 what we said about FES, but that was several years ago, and I think
39 that was in the context of one assessment, and so I don't think we
40 have given a blanket that, yes, this is always the best available
41 science. Usually, those things are vetted in the SEDAR data
42 workshop format, over what is the most appropriate datasets to
43 use.
44
45 **CHAIRMAN NANCE:** John.
46
47 **DR. FROESCHKE:** Just to that point, going off memory here, my
48 recollection is something akin to, at the time, for the data, for

1 the situation, which I believe it was the red snapper, the SSC
2 recommended that the FES data were, quote, unquote, appropriate
3 for use, but they did not make a blanket-wide endorsement beyond
4 that, nor were they asked to.
5
6 **CHAIRMAN NANCE:** Luiz.
7
8 **DR. BARBIERI:** Thank you, Mr. Chairman. There is this meeting
9 that is now planned for January, and I don't recall seeing like a
10 save-the-date or a meeting invite yet, but there is a small group
11 that has been meeting in the background and planning for the
12 January meeting, and this would be the MRIP Transition Team Gulf
13 Sub-Group that has been meeting and planning for the January
14 meeting, which would include all the Gulf States, the Atlantic
15 States Commission, and, of course, NOAA Fisheries, and all the
16 interested parties in this.
17
18 This discussion is going to be expanded at that meeting, and
19 apparently there will be follow-up meetings that will have this
20 discussion. I think, at some point, Mr. Chairman, hopefully before
21 summer, or at least by summer, it would be nice to have the SSC
22 get an update on this, just because our decisions here are really
23 on what goes into assessments and all of this analysis and
24 management is critical, and so, if there are discussions that are
25 being had, and apparently NOAA Fisheries OST has been conducting
26 some studies on the FES, to determine some of the issues that may
27 be going on there, and they might have results at this January
28 meeting to present, and it would be good for us to see those, if
29 at all possible, sometime by summertime. Thank you.
30
31 **CHAIRMAN NANCE:** Thank you. Okay. Any other public comment? I
32 know some may not be available, and so we'll go ahead and go with
33 our Agenda Item Number IV. Dr. Siegfried, are you ready to do
34 that?
35
36 **DR. KATIE SIEGFRIED:** I am.
37
38 **CHAIRMAN NANCE:** Good, and thank you for getting that out in such
39 a timely fashion for us.
40
41 **DR. SIEGFRIED:** Sure. No problem.
42
43 **CHAIRMAN NANCE:** We will go ahead and turn the time over to you.
44
45   **EVALUATION OF SEDAR 70 PROJECTIONS FOR GULF GREATER AMBERJACK**
46
47 **DR. SIEGFRIED:** Thank you. Good morning, everyone. Sorry that we
48 can't be there in-person yet, and we're all looking forward to

1 that day, believe me. What I have for you today is a presentation
2 with updated amberjack projections, as well as the allocation
3 scenarios that were requested with a council memo.
4
5 At the advice of council staff and SSC leadership, we want to
6 review the corrections to the SEDAR 70 projections, once again,
7 just for clarity's sake, and we want to review those new
8 projections that are based on your recommendations from the last
9 SSC meeting, and then we would like to review the projections, or
10 have you review the projections, using the various allocation
11 scenarios from that council request.
12
13 The first item in the presentation is where we would like to take
14 you step-wise through the corrections made to the SEDAR 70
15 projections. They were first presented to you in January of 2021.
16 At that meeting, there were two misspecifications. First, the
17 benchmarks were based on SSB 30 percent, rather than an SPR 30
18 percent, as the MSY proxy, and the long-term average of recruitment
19 was used for both benchmarks and projections, rather than the
20 recent estimated mean, which was stated in the presentation and
21 the report, and I did go over this in September, and I'm just
22 reiterating it here.
23
24 Again, to visualize this for you, the plot on the right is each of
25 the four scenarios that I will define here. The first one, the
26 orange line, indicates the base run, as presented in January, that
27 used that SSB 30 percent proxy and the long-term average
28 recruitment. The first correction that we make, so that you can
29 see how it affects each projection one-by-one, is the gray line,
30 and that indicates the projection using the recent recruitment,
31 2009 to 2018, to inform the benchmarks and the projection period.
32
33 We discussed that a bit last time, that it was as though we were
34 changing the goalpost or inferring a regime shift, although I know
35 that's a little bit loaded language at this point, and so that is
36 the gray line, and you will see that that's much lower when you
37 use the recent recruitment. The OFL that comes out of the
38 projections is much lower.
39
40 The second correction is the dark-blue line, and that indicates
41 the projection using the SPR 30 percent, and not the recent
42 recruitment, but the long-term recruitment just changing our
43 benchmark to SPR 30 percent, which actually allows more take in
44 that projection, and then, when we correctly run that projection
45 with both SPR 30 percent and the recent recruitment, which is what
46 we specified, although that's not what you asked for last time,
47 that is the yellow line, and so what you should have seen in
48 January was the yellow line. That's the base if we're using the

1 SPR 30 and recent recruitment.
2
3 It's important that people ask questions during this, rather than
4 -- Like John mentioned earlier, it's quite a meaty topic, and so
5 I'm happy for people to interrupt if they have questions along the
6 way.
7
8 **CHAIRMAN NANCE:** It looks like Doug has a question.
9
10 **MR. GREGORY:** I am going to expose that I have forgotten more than
11 I ever learned, but could you just summarize what the difference
12 between SSB 30 percent and SPR 30 percent is?
13
14 **DR. SIEGFRIED:** The SSB 30 percent is -- Not that -- It's not
15 different from SPR 30 if we're assuming a steepness of near one,
16 and so that's why there was an issue with that for this set of
17 projections. That's the 30 percent of virgin biomass rather than
18 going for that 30 percent SPR, which is the standard of what the
19 SSC has asked for in the past, and so we look at -- The Harper
20 paper that we mentioned last time, there is an assumption of SPR
21 30 versus SPR 40, and so the spawning potential ratio at 30 percent
22 or 40 percent, as opposed to 30 percent of the virgin biomass.
23
24 **MR. GREGORY:** Thank you, and that's because steepness is not one,
25 that we see this --
26
27 **DR. SIEGFRIED:** That's right, yes.
28
29 **MR. GREGORY:** Okay. Thank you.
30
31 **CHAIRMAN NANCE:** Katie, I have a question. For SSB, is that --
32 Those are male and female, correct?
33
34 **DR. SIEGFRIED:** For amberjack? Let me go back and look. I'm
35 sorry.
36
37 **CHAIRMAN NANCE:** That's okay. I was curious, because I think SPR
38 is just the egg ratio, right, which would be more towards female,
39 and I think SSB, if I'm not mistaken, is both sexes.
40
41 **DR. SIEGFRIED:** It was in terms of our mature female biomass for
42 amberjack.
43
44 **CHAIRMAN NANCE:** Okay, and so I was wrong. So it's SSB is just
45 mature female, and SPR is egg ratio, right?
46
47 **DR. SIEGFRIED:** SSB is -- That 30 percent is the one benchmark,
48 and then this is the SSB versus recruits, and so one incorporates

15

1 recruits, and the other does not.
2
3 **CHAIRMAN NANCE:** Okay. Thank you. David.
4
5 **DR. CHAGARIS:** Katie, just to clarify, the gray line rebuilds the
6 stock to a level that assumes that we can only achieve the recent
7 recruitment, and is that correct?
8
9 **DR. SIEGFRIED:** Yes, that's right.
10
11 **DR. CHAGARIS:** So, out of these four options here -- If I recall
12 from our discussion at the last meeting, that -- By shifting the
13 recruitment down to target, the rebuilding target is then around
14 10 or 15 percent of the unfished stock, and so I'm just kind of
15 pointing out here that even the most conservative of the options
16 shown here would only rebuild amberjack to that level, based on
17 the historical abundance.
18
19 **DR. SIEGFRIED:** I think I agree with what you're saying, because
20 the SSB ratio is something like 13 percent, when our SPR is 30
21 percent, and that's -- The fact that we're only allowing, or only
22 expecting, the stock to get up to a level that provides this recent
23 low recruitment, that really reduces the long-term yield of the
24 stock. I am not sure what you meant by conservative, if I missed
25 your point there, but it does allow it to rebuild faster, but it
26 rebuilds to a lower value, allowing lower long-term yield.
27
28 **DR. CHAGARIS:** Right. That's what I meant. I guess the most
29 conservative, the lowest, yield streams, but it would still only
30 rebuild the stock to that 13 percent level of unfished whatever.
31
32 **DR. SIEGFRIED:** That's right, yes.
33
34 **CHAIRMAN NANCE:** Thank you. Katie, go ahead.
35
36 **DR. SIEGFRIED:** Any other questions about this?
37
38 **CHAIRMAN NANCE:** It doesn't look like it, and I think we went over
39 this in September in pretty good detail, but this is a good
40 refresher though for us.
41
42 **DR. SIEGFRIED:** The amberjack presentations that we have provided,
43 I mean, it has really uncovered a lot of issues with what we
44 present for projections and what is understood in general, and so
45 I'm very happy that we're getting this all clarified with the SSC,
46 because I think the projections that we have for you now are more
47 in line with everybody's understanding.
48

16

1 The next slide just provides an illustration of the difference
2 between that yellow line, which is what should have been presented
3 in January, and the new code, and so Nathan Vaughan presented what
4 the code does, which is just basically maintaining the correct F
5 and maintaining the correction allocation ratios, which SS has a
6 difficult time with, because, in the Southeast, we really push the
7 boundaries of what SS can do, with all of the management input,
8 and so, on the left -- It's possible that you couldn't really see,
9 right, because the blue line, the light-blue line, and the yellow
10 line pretty much overlap each other, and then I zoomed-in, which
11 is on the right, so that you could see those minor differences in
12 the yellow line, and then the light-blue line is what you should
13 have seen in January with the new code.
14
15 Really, it's a small difference for this case, but we are confident
16 that our new code is producing consistent allocation ratios through
17 time, along with the correct F values, but I just wanted you to
18 know that the code was not the problem last time, and it was really
19 those two corrections.
20
21 **CHAIRMAN NANCE:** Thank you, because while the code -- When we were
22 presented with it, the code seemed to be the issue, but I think
23 this clarifies the -- What your presentation does is clarifies it
24 very well, that the code is not an issue, but it just was some of
25 the inputs into the scenarios that were the issue at that time,
26 and so thank you.
27
28 **DR. SIEGFRIED:** Sure. In the next slide, we start to go into the
29 new projections, based on your specifications from the last
30 meeting, and so the SSC asked for the following specs, and it was
31 a very detailed discussion we had last time about what you wanted
32 to see this time, and so I wanted to go through those
33 specifications with you.
34
35 The ones that remain unchanged from the SEDAR 70 specs were the
36 years to determine relative F, and you will all remember the matrix
37 that we went through last time, years to determine F current, years
38 to determine selectivity and retention, what the interim landings
39 should be, and then the allocation ratio for the base run and not
40 the council request.
41
42 Again, it's important to go through this in detail, because things
43 change from the stock assessment report to the January meeting to
44 the final interim landings, and so, in the stock assessment report
45 -- I just pulled it from the report, what you saw there, and we
46 projected starting in 2021 for management, and we had 2019 and
47 2020 landings specified there on the right for each of the fleets.
48

1 Then, at the January meeting, we had adjusted that, because the
2 2019 landings had changed, and they were available, and we actually
3 updated them from the database, and then the updated landings, in
4 addition to assuming management in 2022, is the bottom box, and so
5 that is what is in the final version of projections.

7 You will see that, from the top box to the bottom box, those 2019
8 landings assumptions went down quite a bit, and this is an instance
9 where it was important to update the interim landings, because it
10 greatly affected the outcome of the projections. We went from 284
11 metric tons to about 157 metric tons for commercial vertical line,
12 and then our 2020 and 2021 landings were an average of previous
13 years, the three previous years, not to include 2020 though.

15 For these base run projections, we set our benchmark to SPR 30
16 percent as the MSY proxy, and we used the spawner-recruit curve to
17 calculate recruitment for setting benchmarks. That's consistent
18 with the projections that were used to set the rebuilding plan,
19 and that's what the SSC asked for last time.

21 We used the recent low recruitment for the projection period, which
22 is assuming that low recent recruitment will continue in the short-
23 term, and then we provide OFL, ABC, and rebuilding projections.
24 We fit ABC and rebuilding, because ABC was considered 75 percent
25 of the F SPR 30, and we assume that rebuilding needs to occur by
26 the set year of 2027.

28 Just to remind you of what recent average recruitment looks like,
29 it's probably some of the lowest, if not the lowest, of the time
30 period, and maybe in the early 1990s it was comparable, or maybe
31 a little lower, but it's a lower assumed recruitment into the
32 future, and so the recent is around fifteen or sixteen million,
33 and then our stock recruitment average for setting benchmarks was
34 nearly double, around 3,000, and that's just a quick pull from the
35 projections, so that I could look at what the benchmarks were using
36 for recruitment.

38 I know that this is hard to see, and so I have it visualized later
39 as well, but this is what is in the report for you. The top matrix
40 is the OFL, and the middle is the ABC, which is 75 percent of F
41 SPR, and the bottom is our rebuild scenario. In all cases, you
42 can see recruitment, which is the second column, indicated by R,
43 is that low recruitment value, and you can see the Fs there, and
44 we're assuming F SPR 30 in the top, 75 percent in the second, and
45 then you will see the low levels of F for the rebuild scenario in
46 the bottom matrix there. It's quite low until you get to rebuilt
47 in 2027, and then, in 2028, we move to an F SPR 30 level. On the
48 far-right, you will --

1
2 **CHAIRMAN NANCE:** There's a question. Luiz has a question, Katie,
3 please.
4
5 **DR. BARBIERI:** Thank you, Mr. Chairman. Katie, good morning.
6 Sorry for interrupting, but I thought that I might as well ask
7 this while we are going through this table. I am probably not
8 remembering some of our decisions here, Katie, and so I am asking
9 basically to get a clarification. Why do we have an ABC -- If we
10 have a rebuilding plan in place, why is an ABC equal to yield at
11 F rebuild?
12
13 **DR. SIEGFRIED:** That is a decision that you all can make, but we
14 just provided this, because it was requested as 75 percent of F
15 SPR 30, and I think that it does need to -- This is also indicating
16 that that assumption is not going to allow the stock to rebuild by
17 2027.
18
19 **DR. BARBIERI:** Okay. Got it. Thank you, Katie.
20
21 **DR. SIEGFRIED:** Sure.
22
23 **CHAIRMAN NANCE:** Sean has a question, also.
24
25 **DR. POWERS:** Just a quick one. We're showing that recruitment
26 data from the model, and what do we consider a recruit? Is that
27 a three or four-year-old amberjack? Do you know offhand?
28
29 **DR. SIEGFRIED:** It should be age-zeroes.
30
31 **DR. POWERS:** It's age-zeroes. Okay. It's not recruits when they
32 enter the fishery, but it's recruits when they come out of the
33 larval stage.
34
35 **DR. SIEGFRIED:** Right. They are brand-spanking-new amberjack, but
36 they're not ready for capture in all fleets yet, and that's right.
37 It's separate from the selectivity.
38
39 **DR. POWERS:** Okay. Thanks.
40
41 **DR. SIEGFRIED:** Sure.
42
43 **CHAIRMAN NANCE:** I don't see any other hands raised. I think Luiz
44 made a good point, the fact that, while you have provided the ABC
45 at 75 percent of SPR 30, it really isn't viable, in the fact that
46 it doesn't get us where we want to be by 2027.
47
48 **DR. SIEGFRIED:** That's right. The maximum F that can be taken in

1 order to rebuild by 2027 is what we've shown in the bottom matrix.
2
3 **CHAIRMAN NANCE:** Okay. Perfect. Thank you.
4
5 **DR. SIEGFRIED:** Sure, and I don't know if people want to go over
6 it now, but we wanted to provide it. The SSB over SSB0, and so
7 the ratio -- The depletion, basically, is the third-to-last column,
8 and then the SPR is in the second-to-last column, and so you could
9 see, in OFL, we're hitting 30 percent, which is our goal, but we're
10 overfishing, basically, or we're not recovering, I should say.
11 We're not getting to SSB SPR 30. That's what I should have said.
12
13 **CHAIRMAN NANCE:** Right. Doug, you had a question?
14
15 **MR. GREGORY:** Yes. Thank you. I am just curious if the new
16 information on recruitment and others in this modeling -- My
17 suggestion is we ought to revisit what the rebuilding period should
18 be, or are we stuck, legally, with the original rebuilding period?
19 Thank you.
20
21 **DR. SIEGFRIED:** I don't think that's a question that I can answer
22 for you, except for give you the background that the rebuilding -
23 - I think the rebuilding time period has been adjusted once before,
24 and 2027 was the second go-round for amberjack that I'm aware of.
25
26 **CHAIRMAN NANCE:** I don't know, personally, but go ahead and --
27 Doug, that's a good question, and we'll move on and try to get
28 that answer.
29
30 **DR. SIEGFRIED:** Okay. Then the next slide is the MSRA table with
31 all of the status, and this was needed to show that, okay, when we
32 run the projections with what we're considering as our November
33 base run, and this is with the SSC specs and all of the
34 configurations correct, and our F over FMSY proxy is greater than
35 one, and so there is overfishing occurring in 2018, at the end of
36 the model, and then the terminal status for biomass is also --
37 It's still below MSST, and far below our MSY proxy, and so this is
38 just for -- It's basically for the document, so that you know
39 status from our projections.
40
41 Then the next set of slides goes over the different allocations
42 that were requested by the council. The request was to provide
43 OFL, ABC, and rebuilding projections with the following
44 allocations, and hopefully John Froeschke can help explain, if you
45 all need to know why those years were chosen, but what we were
46 asked to do is look at 84 to 16 percent allocations, rec to
47 commercial, 78 to 22, 80 to 20, and, for your reference, it's 73
48 to 27 for the base run.

1
2 The last scenario was to keep the commercial annual catch limit
3 fixed at a set value in whole weight and calculate OFL, ABC, and
4 what the recreational allocation percentage is thereafter. The
5 rebuilding is still be achieved by 2027, using the same benchmarks,
6 and then they did ask for that ABC with the 75 percent of F SPR
7 30.
8
9 **CHAIRMAN NANCE:** Katie, I've got just a quick question.
10
11 **DR. SIEGFRIED:** Sure.
12
13 **CHAIRMAN NANCE:** Maybe John will have to answer it, but, when it
14 says, "using the years 1981 through 2004", that's where I'm kind
15 of -- Are we just using those particular years for the projection
16 or --
17
18 **DR. SIEGFRIED:** I think those years, and John can correct me if
19 I'm wrong, but those years are the landings and comparing the
20 fleets, the fleet proportions, in the landings in each of those
21 years, and is that right, John?
22
23 **DR. FROESCHKE:** That's correct.
24
25 **CHAIRMAN NANCE:** Okay. I just was curious, because those are the
26 years for the landings, and so there is no way to determine,
27 because the different years being used each time, whether it's the
28 ratio that's causing the change or if it's the actual years that
29 are causing the change. John.
30
31 **DR. FROESCHKE:** It's just the ration, and so the years just result
32 in a ratio, and so once the ratio -- For example, if you use the
33 first one, 1981 to -- They calculated all the average landings for
34 recreational and all for commercial, and that's the percentage,
35 and then the only thing that gets input into the model are the
36 actual allocations, the 84 percent and the 16 percent. The
37 landings are already -- They are always in the assessment model,
38 as they always have been, and so that just changes what the
39 assumption of the allocation would be going forward.
40
41 **CHAIRMAN NANCE:** Okay. Thank you. Sorry, Katie, for interrupting.
42
43 **DR. SIEGFRIED:** No problem. I guess, if anybody wanted to know
44 why those were chosen, I don't know that right off the top of my
45 head, but nothing else has changed in the model besides those
46 proportions.
47
48 **CHAIRMAN NANCE:** Okay. Good. Josh, you had a question?

1
2   **DR. KILBORN:** I was actually going to ask if anybody could walk
3   through the logic of why those years changed and what the reasoning
4   behind that was, but do we not have an answer to that, maybe?
5
6   **CHAIRMAN NANCE:** I think there were years and ratios determined by
7   the council.
8
9   **DR. KILBORN:** Yes, and I'm just curious why we used different
10 ranges. The allocations make sense, and like I understand wanting
11 to know the difference between the allocations, but why the base
12 data change? I don't understand that part.
13
14 **DR. FROESCHKE:** I will do the best that I can here off the top of
15 my head, and so, if you look at the 1981 to 2004, I believe that
16 was the years that were used when the original interim allocation
17 was established, and so it's the same methodology, but it's just
18 using the FES data instead of the CHTS and MRFSS data.
19
20 The years 1993 through 2007 extend it, and, in 1993, there were
21 changes to the commercial landings and the splitting of how that
22 was recorded, and so that's a more recent time series. The 1993
23 is -- So there were essentially major changes to the data
24 collection system after 1993, and then 1993 to 2019 would be
25 essentially the longest time series available, accounting for that
26 earlier change, and then the bottom one -- There was a request by
27 a council member, when we were looking at red grouper, and they
28 wanted to look at -- Instead of looking at landings over time and
29 calculate it, they said, well, what if we just -- Since we're
30 making changes to the recreational data collection system, what if
31 we kept the commercial at a fixed quota and then any remaining
32 quota, out of the total, goes to the recreational, and then you
33 compute the percentages based on that, and so that's what they
34 did.
35
36 **CHAIRMAN NANCE:** Thank you, John. Jason.
37
38 **MR. ADRIANCE:** Thank you, Mr. Chair. Katie, this may be a refresher
39 question, but, when these scenarios are run with the different
40 allocations, it incorporates the different selectivities of these
41 fleets and all those metrics, correct?
42
43 **DR. SIEGFRIED:** Yes, and that's -- Well, what it does is it
44 attributes it to those different fleets, and we use the
45 selectivities from those fleets, yes. For instance, the larger
46 fish are captured, or the commercial tends to capture larger fish,
47 and that's reflected in the results of the projections.
48

22

1   **MR. ADRIANCE:** Thanks.

2

3   **CHAIRMAN NANCE:** Doug.

4

5   **MR. GREGORY:** Thank you. I think this is a question for John.
6   Just out of curiosity, using the CHTS data, what is the current
7   allocation between the two sectors?

8

9   **DR. FROESCHKE:** It's 73 recreational and 27 commercial.

10

11 **MR. GREGORY:** Okay. Thank you.

12

13 **CHAIRMAN NANCE:** That's what was used in the base run.

14

15 **DR. SIEGFRIED:** Yes.

16

17 **MR. GREGORY:** Okay. I will come back to this later, but, given
18 that the stock is at only 42 percent of MSY, and these percentages
19 are small, it's almost like we're rearranging the chairs on the
20 Titanic. The big issue here is this stock is below 50 percent of
21 MSY, which means that it has a high risk of collapsing, and so we
22 need to be careful if we're doing anything, or recommending
23 anything, that might actually increase the overall mortality rate.
24 Thank you.

25

26 **CHAIRMAN NANCE:** Thank you, Doug. Let's go ahead, Katie, and go
27 ahead and show us the projection data. There we go.

28

29 **DR. SIEGFRIED:** Sure, and so I did not put every table in the
30 presentation, but it is in the document, and I wasn't sure that it
31 was a great idea to just blind you with all the tables here, and
32 so I tried to plot it instead.

33

34 What I showed here is all of the OFL results across allocation
35 scenarios, and I will just have you note that it's approximately
36 a 5 percent change, and this is probably what Doug was mentioning,
37 the maximum in OFL across scenarios, and so there is very little
38 change in the projected catch between the base run, with the 27/73,
39 and the Allocation 1, which I believe is the largest recreational
40 allocation.

41

42 Then here is the rebuilding results across allocation scenarios,
43 and we have very low catches until the rebuilding year, and then
44 it's fished at the F SPR 30, and that's why there is that big jump-
45 up in 2028. There is approximately a 22.5 percent difference
46 between the constant commercial catch scenario and the base in the
47 rebuilding time period, but then it flips and it's the lower total
48 catch, but the important thing to note here is there is really no

1 difference between the other scenarios, the ones that have the
2 percentages as opposed to a constant commercial catch.
3
4 Then, to explain this behavior, and I think you've seen some of
5 these types of things before, but, after we rebuild in 2027, we're
6 able to jump up and fish at the F SPR 30. However, it sort of
7 starts to drop off, because we're still assuming that low
8 recruitment just in these projections, and so we wouldn't recommend
9 that the SSC put too much weight in those later years, and we would
10 focus on the early years, before rebuilding occurs, at which point
11 we would produce new projections, although I am sure that we would
12 produce them along the way, but it's important to focus on the
13 time period before recruitment occurs. Any questions about the
14 allocation scenarios?
15
16 **CHAIRMAN NANCE:** Luiz.
17
18 **DR. BARBIERI:** Thank you, Mr. Chairman. Katie, again, not to keep
19 hitting on this point, but just to make sure that this is clear
20 for everybody, and to make sure that I have a clear understanding
21 here, and your Slide 16, this last slide that is there, and so the
22 rebuilding there, from 2022 to 2027, this is fishing at F rebuild,
23 right?
24
25 **DR. SIEGFRIED:** Yes.
26
27 **DR. BARBIERI:** Right, and so that would be the ABC, and I am
28 thinking about how the council is going to interpret our actions
29 today in terms of OFL and ABC yield streams that they going to
30 have to receive from us, and so when I look at that, that Slide
31 14, the last bullet in Slide 14 there, you have rebuilding is
32 achieved when SSB reaches SSB SPR 30 percent by 2027, and ABC is
33 the catch when fishing at 75 percent of F 30 percent SPR. Because
34 that fishing at 75 percent of F SPR 30 did not achieve our
35 rebuilding target, we will discount that, and that will not be a
36 recommendation for ABC, and we're going to recommend just an ABC
37 yield stream fishing at F rebuild, and is that correct?
38
39 **DR. SIEGFRIED:** That's what we would recommend, but we didn't want
40 to ignore the council request and not provide those four other
41 projections, but, yes, in order to rebuild, using the rebuilding
42 plan, you would have to fish at F rebuild and not at 75 percent F
43 SPR 30, and that's what these show. It shouldn't be called ABC
44 now, but was in the council request.
45
46 **DR. BARBIERI:** Right. Perfect. I just wanted to make sure I had
47 a good understanding and my rationale here is correct. Thank you,
48 Katie.

1
2 **DR. SIEGFRIED:** Sure.
3
4 **CHAIRMAN NANCE:** Doug.
5
6 **MR. GREGORY:** Thank you, and thank you, Katie. This is all very
7 helpful. Do you have a similar graph that shows the trajectory of
8 spawning stock biomass from the different allocations?
9
10 **DR. SIEGFRIED:** I don't have that created, but I could create it
11 pretty quickly. In the document, you can see how the spawning
12 stock biomass increases, and let me see if I can find the page
13 number for you. It's all in separate plots, but, I mean, I could
14 create that pretty quickly as you're looking at gag, but, with the
15 low recruitment in the ten years of this projection, we don't reach
16 SSB SPR 30 unless we do the rebuilding F, and so would you like me
17 to create that while you're looking at gag, to put in your report?
18 What can I provide?
19
20 **MR. GREGORY:** Yes, please, because I think it should show a gradual
21 or dramatic increase in spawning stock biomass with all the
22 scenarios, with the differences being similar to what we're seeing
23 in the projected catches, and, again, I will point out that, from
24 I guess -- I forgot what it slide it was of yours, and I'm bouncing
25 back and forth, and it's Slide 15, and you will notice all the
26 allocations result in a lower catch projection than the base run,
27 which implies, to me, that it's increasing fishing mortality
28 overall with the different allocations, and I don't think it makes
29 a big difference here, because the allocation differences are so
30 small, but, again, the fact that we're at 42 percent of BMSY --
31 That 50 percent, our MSST definition, is the point where other
32 councils, and particularly the Pacific Northwest, identify
33 something that Shannon presented to us last year, in looking at
34 ABC, is a constant called P critical.
35
36 P critical is -- The definition is like you're at a very, very
37 dangerous point, and this is not simple rebuilding, like if you
38 were between MSST and MSY, and the stock is in a serious condition
39 of potential risk of collapsing, and so, again, although these
40 allocations are small, they do tend to increase overall fishing
41 mortality, as shown by the reduced catches from the different
42 allocations. Thank you. I wanted to see how that related to the
43 spawning stock biomass trajectory. Thank you.
44
45 **CHAIRMAN NANCE:** Katie.
46
47 **DR. SIEGFRIED:** To that point, it's important to note that the
48 base case allocations are the lowest proportion recreational, and

1 so we think what is happening here with what you said, Doug, is
2 the lower catches -- It's larger fish, but there is fewer of them
3 taken, but your point is a good one, and we can take a look at
4 what the SSB trajectories are. Do you want them across every one
5 of the allocation scenarios, or do you just want the -- Just so I
6 don't make a bunch of things that you don't need. How many plots
7 were you asking for, exactly?
8
9 **MR. GREGORY:** I think if you take the blue and the orange and one
10 of the three in the middle, and that gives us the range and what
11 looks like the center.
12
13 **DR. SIEGFRIED:** Okay.
14
15 **MR. GREGORY:** Because, when you look at catches, in I think it was
16 Slide 16, it's very dramatic, and you think, how can we have such
17 low catches and all of a sudden go to four-times the amount of
18 catches, and that's not as intuitive as I think the growth in
19 spawning stock biomass would be, also. Thank you.
20
21 **CHAIRMAN NANCE:** Roy, to that point?
22
23 **DR. CRABTREE:** Just a couple of comments. My understanding, Doug,
24 in these projections at different allocations, is the fishing
25 mortality rate is not changing. It's the same, and that's how
26 they're done.   It's the selectivities are shifting, and that
27 results in different yields.
28
29 Secondly, your comment about we're at a very dangerous level with
30 amberjack, we are at a very low level, but it seems to me that
31 we've been there since the mid-1990s, and so it's not like the
32 stock has recently plummeted. It's been down for a long time.
33
34 Then, secondly, with the projection scenarios, the reason, I think,
35 that the catches go up so dramatically is because the F values go
36 from F rebuild up to a much higher F, and that is really where the
37 high catches come from, I think, and then we fish the stock down
38 a little bit after that.
39
40 **CHAIRMAN NANCE:** Steve.
41
42 **DR. SCYPHERS:** Thank you, Mr. Chair, and, Katie, thanks for this
43 updated presentation, and so my question is kind of a refresher
44 from last time, but it's around this discussion on I think Doug's
45 comments about the stock being in critical shape and then Roy's on
46 the longer-term view.
47
48 When we were looking at these projections, prior to one of the

changes, the stock status was not overfished, and so I asked the
question last time about how the projection change then changed
looking back at the stock status of overfished and not overfished,
and so I was hoping that you could just talk us through how that
change happens, again. When you make an update in the projections,
how that can change the status of either overfished or not
overfished.

DR. SIEGFRIED: Sure, and so if I could respond to that and then
add to what Roy said, and so, first, the way it can change is that
the benchmarks are set using our projections, and we project out
to equilibrium and we calculate benchmarks using that. If we
assume a low recruitment, we have moved our goalpost down to a low
level of recruitment and a corresponding low level of the stock,
which produces our long-term yield, but that also allows it to
rebuild more quickly, and so, when we adjust those benchmarks, it
may change the status, but it changes all those other things, like
our spawning stock biomass assumptions and our long-term yield.

That is how the status could potentially change based on these
settings. The setting that is most influential here, with respect
to our benchmarks, is what values of recruitment we assume, and
so, if there is a stock-recruit relationship here, which we're
assuming there is, because we see some evidence of that in the
data, we would assume our recruits would respond to an increased
level of spawning stock, and so what's going to be important for
us, for the Science Center, is to monitor what's happening in this
stock, recruitment-wise, as the rebuilding progresses.

Roy was exactly right that we do jump up in this plot you're seeing
here because we change our fishing mortality value in that year
after we rebuild, but we're also still assuming low recruitment,
which is why you see that drop, and it's going to continue to drop
if we still see low recruitment, and so we really want to keep an
eye on that, going into future, and certainly we're not
recommending jumping up to four-million pounds in 2028 without
some better understanding of hopefully an increase in spawning
stock size and recruitment. Does that help?

DR. SCYPHERS: It does. Thank you, but one quick follow-up, if I
may. Earlier, Doug asked about considering different rebuilding
timelines. Would the rebuilding timeline chosen also influence
stock status, looking back? If this was pushed to further years
forward, or shorter, would that also possibly influence the
overfished and overfishing status?

DR. SIEGFRIED: The status should only be affected by the current
spawning stock biomass or fishing mortality rate compared to the

27

```
 1  benchmark, and so the benchmark is affected by the recruits, but
 2  it's not affected by the rebuilding time period.  The rebuilding
 3  time period is influential in when the stock will recover, but not
 4  whether it's overfished in the terminal year of the assessment.
 5
 6  DR. SCYPHERS:  Okay.  Thank you.
 7
 8  CHAIRMAN NANCE:  Thank you, Steve.  Luiz, please.
 9
10  DR. BARBIERI:  Thank you, Mr. Chairman, and, Katie, just to
11  confirm, and this is to address like comments that Doug made about
12  the different allocations, or the impact of the different
13  allocations, and this is slide that we have right there on the
14  screen, irrespective of what allocation was adopted, all the
15  projections were constrained to rebuild, to achieve a rebuilding
16  biomass, by 2027, correct?
17
18  DR. SIEGFRIED:  Yes.
19
20  DR. BARBIERI:  Right, and so, even though we may be assuming those
21  different allocations, I mean, still, by 2027, all of them would
22  reach that rebuilding status.
23
24  DR. SIEGFRIED:  Yes.
25
26  DR. BARBIERI:  Right.  Thank you.
27
28  CHAIRMAN NANCE:  Jack.
29
30  DR. ISAACS:  Actually, I think that Katie and Roy addressed my
31  concerns about this slide, or not my concerns, but my curiosity.
32  I have seen these type of models in other fisheries, and the shape
33  of this curve -- I have seen this before, and so I guess maybe I
34  could ask Katie or something, but is it unusual to see this type
35  of one-year spike in your models, or have you seen it in other
36  fisheries, too?
37
38  DR. SIEGFRIED:  I have seen it in other fisheries, but this is
39  because we changed the fishing mortality.  We did this.  We made
40  this occur, and we're not -- Hopefully this isn't a projection
41  that is going to be followed, because we don't know what our future
42  recruitment is going to be, and so I have seen this, and I created
43  this on purpose to model the rebuilding.
44
45  DR. ISAACS:  Thank you very much.  It's very informative.
46
47  DR. SIEGFRIED:  Sure.
48
```

1   **CHAIRMAN NANCE:** Any other general questions? Shannon.
2
3   **DR. SHANNON CALAY:** Thank you very much. I wanted to just add one
4   sentiment to Katie's rather excellent synopsis, but this
5   discontinuity is something that we have not really seen before at
6   this SSC, and, as such, we have put a little bit of effort into
7   understanding why it happens, and Katie speaks very clearly about
8   it, but one thing that I wanted to point out is this assessment
9   assumes a steepness of less than one, and so we're essentially
10 saying that there is a relationship between spawners and
11 recruitment.
12
13 That said, for this projection, we have assumed low recruitment
14 throughout this projection will persist, and so, when you rebuild
15 the stock, in 2027, back to the level that can support MSY, in
16 years 2028, 2029, and 2030, we're still assuming that low
17 recruitment will continue, and that's why we asked you to
18 essentially look at that with a grain of salt, because, if there
19 is a spawner-recruit relationship, where the stock rebuilds back
20 to a healthy status, we would expect that recruitment would
21 increase, and so what we're going to need to do, during the next
22 several years, is monitor recruitment, to see if -- Essentially,
23 if the low recruitment of this stock is continuing and adjust our
24 projections if it is not.
25
26 **CHAIRMAN NANCE:** Shannon, thank you. I think, last time, we were
27 talking about that, because, as we see this, in theory, rebuilding,
28 we would hope to see recruitment increase, and that's why we would
29 need to monitor this in an every-year type of thing, so that we
30 can see what recruitment is doing as we start to rebuild this
31 stock, if it stays lower, or do we see an increase in recruitment,
32 but thank you for bringing that up. Any other general comments?
33 Let's go back to page 11. Paul.
34
35 **DR. MICKLE:** Thank you, Mr. Chair. I think I'm going to -- I guess
36 I would direct this question to maybe Shannon, because of her
37 experience, but, just for perspective to the SSC, how many other
38 assessments has the SSC weighed in on with steepness, or I guess
39 below 0.9? Is this a first, because I'm trying to address your
40 first point you made, Shannon, and maybe someone else can answer
41 the question, but this is fairly atypical, from my experience, but
42 I haven't been on the SSC very long, and so maybe it is, but it is
43 quite unique that the steepness is borderline three-quarters of
44 what this group usually sees, which dictates a very strong
45 relationship with recruit biomass, and so, when you understand
46 that, it brings up the reservations about what we think the
47 sensitivities are in a rebuilding scenario.
48

29

1   The other question is I've been digging around everywhere about
2   where the 0.777 comes from for steepness, and I've got too many
3   screens open, and so, if somebody can help me with that as well,
4   it might appease the group on the steepness. Thank you.
5
6   **DR. SIEGFRIED:** I can speak to that.
7
8   **CHAIRMAN NANCE:** Yes, please.
9
10 **DR. SIEGFRIED:**   The steepness comes from -- The panel saw a
11 likelihood profile of steepness for amberjack.   In the last
12 assessment, it was fixed at 0.85, and there was no contrast in the
13 likelihood profile, which meant there wasn't anything in the data
14 that allowed us to estimate steepness.
15
16 This time, when we ran a likelihood profile over a variety of
17 values for steepness, we did see a minimum in that profile, which
18 meant that there was some contrast in the data that allowed us to
19 estimate steepness. When we ran various diagnostics, that estimate
20 of steepness was a little bit unstable, and so it was decided to
21 fix it at the minimum of that likelihood profile for the rest of
22 the assessment process, to minimize sort of the jitters around
23 steepness when other parameters were being estimated.
24
25 As for the other question about which other species, the two in
26 recent history that didn't have a steepness of 0.99 were cobia and
27 vermilion, and we've looked into those, to determine if there were
28 any issues with that steepness assumption, and we didn't find any
29 problems   with   the   projections   related   to   like   the
30 misspecifications we had for amberjack, as far as what the results
31 were showing, but there wasn't any explicit discussion with the
32 SSC, like we had for amberjack, and so this sort of discussion
33 that we're having -- I am hoping that, each time, we'll say, okay,
34 we'll be able to estimate steepness, or, okay, what do we assume
35 about recruitment, what does the SSC recommend, and the Center
36 recommend, for projection specs when steepness is not one, and
37 what would be the most appropriate MSY proxy. That's what we're
38 trying to do with all of these presentations about amberjack, is
39 make all of these decisions more explicit, based on what the model
40 contains. Does that help?
41
42 **DR. MICKLE:** Mr. Chair, I have a follow-up question. Is that okay>
43
44 **CHAIRMAN NANCE:** Yes, please.
45
46 **DR. MICKLE**   Yes, that helps quite a bit, and back the first
47 question, and I may have not followed very well, and I apologize,
48 but did you say the 0.777, and you talked about how that was come

1 up with, but would you describe that as qualitative or a
2 quantitative process, methodology, for coming up with that number?
3
4 **DR. SIEGFRIED:** It's a quantitative process, because it's based on
5 the likelihoods calculated at a variety of steepness, which
6 incorporates all of the data in the model, and then, when we looked
7 at that likelihood surface, that profile, we saw a minimum, and so
8 the maximum likelihood estimate was what was used, and it wasn't
9 a qualitative determination based on literature or anything, and
10 it was all likelihoods using the data in this model.
11
12 **DR. MICKLE:** Thank you.
13
14 **CHAIRMAN NANCE:** David.
15
16 **DR. CHAGARIS:** I was just thinking back on something that Shannon
17 said, that we want to monitor recruitment in this stock under the
18 rebuilding plan, and we would expect to see recruits increase, and
19 that's true, but that recruitment is only going to increase now to
20 this lower level, because all of the targets now are conditioned
21 on this lower level of recruitment, and so we could talk about
22 allocations and projection settings and everything, but I think
23 the biggest issue here is what do we want a rebuilt stock of
24 greater amberjack to look like?
25
26 Are we choosing to rebuild it to this low level and be satisfied
27 with that, because that is ultimately what is happening here with
28 the -- Because all of these reference points are calculated now
29 based on this low recruitment level. You can have an SPR of 30
30 percent, but be at 5 percent of the unfished spawning stock
31 biomass, because it's per recruit, and so I think we just need to
32 think carefully about sort of the fundamental underlying
33 assumption in all of these projections using the low recruitment,
34 that they do shift the baseline, and they shift the target down
35 quite a bit, and so this rebuilt stock is going to be lower than
36 what the original rebuilding plan was probably set out to achieve.
37
38 **DR. SIEGFRIED:** Can I respond, Mr. Chair?
39
40 **CHAIRMAN NANCE:** Yes, you may.
41
42 **DR. SIEGFRIED:** Hopefully I understood you right, Dave, but,
43 actually, the benchmarks that were asked for by the SSC last time
44 were based on the stock-recruit curve recruitments and not the low
45 recruits. What we did, that's different from what we've done in
46 the past, is we calculated those benchmarks, those goals, are
47 higher than what you were just describing, and they're not based
48 on low recruitment, but they're based on that stock-recruit curve,

31

1 but what we're projecting is that, while the stock is only
2 producing this low level of recruitments, trying to get to those
3 benchmarks based on the stock-recruit curve.
4
5 That's why the catches are lower, because the recent recruitment
6 is lower than the expected recruitment, and so that's why we need
7 to be monitoring this using interim analyses and trying to take a
8 look at comp data and those types of things, to determine if that
9 low recruitment is continuing into the future, and so we didn't
10 move the goalpost here. That was the point of using the stock-
11 recruit curve with the benchmarks, but only using the low
12 recruitments in the short-term for these projections, and does
13 that make sense?
14
15 **DR. CHAGARIS:** I mean, that's -- I must have misunderstood and
16 didn't catch that you all were able to make that change, because
17 my understanding is that the target -- The biomass target to
18 rebuild to, or the SPR target, is lower than what it would be if
19 you had -- Because I know you use the stock-recruit curve to
20 estimate the long-term benchmark, but, in the rebuilding plan,
21 doesn't the model estimate F, the fishing mortality rate, F
22 rebuild, to get to the equilibrium reference points under the
23 recent recruitment, or did you all change that?
24
25 **DR. SIEGFRIED:** We made a change. We did what you all asked last
26 time and were able to change that, and so our benchmark, the SPR
27 30, is based on the equilibrium projections using the stock-recruit
28 curve, and then what we did is just take recent recruitments to
29 project the short-term yield, in order to rebuild, that you're
30 seeing on the screen. Our benchmarks, the SPR 30 calculations,
31 are based on that stock-recruitment curve recruits. That's why we
32 needed the time from the last meeting to this one, to make those
33 changes. We hadn't done that before in the Gulf.
34
35 **CHAIRMAN NANCE:** That was my understanding too of what we were
36 doing, and that's why it's important that we monitor this one
37 annually, so we can see if we're starting to see increasing
38 recruitment, which is going to be a sign that we're on the right
39 track, or, if it stays low, then the things that we're doing are
40 not helping recruitment. Roy.
41
42 **DR. CRABTREE:** Yes, and, if recruitments do go up, which is what
43 the stock-recruitment curve predicts, if that happens, then the
44 council will be in a position to either increase the catch levels
45 while they're rebuilding, or they could say we're going to keep
46 them low and rebuild that much quicker and get to the end of this.
47
48 **CHAIRMAN NANCE:** Dave, does that answer your question?

1
2 **DR. CHAGARIS:** Well, I'm still confused, because, looking at the
3 yield streams on page 4 of your presentation, that gray line is
4 the one that I asked about, that goes from 0.5, an OFL of 0.5
5 million pounds, but then, looking at the yield stream on the figure
6 that you showed before, it looks like it's the same value, and so
7 I am not seeing the effect of trying to hit a higher target in the
8 yield stream.
9
10 **CHAIRMAN NANCE:** On that graph, we're using the yellow one.
11
12 **DR. CHAGARIS:** Right, and so that's even higher. If you were
13 trying to build to a higher target, then the yield stream should
14 be lower under F rebuild.
15
16 **CHAIRMAN NANCE:** This is OFL, but go ahead, Katie.
17
18 **DR. SIEGFRIED:** What you should have seen in January was the
19 yellow, and so what we discussed last time is, if we assumed
20 forever that the stock was going to have low recruitment, that's
21 what the gray line is, and there would be no jump-up after
22 rebuilding, and it would just be the slow, steady increase, but
23 then, if you go back down to that last plot, and I think it's Slide
24 16, what this would look like, if we used recent recruitment, is
25 there would be a very small jump-up, rather than a very large jump-
26 up, after the year of rebuilding, and so the effect of using the
27 stock-recruit relationship for setting benchmarks is the
28 difference between the yield in 2027 here estimated and the 2028,
29 and that would be much, much smaller if we were assuming recent
30 recruits forever.
31
32 I see what you're saying, that the gray line on that other slide
33 looks similar to these lines here, but that's the difference, is
34 that, after rebuilding occurs, there is the potential for more
35 take, because your benchmarks are set to the stock-recruit curve.
36
37 **CHAIRMAN NANCE:** Okay. Doug.
38
39 **MR. GREGORY:** Thank you. I have I think three points, but they
40 will be short. One is a question for John, and that is I see we're
41 starting out here with like a half-million pounds of harvest over
42 the next six years, and going up to a million pounds, and what is
43 the current harvest level for amberjack?   That was my first
44 question. You can get back to me later, if you don't have it at
45 your fingertips.
46
47 **DR. FROESCHKE:** I will get you exact numbers, but recall that the
48 comparisons are always a little bit wonky, because we're going to

33

1   FES from the CHTS.
2
3   **MR. GREGORY:** Okay. I guess everything here is in FES, and so
4   that would be the comparison.
5
6   **CHAIRMAN NANCE:** That's correct.
7
8   **MR. GREGORY:** The second point is, if we can estimate steepness in
9   the model, at some point shouldn't we go back and reevaluate
10 whether we should be using a proxy or an actual estimate of MSY?
11 That's for Kate. Then a comment on what Dave was saying, and I
12 think Dave's concern and arguments would really come to play if we
13 were trying to interpret the low recruitment as a new climate
14 regime, and, at some point, we'll have that discussion, because we
15 do know the waters are warming, and it's affecting the stocks,
16 most obviously with king mackerel, where we've totally changed the
17 eastern Gulf king mackerel migratory pattern.
18
19 The only open question then is with -- I guess for people to talk
20 about, and we could do it later, is should we be trying to estimate
21 MSY directly at this point, when we have this kind of good estimate
22 of steepness? Thank you.
23
24 **CHAIRMAN NANCE:** Thank you, Doug. Okay. I would like to entertain
25 -- Is there any motions from the SSC? Okay. I guess, Katie, you
26 can address Doug's question on steepness.
27
28 **DR. SIEGFRIED:** I presented a little bit about that at the last
29 meeting, as to whether it was something the SSC wanted to do to
30 move to MSY, rather than have a proxy, because we can estimate
31 steepness, and it was my understanding that that was not what the
32 SSC was recommending.
33
34 In general, if the steepness is estimable, and if there's an
35 argument of how well estimated, and that was what we discussed
36 last time, and, if it's estimable, then, yes, MSY is more
37 appropriate, but I went through all of those diagnostics last time,
38 and I thought the SSC decided against it, and I didn't realize
39 that it was still open for discussion. We can look at that
40 presentation again, if you would like.
41
42 **CHAIRMAN NANCE:** No, and I think, at our last meeting, we talked
43 about that, and I think it's something we can do in the future,
44 but I think, right now, it's not.
45
46 **MR. GREGORY:** I agree with that, Mr. Chair.
47
48 **CHAIRMAN NANCE:** Thank you, Doug. I would like to open it up, if

1 there's any motions. We need to move forward on our
2 recommendations for greater amberjack. Luiz.
3
4 **DR. BARBIERI: I sent Jessica a motion about the greater amberjack**
5 **projections.** I will explain my rationale here if I get a second,
6 Mr. Chairman.
7
8 **CHAIRMAN NANCE:** Okay. Luiz has a motion. Do we have a second?
9 Steve is the second. Go ahead for discussion.
10
11 **DR. BARBIERI:** The rationale here was to approve the methodology
12 that was used, right, and so all the procedures and how the
13 projections were configured and the data used, et cetera, and then,
14 instead of providing a numerical value for OFL and ABC, we
15 basically just explain to the council that the actual numbers there
16 will be dependent on what allocation they decide to adopt, going
17 forward, but that we recommend that OFL be set at the OFL as
18 determined by the Science Center projections and that the ABC will
19 have to be as the yield at F rebuild, given the fact that the other
20 ABC did not reach the rebuilding target.
21
22 **CHAIRMAN NANCE:** Thank you, and so is there discussion for this
23 motion? Roy.
24
25 **DR. CRABTREE:** Luiz, the OFL and the ABC would be based on the
26 low-recruitment scenario, right?
27
28 **DR. BARBIERI:** Correct. Yes, and maybe we should -- **I would accept**
29 **a friendly amendment, if you prefer to make that explicit, and**
30 **that might be an improvement to the motion, yes.**
31
32 **DR. CRABTREE:** I think, if there's a way to add that in there,
33 that the catch levels are based on the low-recruitment scenario.
34 Did you want to just add a sentence at the end?
35
36 **DR. BARBIERI:** A sentence at the end, I would say.
37
38 **DR. CRABTREE: Just add a sentence saying that the catch levels**
39 **are based on the low-recruitment scenario.**
40
41 **CHAIRMAN NANCE:** Right.
42
43 **DR. BARBIERI:** Right, and this would go, I would guess, to 2027,
44 which is the rebuilding scenario that we're considering right now.
45
46 **DR. CRABTREE:** Yes, and I don't think this needs to go into the
47 motion, but, just so we're all clear, we are continuing to use the
48 spawner-recruit curve and the increased projections for the

1 rebuilding plan and rebuilding timeline, but, in terms of where
2 we're setting the catch levels and the OFL now, we're sticking
3 with the low-recruitment scenario until we see evidence indicating
4 that higher recruitments are actually happening.
5
6 **DR. BARBIERI:** Just to that point, Mr. Chairman, and not to over-
7 extend this discussion, but I think that's a very important point
8 that Dr. Crabtree just made, and, Dr. Froeschke, I think that this
9 can be captured in our meeting summary, and I think it would help
10 the council to understand explicitly what our choices were. Thank
11 you.
12
13 **CHAIRMAN NANCE:** Thank you. Jim.
14
15 **DR. TOLAN:** Thank you, Mr. Chairman. I will probably just hold my
16 comments back to what Luiz touched on at the very end, and I was
17 going to ask if you need to have a timeframe associated with this
18 or if it was explicitly based on the presentation giving the F
19 rebuild year of 2027, but we have touched on that, and so I think
20 it's discussed here, and so thank you.
21
22 **CHAIRMAN NANCE:** Thank you, Jim. Any other discussion on this
23 motion? Luiz.
24
25 **DR. BARBIERI:** Mr. Chairman, I apologize, but instructions from
26 council staff are that it would be preferable to have a split
27 motion that explicitly first determines BSIA and then a separate
28 motion for catch level recommendations.
29
30 **CHAIRMAN NANCE:** Roy.
31
32 **DR. CRABTREE:** We passed a motion at the last meeting that the
33 assessment was BSIA, and so do we need that again?
34
35 **CHAIRMAN NANCE:** I saw that motion and --
36
37 **DR. POWERS:** We never passed a motion about the projection being
38 BSIA, and it was just the assessment, and I agree with Joy that
39 we've already done that.
40
41 **CHAIRMAN NANCE:** Last time, we had a motion that we accepted the
42 methodology as best available data, scientific information, and so
43 does this -- Do we need to split this one, because this talks about
44 the projections, as opposed to the model.
45
46 **DR. BARBIERI:** Right, and to that point, Mr. Chairman -- Thank
47 you, but, to that point, in line with our scope of work, and that
48 is explicit in our scope of work, that the Science Center -- Dr.

1 Siegfried came today specifically to make those issues clear,
2 right, and to present again this methodology for the projections
3 and lay out all those parameters, to make sure that we were in
4 agreement, and so I was trying to address primarily what our charge
5 had been set in the scope of work and then make the catch level
6 recommendation.
7
8 **CHAIRMAN NANCE:** John.
9
10 **DR. FROESCHKE:** So a couple of thoughts on the motion. I guess my
11 preference is if we would, once and for all, put somewhere in there
12 what the stock status is with respect to overfished and
13 overfishing, because that's been kicked around so much, and then
14 I don't know whether we would want to do it this motion or perhaps
15 a second motion, but tack on something that those assumptions are
16 appropriate and then consider the OFL and the ABC for the different
17 allocation scenarios.
18
19 **CHAIRMAN NANCE:** Roy.
20
21 **DR. CRABTREE:** Well, I was just going to ask -- I mean, if staff
22 wants the motion split, so that we say they are BSIA in a separate
23 motion and deal with it, that's fine with me.
24
25 **CHAIRMAN NANCE:** I think that's how we're supposed to, in theory,
26 do it, and so I think it would be good if we go back to -- This is
27 what we did last time. You see this motion right here, and it's
28 determine the SEDAR 70 operational assessment of Gulf of Mexico
29 greater amberjack represents the best scientific information
30 available. This is where we talk about the model itself and not
31 the projections, because we haven't seen the projections, and so
32 I think this is where we're talking about the model.
33
34 Go ahead and bring the motion back up, Jessica, that we're dealing
35 with now. **I think this is talking about the projection**
36 **methodology, and so, if we cut it off at "considered by the**
37 **council", and, if we cut it off there and then deal with this**
38 **motion first and then that other part, the SSC recommends that --**
39 **That would be a separate motion, and I think that would take care**
40 **of this, logistically.**
41
42 **DR. BARBIERI: I agree completely, Mr. Chairman.**
43
44 **CHAIRMAN NANCE:** Steve, any issue with that, as the second?
45
46 **DR. SCYPHERS:** No, no issue with the change to the motion. I have
47 a question, but I need to think it over a little bit more.
48

1   **CHAIRMAN NANCE:** Okay. Luiz.
2
3   **DR. BARBIERI:** Mr. Chairman, quickly, just to Dr. Froeschke's
4   point, shall we restate stock status here, given the fact that
5   stock status is now dependent, right, as we have this dynamic
6   projection methodology now being used, and it could actually change
7   stock status from the --
8
9   **CHAIRMAN NANCE:** I think what you're saying here is the SSC --
10 Then add here -- Go ahead and put the stock status in there, and
11 I think that would be appropriate.
12
13 **DR. BARBIERI: So, based on these projections, the stock is**
14 **determined to be overfished and undergoing overfishing.**
15
16 **CHAIRMAN NANCE:** Okay. Steve.
17
18 **DR. SCYPHERS:** Thank you, Mr. Chair, and I'm glad that that part
19 came up, because that gets to the core of my questions earlier and
20 my concerns last time, is how often are these projections going to
21 be revisited, and I get the sense that this is a fishery that we
22 want to track, and so are we going to be looking at potential
23 changes in stock status every time we revisit these projections,
24 and so could stock status change next year, if we look at this
25 again?
26
27 **CHAIRMAN NANCE:** I think the intent is to look at what's happening
28 as the stock starts to rebuild and what is happening to
29 recruitment, and I think that's the key, and, if we see recruitment
30 really going up, then we can do some other projections, to see
31 where we are and what we need to be doing to change. John.
32
33 **DR. FROESCHKE:** In general, I think the approach from the Science
34 Center, and they can correct me, but it would be to use the interim
35 analysis approach, which would update the landings stream if the
36 indices increase, and I'm not sure -- That won't change the stock
37 status, and so that only -- A stock status can really only be
38 determined through an assessment at this time, and so we would
39 have to do an additional stock assessment in the future to
40 determine whether the stock is no longer overfished, but we could
41 increase catches through the interim analysis, if we're actually
42 seeing improvement in the indices.
43
44 **CHAIRMAN NANCE:** Katie, I see you there, and so I will move you up
45 to first.
46
47 **DR. SIEGFRIED:** Thank you, Chair. John stated most of what I was
48 going to say. We wouldn't recommend doing projections between now

1 and the next time it's assessed, and we do the interim analyses
2 based on the indices, and we might want to take a look at other
3 things within the Center that we would want to discuss, and, like
4 I said, it might be valuable to look at comp data, but we need to
5 look at our data priorities at this point, to make sure that we're
6 providing all the other management advice that we need to provide,
7 but, at the very minimum, it would be interim analyses, and I think
8 the combined video index was recommended for use for amberjack,
9 but, no, it wouldn't update status, and it would just update the
10 management advice from year to year.
11
12 **CHAIRMAN NANCE:** Okay. Thank you. Jason.
13
14 **MR. ADRIANCE:** Thank you, Chair. My comment actually goes, now
15 that the motion has been split, to the second part, and should I
16 hold that or just --
17
18 **CHAIRMAN NANCE:** Probably hold that.
19
20 **MR. ADRIANCE:** All right.
21
22 **CHAIRMAN NANCE:** Then, Jason, I will make sure, when we talk about
23 the second motion, that you're brought up, for sure. Doug.
24
25 **MR. GREGORY:** I am in the same category as Jason.
26
27 **CHAIRMAN NANCE:** Okay. Perfect. Trevor.
28
29 **MR. MONCRIEF:** I have a quick question, and it was said a couple
30 of times now, and we said we're going to monitor recruitment over
31 time, to try to reevaluate and try to get a different idea of what
32 the stock is doing, and are we talking about looking at
33 recruitment, and are we simply talking about monitoring the indices
34 that are coming off the video survey and the interim analysis, or
35 are we saying that we're going to look at the SEAMAP plankton
36 surveys, to try to get a direct look at recruitment? I just wanted
37 a little bit of clarity on that one, just for my own sake.
38
39 **CHAIRMAN NANCE:** Katie, do you have a comment on that one?
40
41 **DR. SIEGFRIED:** Sure, and so the recommended index, based on the
42 fact that it covers so many of the size and age classes, is the
43 combined video index, but we do have annually-updated SEAMAP
44 indices. Since the combined video index was recommended for use,
45 we would use that first, but those other ones are also available.
46
47 I think that everybody is on the same page that this stock needs
48 to be -- We need to see if the new ABC set does help the stock

1 rebuild, and so that certainly could be something that the Center
2 would want to support, and so we would take a look at which indices
3 would be most appropriate for the interim, if for some reason the
4 combined video index is not representative. We don't know why
5 that would be the case right now, but we are committed to providing
6 the interim analyses for updated management advice yearly, to make
7 sure that we don't miss anything as the stock progresses to
8 rebuilding.
9
10 **MR. MONCRIEF:** Thank you, and I'm sure there is some tradeoffs
11 between the different surveys and the representativeness, but I
12 was just trying to -- It was mentioned a few times, and so I just
13 wanted to make sure we had a good idea of, if we're going to look
14 at recruitment, how are we actually going to look at it, but I
15 appreciate your answer.
16
17 **CHAIRMAN NANCE:** Thank you, Trevor. Carrie.
18
19 **EXECUTIVE DIRECTOR CARRIE SIMMONS:** Thank you, Mr. Chair. I just
20 have a question about the last sentence: "Based on these
21 projections, the stock is overfished and undergoing overfishing."
22
23 As you mentioned, the SSC, as a body, already made a recommendation
24 on the status of the stock, and just a general question, since
25 we're dealing with various allocations, those projections for
26 corresponding OFL and ABC, and would we want to pull that out,
27 when we get to that section, and just say that doesn't change the
28 status of the stock, because I didn't understand that the
29 projections actually could change the status of the stock, and
30 you've already made a recommendation on that.
31
32 **CHAIRMAN NANCE:** I think the key is here that this is the base
33 model, and so I think, from the SSC standpoint, we want to
34 recommend that, from the base model, from the ratios that are in
35 existence right now, this is what we see, and then the second
36 motion looks like we're going to talk about the council may wish
37 to change those ratios, and, if so, then that would have to be
38 brought back here, because that would cause -- We would have to
39 look at the new tables and then base our recommendations on those
40 new ratios and what that does. Roy.
41
42 **DR. CRABTREE:** But, I mean, for the books, the status determination
43 will be based on the terminal year of the assessment, which I think
44 was 2018, and it showed overfished and overfishing. Now, you get
45 into projections, and now the status is going to change, because
46 we're ending overfishing and rebuilding the stock, but that's the
47 official determination, and that, I think, comes out of the
48 terminal year of the assessment, rather than the projections.

1
2 **CHAIRMAN NANCE:** Carrie.
3
4 **EXECUTIVE DIRECTOR SIMMONS:** I guess that was my point of
5 confusion, I guess, is the last part of this motion, and is that
6 necessary, and you've already made a statement on that.
7
8 **DR. CRABTREE:** Or you could just -- I think we have made a
9 statement, but you could clarify it here that, based on the
10 terminal year of the assessment, the stock is overfished and
11 undergoing overfishing, but I will leave that to Dr. Barbieri.
12
13 **DR. BARBIERI:** Well, in this case here, I think that, as of today,
14 right, with us accepting this configuration for the projections,
15 and, Katie, if you're listening, and of course you are, correct me
16 if I'm wrong, but this basically sets what we accept, the way that
17 these projections are configured, right, and so, in this case,
18 this sets the stock status determination for this assessment.
19
20 **CHAIRMAN NANCE:** Maybe, for clarification, and I'm just going to
21 throw this out, based on these projection settings, to put the
22 term "settings" in there, that the stock is overfished and
23 undergoing overfishing, and would that help everyone's feeling?
24
25 **DR. CRABTREE:** When you say "today", Luiz, you mean based on the
26 projections in 2021, the stock is overfished and undergoing
27 overfishing?
28
29 **DR. BARBIERI:** No, that's not what I meant. I mean, that would be
30 the stock status at the terminal year of the assessment.
31
32 **DR. CRABTREE:** That's 2018 and not 2021.
33
34 **DR. BARBIERI:** Exactly my point. That would be 2018, because
35 that's the information that goes with this assessment, the terminal
36 year of the assessment. Now, these projections, because they
37 change the way that the assessment is using recruitment, or
38 determining reference points, that is what is changing.
39
40 That stock status is still retroactive to 2018, but, because we
41 accept these projection settings, as Jim said, as of today, the
42 stock status determination for this stock should be set. If we
43 had accepted a different recruitment scenario for this stock, we
44 could end up with a different stock status determination as of
45 2018, because it depends on how the Center would be estimating
46 then the reference points that they use for that determination.
47
48 **CHAIRMAN NANCE:** Let me -- I would like to vote on this motion. I

1 am going to read it, and then we can go ahead and move forward
2 with that. **The SSC determined that the projection methods**
3 **presented for the SEDAR 70 Gulf greater amberjack stock represent**
4 **the best scientific information available and are appropriate for**
5 **consideration by the council. Based on these projection settings,**
6 **the stock is overfished and undergoing overfishing. Any opposition**
7 **to that motion? Please show by raise of hand. I don't see any,**
8 **and it looks like the motion carried with no opposition.**
9
10 Let's move to that second motion. Is there discussion on -- Here's
11 the second motion. The second motion reads -- Steve, are you still
12 seconding?
13
14 **DR. SCYPHERS:** I will keep the second for discussion.
15
16 **CHAIRMAN NANCE:** That's fine. Okay. Luiz.
17
18 **DR. BARBIERI: Apologies, Mr. Chairman, but, because we modified**
19 **the previous one, I just sent Jessica revised language for the**
20 **second one, which, of course, is unfinished.**
21
22 **CHAIRMAN NANCE:** Then this will be a substitute motion.
23
24 **DR. BARBIERI:** Please weigh-in, in terms of --
25
26 **CHAIRMAN NANCE:** Okay, and so this is the second motion. Do we
27 have a second for this motion?
28
29 **DR. BARBIERI:** Well, we have to wordsmith a little. Delete the
30 following, the "based on the projections settings", because I was
31 trying to do this on the run here.
32
33 **CHAIRMAN NANCE:** Why don't you go ahead and correct this one, Luiz,
34 and then we can -- John.
35
36 **DR. FROESCHKE:** At some point, essentially, the different scenarios
37 addressed in Slide 16 of the presentation -- Are we going to
38 incorporate that in this, or that would be yet another motion?
39
40 **DR. BARBIERI:** I'm sorry, John, but I was spacing out for a second.
41 Can you ask that question again?
42
43 **DR. FROESCHKE:** The different ABC and OFL projections that are --
44 Well, the ABCs, I guess, in Slide 16 that vary for the different
45 allocation scenarios that we've asked you to comment on, would you
46 bundle all of that into this, or would that be separate, and so,
47 in this case, would this apply only to the base 73/27 allocation
48 or all the different iterations?

1
2 **DR. BARBIERI:** No, and, to clarify, and perhaps I should have made
3 that clear for the previous motion, and so the previous motion was
4 taking care of the configuration that was used for setting those
5 projections, right, and those were inclusive of all the different
6 allocation scenarios.
7
8 Picking different allocations would be something for the council
9 to do, but we approved the methodology, or that was the idea,
10 right, that we would approve that methodology and accepted those
11 settings as scientifically valid.
12
13 **CHAIRMAN NANCE: Here is the motion: Based on the projection**
14 **settings accepted by the SSC for the SEDAR 70 operational**
15 **assessment, the SSC recommends the following catch level**
16 **recommendations for greater amberjack: OFL be set at the yield at**
17 **F 30 percent SPR and ABC at the yield at F rebuild.** Do we have a
18 second for that motion? Roy seconds. Is there discussion? Jason.
19
20 **MR. ADRIANCE:** Thank you, Mr. Chair. John and Luiz started to
21 touch on what my comment was going to be, and it doesn't need to
22 be attached to the motion, necessarily. It could be in the summary
23 to the council, but I think we should provide a table of those
24 various numbers somewhere. Thanks.
25
26 **CHAIRMAN NANCE:** For each of the different ratios and things?
27
28 **MR. ADRIANCE:** Correct.
29
30 **CHAIRMAN NANCE:** Those are all in that report, for sure, but I
31 think that would be good, and, Jason, your point is well taken.
32 Sean.
33
34 **DR. POWERS:** This is more a question for John, but do you have an
35 idea yet, and I know we just decided on this, but how much of a
36 reduction that's going to be from the current ABC?
37
38 **DR. FROESCHKE:** A lot, and so the current ABC is 1.7 million and
39 change, and so 484,000 in the commercial and 1.3 on the
40 recreational. Now bear in mind that this is in CHTS, and so CHTS
41 is -- You can almost double that in your head, and so it will be
42 a big cut.
43
44 **CHAIRMAN NANCE:** Thank you. Doug.
45
46 **MR. GREGORY:** Thank you.   I was going to suggest, instead of
47 specifying all the yields, is simply to put a year, a range of
48 years, in this, and the council typically asks us to give a three

1 or a five-year either constant or annually-changing ABC and OFL,
2 which doesn't seem appropriate here, but, if we just said for the
3 next five years, then that gets us close to the end of the
4 rebuilding period, or we could say until the end of the rebuilding
5 period of 2027, without specifying the numbers.
6
7 Then I was going to -- I think we ought to have another motion
8 that basically says, and I disagree with whoever said that those
9 allocations are scientifically valid. I don't think there's any
10 science at all to those allocations. I think what we can say is
11 that it's irrelevant which allocation the council chooses, as far
12 as the stock status goes, for stock rebuilding.
13
14 **DR. BARBIERI:** To that point, Mr. Chairman?
15
16 **MR. GREGORY:** To get involved in this kind of minor, 2 percent or
17 3 percent or 4 percent, allocation is certainly not based on any
18 scientific method, and so, in this motion, I would simply say we
19 need to say F rebuild and OFL until the end of the rebuilding
20 period of 2027. Thank you.
21
22 **CHAIRMAN NANCE:** Luiz.
23
24 **DR. BARBIERI:** Doug, first of all, thank you for bringing that up,
25 because I didn't mean to say, and I may have -- Perhaps I misspoke.
26 My comments about the projection settings is that independent, or
27 irrelevant, of whatever allocation was to be used, the settings
28 for the projections were considered scientifically valid, and the
29 methodology was approved by the SSC, and so the council would know
30 that they can proceed in choosing the allocation of their choice,
31 because the methodology used would be valid, and so I think that
32 point needs to be clarified, and thank you for that.
33
34 Then, in terms of the rebuilding time period, I mean, if you want
35 to offer that as a friendly amendment, and I think that it adds
36 clarity to the motion, and so I'm not against it, Mr. Chairman, to
37 add that to the motion, because I feel that that adds clarity.
38
39 **MR. GREGORY:** If I may?
40
41 **CHAIRMAN NANCE:** Go ahead, Doug.
42
43 **MR. GREGORY: I would add, to the last sentence, "through the end**
44 **of the projected rebuilding period".**
45
46 **CHAIRMAN NANCE:** Through the end?
47
48 **MR. GREGORY:** Right. **Until the end of the projected rebuilding**

1   **period.**
2
3   **CHAIRMAN NANCE:** Luiz and Roy?
4
5   **DR. BARBIERI: Yes, and I'm okay with that as well, Mr. Chairman.**
6
7   **CHAIRMAN NANCE:** Okay. Thank you. David.
8
9   **DR. CHAGARIS:** I just wanted to say that, after looking closer at
10 the tables and the explanation that Katie provided, that all of my
11 concerns for these projections have been addressed, and so I will
12 be supporting the motion. Thank you.
13
14 **CHAIRMAN NANCE:** Thank you. I think John thinks it would be
15 helpful, and I agree with him, that probably to have maybe a table
16 underneath this that would show the starting year, OFL, ABC, and
17 allocation, just so we have the numbers that are in one area of
18 this motion. Why don't we -- I am going to take Leann's question,
19 and we will build this little table. We will put it at the end of
20 the motion, and then, when we come back from break, we'll be able
21 to then vote on that motion. Leann, and then we'll take a ten-
22 minute break.
23
24 **MS. LEANN BOSARGE:** Thank you, Mr. Chairman. I think you just
25 addressed my concern. From a management perspective, Magnuson
26 says that the science will set the catch levels, and so, for me,
27 not being a scientist and reading that motion, as a manager -- It
28 probably makes perfect sense to you all that, as managers, we're
29 going to tell the fishermen they can fish at this certain yield at
30 F rebuild through the end of some rebuilding period, but we're
31 pretty used to getting hard numbers in those motions, and that
32 helps us a lot, and so, as long as there is some hard numbers going
33 below that motion, in the form of a table, so we know what those
34 catch levels are, that would be very helpful for me, and so thank
35 you.
36
37 **CHAIRMAN NANCE:** Okay. Thank you, Leann. We'll go ahead and take
38 a ten-minute break, and I guess we'll come back at 10:40 Eastern
39 Standard Time.
40
41 (Whereupon, a brief recess was taken.)
42
43 **CHAIRMAN NANCE:** Okay. We're getting ready to start. Jessica, I
44 think John just sent you a table, and we can put that table on the
45 end of the motion. It's a big table, but it will still be good.
46 What this is is these are the values from each of the different
47 scenarios that are presented in the tables that are provided by
48 the Southeast Fisheries Science Center.

1
2 The intent here is just to make sure that we have, within the
3 motion, the values that are stated from those various tables. I
4 would like to go ahead and have any discussion on the motion.
5 Sean.
6
7 **DR. POWERS:** This is more commentary than anything, but I'm
8 concerned that we're going to have such a large reduction in this
9 fishery on a stock assessment that we have all acknowledged is
10 best available, but I think many of us share the feeling that we've
11 never gotten an accurate picture of this stock. Some of it has to
12 do with lack of -- Not enough fisheries-independent indices and
13 the landings system changes and all of those, but, you know, I
14 guess that's really my point, that this is best available science,
15 and we've passed a motion, and we can't exceed the OFL that we
16 have accepted, but yet there is still reservations, in my mind,
17 because of comments that we've talked about at the assessment
18 phase.
19
20 **CHAIRMAN NANCE:** I agree, and my point is, as we, in theory, reduce
21 the catch of this stock, we need to see, as the stock rebuilds,
22 what happens to recruitment. Do we stay at low recruitment through
23 this entire period, and we really have an issue, or do we start to
24 see stock being -- The recruitment being built back through time
25 because of these things, and that's kind of what I am looking for.
26 Roy.
27
28 **DR. CRABTREE:** I mean, I have -- I think we all have some of those
29 discomforts, and amberjack has always been a very uncertain
30 assessment, and I believe there has been funding provided for an
31 amberjack count of some sort, and so my hope is that we'll see a
32 lot of new information become available over the next few years,
33 so that we can add some more certainty to what's going on, but I
34 think, with what we have right now, we've done the best we can do.
35
36 **CHAIRMAN NANCE:** Thank you, Roy. Trevor, please.
37
38 **MR. MONCRIEF:** I can certainly agree with both Sean and Roy's
39 points here. It is -- The information we have in-hand definitely
40 is concerning, this large of a drop in the yield of a stock,
41 straight off the bat, and I did want to touch on -- I tried to
42 raise my hand right at the end of the break, and I wanted to speak
43 a little bit to what Doug has requested and what I think is
44 certainly something that needs to be included in the table, if the
45 Science Center has it available, just a projection of the actual
46 reduction from maybe what we've seen in the past with a stock --
47 How much is about to be reduced, as far as the yield streams,
48 through these future years, and I think that would be very

1 informative.
2
3 Speaking to Mr. Zales' comment at the beginning, hopefully more
4 stuff will continue to come out, as we continue to meet and start
5 getting ideas, but this is a stock that we have undergone numerous
6 changes and haven't really realized any reduction in mortality,
7 for the most part, and so hopefully something in the future will
8 pan out, and we'll be able to get a better idea of what's going on
9 with amberjack.
10
11 **CHAIRMAN NANCE:** Thank you, Trevor. Doug.
12
13 **MR. GREGORY: I would like to just add, at the end of the motion,**
14 **where it says, "rebuilding period", just say "2027", or "through**
15 **2027", "through the end of the projected rebuilding period of**
16 **2027".** I don't think we should use "through" twice. I'm sorry.
17 Thank you.
18
19 **CHAIRMAN NANCE:** Okay. Jason.
20
21 **MR. ADRIANCE:** Thank you, Mr. Chair. I just wanted to echo what
22 Roy and Trevor spoke about, that we all have reservations in this.
23 Unfortunately, we're faced with a situation where this is the
24 science we have, and so I just wanted to use this to plug for a
25 research track again, hopefully after the big project that's
26 upcoming, and maybe we can get somewhere. I'm not sure if
27 monitoring the stock from year-to-year, with the issues we have
28 with the current data, is going to show us much, but we need to
29 change something with this down the road. Thanks.
30
31 **CHAIRMAN NANCE:** Thank you, Jason. Carrie.
32
33 **EXECUTIVE DIRECTOR SIMMONS:** Thank you, Mr. Chair. **Could you**
34 **please add that the yield streams are in whole weight somewhere?**
35
36 **CHAIRMAN NANCE:** Thank you. Go ahead and put it, Jessica, right
37 there, and you could maybe put in parentheses. Okay. I think
38 we're ready to vote on this motion. Let me read it. **Based on the**
39 **projections settings accepted by the SSC for the SEDAR 70**
40 **operational assessment, the SSC recommends the following catch**
41 **level recommendations for Gulf greater amberjack: OFL be set as**
42 **the yield (millions of pounds whole weight) at F 30 percent SPR**
43 **and ABC at the yield, and I guess we can add the millions of pounds**
44 **there too, at F rebuild through the end of the projected rebuilding**
45 **period of 2027. Any opposition to this motion? We can show by**
46 **raise of hand.** Let's go ahead and, I guess, vote, Jessica. Let's
47 go ahead and just -- We'll do a voice vote, please.
48

```
 1   MS. MATOS:  Steven Saul.
 2
 3   DR. SAUL:  Yes.
 4
 5   MS. MATOS:  Jack Isaacs.
 6
 7   DR. ISAACS:  Yes.
 8
 9   MS. MATOS:  Lee Anderson.
10
11   DR. ANDERSON:  Yes.
12
13   MS. MATOS:  Dave Chagaris.
14
15   DR. CHAGARIS:  Yes.
16
17   MS. MATOS:  Doug Gregory.
18
19   MR. GREGORY:  Yes.
20
21   MS. MATOS:  Trevor Moncrief.
22
23   MR. MONCRIEF:  Yes.
24
25   MS. MATOS:  Sean Powers.
26
27   DR. POWERS:  Yes.
28
29   MS. MATOS:  Jim Tolan.
30
31   DR. TOLAN:  Yes.
32
33   MS. MATOS:  Richard Woodward.
34
35   DR. WOODWARD:  Abstain.
36
37   MS. MATOS:  Will Patterson.  I will come back to you.  Paul Mickle.
38
39   DR. MICKLE:  Yes.
40
41   MS. MATOS:  Jason Adriance.
42
43   MR. ADRIANCE:  Yes.
44
45   MS. MATOS:  Luke Fairbanks.
46
47   DR. FAIRBANKS:  Yes.
48
```

1 **MS. MATOS:** Steven Scyphers.
 2
 3 **DR. SCYPHERS:** Yes.
 4
 5 **MS. MATOS:** Jim Nance.
 6
 7 **CHAIRMAN NANCE:** Yes.
 8
 9 **MS. MATOS:** David Griffith.
10
11 **DR. GRIFFITH:** Yes.
12
13 **MS. MATOS:** Roy Crabtree.
14
15 **DR. CRABTREE:** Yes.
16
17 **MS. MATOS:** Luiz Barbieri.
18
19 **DR. BARBIERI:** Yes.
20
21 **MS. MATOS:** Michael Allen.
22
23 **DR. ALLEN:** Yes.
24
25 **MS. MATOS:** Cindy Grace-McCaskey.
26
27 **DR. GRACE-MCCASKEY:** Yes.
28
29 **MS. MATOS:** Josh Kilborn.
30
31 **DR. KILBORN:** Yes.
32
33 **MS. MATOS:** Will Patterson. I see you're unmuted, Will, but I
34 can't hear you.
35
36 **CHAIRMAN NANCE:** Okay. Thank you. **It looks like the motion**
37 **carries with some absent.**
38
39 **DR. PATTERSON:** Can you hear me now?
40
41 **CHAIRMAN NANCE:** Yes, we can, Will.
42
43 **DR. PATTERSON:** I don't know what's happening with my mic there,
44 but I vote yes.
45
46 **CHAIRMAN NANCE:** Thank you, sir. Okay. Thank you very much for
47 that discussion and for the motions. We're now ready to move on
48 to SEDAR 72, the projections for gag grouper. Dr. Ailloud, I think

1   you have the floor. Also, Katie, thank you for that presentation
2   and for all of that analysis. It was greatly appreciated.
3
4   **DR. SIEGFRIED:** Sure. You're welcome. Thank you so much.
5
6   **EVALUATION OF SEDAR 72 PROJECTIONS FOR GULF GAG GROUPER**
7
8   **DR. LISA AILLOUD:** Hello, everyone. Today, I'm going to touch on
9   a few things, following up on the last meeting. The first, because
10 there's been a lot of discussion for gag grouper around the use of
11 Fmax, and this is another proxy, like F SPR, I did want to give
12 you a little bit of feedback on what I learned as far as where
13 Fmax came from, and this I hope will help you decide which proxy
14 to pursue for SEDAR 72.
15
16 Then I will go over the updated projections, and so, if you recall,
17 I was tasked with essentially only changing one thing, compared to
18 last time, which was provide projections with an updated estimate
19 of the 2021 red tide, and so Dave Chagaris provided me with that
20 new estimate, and I will show you how that affects the projections,
21 which is actually pretty minor, because the estimate did not change
22 all that much.
23
24 Then, finally, I was also asked to give an idea of what could be
25 done to translate the catch, the projected catches, that are right
26 now in FES, what would it take to transform them into a GRFS
27 currency, and so I will catch up on that at the very end.
28
29 Fmax, the original choice of Fmax started in the 2001 assessment,
30 and so I put the link here, if you're interested in seeing the
31 full report, and I also provided the text, because I think it's
32 really helpful to just read the entire paragraph here, but I will
33 summarize it for you.
34
35 At the time Gulf of Mexico gag grouper was being assessed using a
36 VPA, and the definition of the SSB was SSB female only, and so
37 when multiple benchmarks were looked at, at the time, the Fmax
38 benchmark was compared to the F SPR 30, and the Fmax was actually
39 providing an F SPR equivalent that was higher than 30 percent, and
40 also providing more yield, and so the reason is, when you're doing
41 an F SPR 30 percent, but you're looking only at female biomass,
42 and you have a hermaphrodite, you're not concerned with preserving
43 any of the males, and, when you're looking at an Fmax, you're
44 actually looking at yield over both males and females, and so,
45 because, in a hermaphrodite, your males are larger, older, you
46 could actually get more yield if you allowed more females to become
47 male and contribute to the yield.
48

In that case, the Fmax was equivalent to about between 43 and 65 percent of SPR, and they looked at a range of different scenarios at the time, but that was specific to that context, where you are looking at an SSB female only.

Then I retraced what the equivalent of this Fmax was compared to SPR for different assessments since then, and so you see here that, in SEDAR 10, this SSB female-only Fmax was equivalent to about an F SPR 31 to 33 percent. In SEDAR 33, there was about 40 percent SPR, and all this kind of moves around with differences in discards and the tension -- Where the mortality is happening, essentially, and then, in SEDAR 33, that's where they started looking at SSB combined, because the Stock Synthesis format allowed us to do so, and you can see here that the F SPR equivalent is about 30 percent.

As you move forward now in SEDAR 72, we're now getting a situation where SSB female Fmax is pretty much equivalent to a 30 percent SPR, and so it's really not any more say conservative, in a sense, and, when you're looking at an SSB combined scenario, now you have the opposite happening, where your Fmax is making you fish harder than the F SPR 30, and its equivalence is about a 13 percent SPR, and so we're essentially -- If we're looking at an SSB combined scenario, which we are, then the original kind of thought process for going to Fmax doesn't apply anymore.

Then I just have one more slide, and then I can stop for questions regarding this, and I just have a quick slide that I don't want to spend much time on, but I did mention last time that the Fmax search was a little more slow and unstable than an F SPR search in our current algorithms we're using, and I just want to show why.

If you're looking at an Fmax, you're looking at maximizing your yield per recruit, and so that red line here, as you're dividing the yield by the recruits that produce that yield, that curve can be very flat, and, as you're searching -- Essentially, if you're bumping up the magnitude of yield and recruits at the same time, that ratio can be very similar, and so it's just a longer search. It's not an issue, and we can still get there, but it's a more complicated process, is all.

With that, I think I probably should pause here, since it's a lot, and just see if there's any questions about where Fmax came from and the reason for F SPR 30 being more appropriate with an SSB combined scenario.

CHAIRMAN NANCE: Any questions from the SSC in regard to this part of the presentation? Lisa, I will say what a great job you've done in presenting this. We had a couple of questions at our last

1 meeting, and you have done some excellent research and come up
2 with this, and I greatly appreciate you doing this, and it's a
3 real help to us.
4
5 **DR. AILLOUD:** Thank you.
6
7 **CHAIRMAN NANCE:** Any questions though? Okay. No questions. Then
8 let's go ahead and move on.
9
10 **DR. AILLOUD:** Next is the set of updated projections. I put that
11 up here, and there have been no changes in the actual setup of the
12 projections compared to last time, and so those are all decisions
13 that you all had already made, but I did summarize them, just as
14 a reminder as to what are the interim landings and what is the
15 allocation ratio we're using here in the projections. The
16 selectivity is coming from 2019, and that's because there was a
17 recent change in regulations that affects retention, and then
18 relative F is the average from the last three years.
19
20 The only thing that changed would be what are we assuming for this
21 2021 red tide, and so remember that, in your projection, 2021 is
22 actually an interim year, and so we're killing off some fish due
23 to red tide, but we have to decide how much are we killing off,
24 and, to do so, Dave Chagaris has an ecosystem model running up to
25 -- He updated it up to the end of October, and so he has very
26 recent data on the magnitude of this 2021 red tide, and he
27 recalculated for us an estimate of mortality linked to the red
28 tide.
29
30 In order to show you a range of possibilities, I show you here
31 three scenarios that I call the low, medium, and high, but keep in
32 mind that what I mean by this is that the medium is actually the
33 point estimate coming out of Dave's ecosystem model, and so that
34 is kind of his most likely value of the red tide. It's this medium
35 scenario, which represents a red tide of about 24 percent of the
36 strength of the 2005 red tide, and so, again, I am calling it
37 medium, but this is a fairly low-impact red tide, if we're
38 comparing to historical red tides, only 24 percent of the strength.
39
40 Then, in order to give you a range, I just looked at the confidence
41 interval around that mean and I picked out the low end and the
42 high end of that confidence interval, and so just the 95 percent
43 confidence interval, and this gives you two scenarios, one that I
44 called low, and that would be that the red tide is 6 percent of
45 the strength of 2005, and so quite low, and then the high, which
46 would bump it up a little bit and say that the strength was 68
47 percent of the 2005 red tide.
48

1 Under all of those scenarios, we are still maintaining the red
2 tide lower than 2005, which is the general feeling and feedback
3 we've gotten from stakeholders, that they don't think it was as
4 bad as 2005, and so that seems kind of in line with our current
5 understanding.
6
7 **CHAIRMAN NANCE:** We have a question from Sean on that.
8
9 **DR. AILLOUD:** Yes.
10
11 **CHAIRMAN NANCE:** Would you go ahead and put that slide back?
12
13 **DR. POWERS:** If I am jumping ahead, please just let me know that
14 you prefer to answer it later, but the M -- I assume that's
15 additional M, and is that applied to all age classes or just to
16 some age classes? How is that handled?
17
18 **DR. AILLOUD:** In the base case, we're actually applying red tide
19 mortality to every single age class, and it's a flat selectivity
20 for natural mortality.
21
22 **CHAIRMAN NANCE:** Okay. Thank you. You can go ahead, Lisa.
23
24 **DR. AILLOUD:** So it's the total M. To give you the same figures
25 as last time, I did run all of the scenarios that have been
26 requested, and, here, I summarized the F SPR 30 percent proxy
27 versus the Fmax, and so, for each of those, you see three columns
28 relating to the three red tide scenarios, and so low, high, and
29 medium.
30
31 You can see that, in all scenarios, we do have a situation where
32 the stock is overfished with overfishing occurring, regardless of
33 the proxy. However, the different proxies do provide different,
34 very different, FMSY proxies, with Fmax being much higher, and
35 what that translates to, if you look at the -- There is two things
36 that create a difference here.
37
38 If you look at the very last line, row, you see that, for the
39 rebuilding, the F SPR 30 brings the stock to about 13 percent, 14
40 percent, of virgin conditions, the SSB, whereas, in the Fmax
41 scenario, you're really recovering the stock to a very low level
42 of about 3 to 4 percent of virgin conditions, and that's because,
43 with F SPR, you're trying to preserve the males, because you
44 believe that the males are needed for successful reproduction.
45
46 The other difference, if you looked at the line called "Year
47 rebuilt at F equals zero", that will give you the year that you
48 will rebuild if you stop fishing, starting in 2023, and you see

1   here that, under the F SPR 30, it takes ten, eleven, or twelve
2   years, depending on the scenario, versus, with Fmax, it takes less
3   than ten years across all of these red tide scenarios, and I
4   highlighted the F SPR low red tide scenario year rebuilt of 2033
5   in red, and that is just because that is the only scenario where,
6   because it takes exactly ten years to rebuild, it would require -
7   - The law would require the fishery to close, essentially, and so
8   that does not allow fishing.
9
10 I know this was -- We had quite a lot of discussion around this
11 last time, and so I just wanted to make it clear that that is the
12 only scenario where this happens.
13
14 This is just for you, if you prefer to visualize the trends through
15 time, and this gives you an idea of the differences of what are
16 the benchmarks that each proxy is trying to reach on the long-
17 term, and so you can see that, obviously, it's very different if
18 you're trying to preserve -- If you think males need to be
19 preserved versus if you're just interested in looking at the yield-
20 per-recruit curve.
21
22 I summarized, and I thought maybe a schematic would be a little
23 easier to look at for what are the F rebuild options, and so what
24 I have in the subsequent slides are all these F rebuild scenarios,
25 one per slide, because those numbers get very small, and so I
26 wanted to make sure that you could read all the yield streams,
27 but, essentially, there are three situations.
28
29 First, in the projection, I go ahead and calculate how long it
30 takes for the stock to rebuild with no fishing, and, if it takes
31 less than ten years, you are faced with three options of
32 rebuilding. One is to select the fastest rebuilding, which would
33 be just no fishing, and so that's Tmin. The other option would be
34 to take ten years to rebuild, and the third option would be to
35 pick a year that is halfway between that Tmin and that ten-year
36 mark.
37
38 All of these would be, in this case, applicable to the Fmax
39 scenarios, because we're always rebuilding within less than ten
40 years, and now, if you look at the second column here, if you're
41 actually taking, requiring, longer than ten years to rebuild with
42 no fishing, in that case, there are three options open for
43 rebuilding, and one is to take Tmin times two amount of time to
44 rebuild, and the other is to take Tmin plus one generation time,
45 which I believe is seven or eight years for gag grouper, and then
46 the third option is to take as much time as is needed if you set
47 your -- If you're fishing at 75 percent of MFMT.
48

1 Then, finally, just to be clear, if it takes exactly ten years to
2 rebuild, which is the case of the low red tide F SPR 30, then there
3 are no options, really, because you can't go any lower, and you
4 don't have the second column option, and so there is no fishing
5 allowed.
6
7 I have listed all of these yield streams in million pounds gutted
8 weight, and this is the retained catch, and so this is the F zero,
9 and so this is why you see the zero here, but I have all of them
10 listed in order, and I think, at this point, I can probably pause
11 and see if there is discussion or questions.
12
13 **CHAIRMAN NANCE:** I think that's good. Let's go back up two slides.
14 I think this is a good one, maybe, to have, where we have everything
15 kind of sitting there, and we can have a discussion on it, and so
16 let's go ahead and discuss -- I don't think go through every single
17 scenario, but there are some things from this that we can take a
18 look at in greater detail and go into those. Let's go ahead and
19 have a discussion, at this point, on using this table. Luiz.
20
21 **DR. BARBIERI:** Thank you, Mr. Chairman. I think, if we are talking
22 about a choice of a reference point, and if we go between
23 continuing using Fmax versus F SPR 30 percent, which we had
24 discussed last time, and, again, Lisa, thank you for researching
25 into that and providing the presentation today, and I guess you
26 made it very clear how those decisions had been made in the past,
27 and it looks like we have a better model in place now. SS can
28 handle the hermaphrodism better than the VPA analysis was able to,
29 and I would like to hear, I guess from council staff, potentially,
30 about what are our options for making a recommendation for use of
31 the SPR 30 percent as a reference point for gag.
32
33 It looks like, right now, the constraints that we had before, in
34 terms of analytically getting a viable, a plausible, scenario for
35 gag -- That has changed now, right, and so we are at a point where
36 we can make that correction and align the reference points that we
37 use for gag with most of the other reference points that are used
38 for other reef fish stocks, and so --
39
40 **CHAIRMAN NANCE:** I think it's not only that the model has been
41 able to better use the data, but we've gotten some better data,
42 and so those two things, I think, are pointing towards where we
43 need to be with that reference. John.
44
45 **DR. FROESCHKE:** I think I will try to answer this the best I can,
46 but, as usual, it's a little bit complicated. Right now, the MSY
47 proxy is the Fmax, and the MSY proxy is a council prerogative, and
48 so I think what we need today is we do need -- If we're going to

1 change that, we still need to go to the no action, and so we still
2 need projections at Fmax. The SSC certainly could recommend and
3 request projections using an SPR proxy, and we could change that
4 through an amendment and adopt the projections using the SPR proxy
5 in one shot.
6
7 The caveat is that, long ago, the SDC document has a provision in
8 there that the SSC could recommend something and the council could
9 just agree with that, and so, if that's implemented, and I expect
10 that it will be, prior to this all coming to a conclusion, then we
11 could probably do it that route, but, in this case, if you were
12 certain that you wanted to use Fmax, I think you could just do
13 that, but, if you think you want to use SPR, we're going to need
14 both of them.
15
16 **CHAIRMAN NANCE:** You know, you look at Fmax here, and it's got a
17 13 percent SPR equivalent. I mean, basically, the reason we have
18 higher catches there is we're allowing the stock to rebuild at a
19 low entity. Roy.
20
21 **DR. CRABTREE:** Yes, and that's really troubling, and I can't think
22 of a situation where we would say a 13 percent SPR is a defensible
23 proxy for MSY, and so I've seen enough that Fmax does not seem, to
24 me, to be an appropriate reference point, and I understand that,
25 John, they will have to have that scenario to analyze in the
26 document, because that is the status quo, but it does seem clear
27 to me that the 30 percent SPR is the more appropriate reference
28 point, and it looks to me like we have really three decision
29 points.
30
31 The reference point decision will be one the council will have to
32 make, with our recommendation, and then there is the issue of how
33 to treat the sexes in the calculation of the status, which I
34 believe sexes combined is the recommendation out of the Science
35 Center, and that seems most appropriate, and so that's a decision
36 we need to make.
37
38 Then there's the decision about how to handle the red tide issue,
39 and it seems to me that -- At least my understanding of what we've
40 seen is that Dave's analysis shows that the medium red tide event
41 is the most likely and is the point estimate, and so my feeling,
42 at the moment, is that ought to be our recommendation on that, and
43 so that would leave us with presenting Fmax scenarios and 30
44 percent SPR scenarios to the council, with sexes combined and the
45 medium red tide scenario.
46
47 **DR. BARBIERI:** I have a comment to that.
48

1 **CHAIRMAN NANCE:** Okay, and Mara has got her hand up, and so you
2 may want to hear her first, but -- Mara, I'm going to let you go
3 to the head of the line.
4
5 **MS. MARA LEVY:** Okay. Thank you.
6
7 **CHAIRMAN NANCE:** You're welcome. I always like to hear your input.
8
9 **MS. LEVY:** I mean, I agree with what John said, that Fmax is on
10 the books, and, regardless of the status determination criteria
11 amendment, if we're going to change it, the council is going to
12 need to do it.
13
14 I also just had a question, because, in listening to this, and
15 looking back at Amendment 30B, which put the Fmax reference into
16 place, in that discussion, it said that, in terms of SPR at that
17 point, the Fmax was very close to the 40 percent SPR, and there
18 was an alternative in that document to select 30 percent SPR, as
19 opposed to Fmax, and so I guess I'm just wondering if you've all
20 thought about, rather than just 30 and Fmax, whether there should
21 be some consideration of 40 percent, the 40 percent SPR. Thanks.
22
23 **CHAIRMAN NANCE:** Thank you. Luiz.
24
25 **DR. BARBIERI:** Not to Mara's point, and thank you for that, Mara,
26 but just a brief correction to what Dr. Crabtree mentioned there,
27 and that was the sexes combined, and I thought we had a motion
28 that passed at the last meeting that already accepted the sexes
29 combined, but I agree with all the other decision points.
30
31 **CHAIRMAN NANCE:** Yes, that's correct. Lisa, you have your hand
32 up, and so let me move you up. Sorry, Steve.
33
34 **DR. AILLOUD:** Thank you, and I just wanted to respond to Mara, to
35 clarify a little bit. Those comments on Fmax and about 40 percent,
36 or higher than F SPR 30, it would only happen in an SSB female-
37 only scenario, and because -- If you're using an F SPR 30 in a
38 female-only scenario, you are ignoring males, and that's where you
39 would say, well, bumping it up to an F SPR 40 percent would be
40 better, because it would allow you to preserve some of the males,
41 and it gives you more buffer, essentially, but, here, in this case,
42 we're actually looking at SSB combined, and this is why you're not
43 seeing the same trend, and you're seeing an Fmax that is making
44 you fish a lot harder than your F SPR proxy for an SSB combined.
45
46 **CHAIRMAN NANCE:** Thank you. That was very helpful. Steven.
47
48 **DR. SAUL:** Thank you, Mr. Chair. John answered most, or the

1 majority, of my questions, procedurally speaking, in terms of what
2 we would need to do to be able to use an SPR 30, or a different
3 benchmark, whether it's SPR 30 or 40 or whatever, and I also
4 strongly agree with Luiz and Roy that managing this thing at Fmax,
5 with a 13 percent SPR, is going to get us -- It's going to cause
6 problems down the line.
7
8 It's also worth, I think, noting that, as an SSC, I think it's
9 important that we carefully look at the terms of reference for
10 these things, because -- Which I know we do anyway, but it just
11 seems like this Fmax thing has been carried over for like twenty
12 years, from a different model and a different time, and so I'm
13 really glad that the SSC is reconsidering alternative benchmarks.
14 Thank you.
15
16 **CHAIRMAN NANCE:** Thank you. Sean.
17
18 **DR. POWERS:** I agree with Roy's outline of the points, the last
19 one on red tide, and I agree with the scenario, which is that I
20 still have questions how they're actually taking into account red
21 tide. I do -- I would like to hear some thoughts from Luiz on do
22 you agree that that M should be applied over all age classes, or
23 are you all finding that it's just younger fish that have been
24 killed off in this red tide event?
25
26 **CHAIRMAN NANCE:** Luiz, to that point?
27
28 **DR. BARBIERI:** Thank you, Mr. Chairman, and thank you for putting
29 me on the spot, Sean. The short answer is I don't know, right? I
30 mean, we have very little information to really be able to inform
31 this decision, but, if we think about this latest red tide, my
32 general feeling is that it was primarily inshore and very
33 nearshore, and it didn't have the spatial extent of the 2005, and
34 so it didn't have as much of an impact on older age classes of
35 gag, as seems to have happened in 2005.
36
37 Now, collecting age composition of the ages of the fish that are
38 impacted by red tide is a major challenge, and usually we cannot
39 do that very well. Even when we try to do it, we end up with a
40 very small sample size that's very spotty and spatially patchy and
41 is difficult to extrapolate that to the population as a whole, but
42 my tendency would be to see that this red tide would have greater
43 impact on younger age classes and not the full extent of the stock.
44
45 **CHAIRMAN NANCE:** Sean and then David is on, and so he may have
46 some --
47
48 **DR. POWERS:** Good, because I was about to give the caveat that a

1   lot of it has to do with how Dave put the impact in and whether it
2   makes sense, and that's why the M is applied to all, but, depending
3   on Dave's answer, it would be interesting to see if the analysts
4   had an idea of, if we only applied even a higher M to the younger
5   age classes, would that -- What would that do to the projections?
6
7   **CHAIRMAN NANCE:** David.
8
9   **DR. CHAGARIS:** So I agree with Luiz, and the model also predicts
10   that the red tide mortality is higher for the younger age stanzas,
11   and so like, for example, on the age-zeroes, the estimate was 0.23,
12   and then, for age-ones, it was 0.18, and so the model does capture
13   that. The reason that it's going in the way it is, and there were
14   actually a couple of sensitivity runs that were done to try to
15   incorporate the age-specific mortality estimates, but one of them
16   showed good promise, but there was a discrepancy in some of the
17   catch, and there wasn't time to -- Lisa can talk more about that,
18   but the -- The way that it's being applied in the model now is
19   across all ages, and so to generate that value of 0.1 -- From the
20   ecosystem model, we summed up the total biomass lost due to red
21   tides and divided by the biomass over all ages.
22
23   We do have the age-specific estimates, and, yes, they are higher
24   for younger ages.   The only year where we actually saw a
25   substantial amount of mortality on older ages was in 2005, where
26   the bloom really expanded further offshore and persisted for a
27   longer amount of time.
28
29   **CHAIRMAN NANCE:** Okay. Thank you. Lisa, to that point, please?
30
31   **DR. AILLOUD:**   Yes, and Dave is absolutely correct, and I just
32   wanted to remind the group that the base model had the same
33   assumption, that M is applied across all ages. We would love to
34   improve that in a research track, but it was just not possible in
35   this operational, and so, if you want the projections to be
36   consistent with the rest of the base model, it would be best to
37   have M be applied across all ages, in my opinion.
38
39   **CHAIRMAN NANCE:** Thank you very much. I agree. Roy.
40
41   **DR. CRABTREE:** I agree with Lisa, and I think there are a lot more
42   sophisticated ways that could come up for a research track to
43   handle this with gag, but, for right now, I don't think we're able
44   to do this, and so this is the scenario we are, but, going back to
45   Mara's comment, and going back to the rationale associated with
46   Amendment 30B and Fmax, and so we have a much more sophisticated
47   assessment model now, with SS3, and I think we used an older VPA
48   model last time, and so we've learned a lot about gag, and so,

1 with the more sophisticated modeling, we're able to handle these
2 things in different and better ways.
3
4 By going to the sexes combined approach that we're using now, we
5 actually are achieving a lot of the conservation benefits that
6 were talked about in Amendment 30B that might be associated with
7 going to a higher SPR, and we're actually realizing those same
8 sort of benefits now, through the more sophisticated modeling and
9 better ways of looking at it, and so I think it's really just an
10 advancement in our understanding and our ability to look at all of
11 these.
12
13 **CHAIRMAN NANCE:** Thank you. It looks like we're approaching a
14 point where we're going to make some recommendations. Before we
15 do that though, Emily, can you do your Something's Fishy now, and
16 I am going to publicly apologize to you. Last time, I completely
17 skipped you and didn't even -- So I apologize for that, but I think
18 having this presentation, and then we can talk about the
19 recommendations for the council, but, Emily, thank you.
20
21 **MS. EMILY MUEHLSTEIN:** Great. Thank you for that opportunity, and
22 I harbor no ill feelings about being skipped. Okay, and so just
23 to remind you guys all, we are conducting Something's Fishy efforts
24 for each species that is assessed. This week, actually, the
25 council's Outreach and Education Technical Committee voted to
26 change the name of the Something's Fishy effort, and so I just
27 wanted to make you guys aware that, in the future, it will be
28 called Fishermen Feedback, and that was mostly because Something's
29 Fishy could potentially imply that we're looking for negative
30 information, and we wanted to avoid that.
31
32 Something's Fishy is a tool that we use to gather information from
33 active fishermen on trends and sort of unusual occurrences that
34 either the scientists or managers might not have observed, and we
35 conducted this effort from December 10, 2020 through January 10,
36 2021, and so sort of that month bridging the gap from last year to
37 this year.
38
39 We received 423 total responses, and we analyzed 418 of those
40 responses, and we dropped five because they were unrelated to gag
41 and generally not helpful, and then we reported on -- We generated
42 a final report and presented it at the data workshop for the stock
43 assessment on February 11 of this year.
44
45 Like I said, we only analyzed 418 of the comments, because those
46 were the ones that were related to gag. Respondents were allowed
47 to self-identify their sector, and they were not limited to a
48 singular response, and so, as far as respondents goes, we had a

1 sample size of 468, and, as you can see, a vast majority of them
2 were private anglers, with the for-hire sector coming in a far
3 second, and then the commercial sector, followed by the other
4 sector, and that's usually state management personnel or fisheries
5 scientists that are somehow related to the process.
6
7 We are pretty pleased, by the way, with the sample size. This is
8 sort of one of the biggest responses that we've gotten, and so we
9 do analyze comments in two ways. We do a manual analysis, and we
10 also do an automated analysis. Manual analysis is performed
11 separately by two analysts, and then, if there is any discrepancy
12 in determining whether the comment was positive, negative, or
13 neutral, those two analysts get together and work out that
14 discrepancy and make a final decision together.
15
16 Automated analysis is based on a lexicon library and run through
17 R, and so we also analyze the comments in two ways. We have an
18 overall response sentiment, and then we analyze comments that are
19 only related to stock condition, and so we'll start with the
20 overall response sentiment, and what you will see is that manual
21 sentiment analysis of the overall comments, all of them, showed
22 that a small majority of respondents reported a positive sentiment,
23 and so not necessarily sort of the major negative trend that we're
24 seeing from the assessment.
25
26 The automated analysis, which you will notice here that there is
27 a much smaller sample size, and that's because the R program drops
28 any comments that don't have words associated with the lexicon
29 library, and so, if it didn't just register anything that the
30 comment said, the automated analysis drops that comment, and you
31 will see there is almost a hundred less comments that were analyzed
32 through this automated analysis. It showed that, for the overall
33 sentiment of the comments, that a majority of the respondents
34 reported a positive sentiment.
35
36 This might be the more helpful analyses that we conduct, and it is
37 based on stock-condition-related responses, and so, through manual
38 analysis, what we do is we identify whether or not a comment is
39 somehow related to stock condition, because we think that that's
40 going to help sort of inform the analysts a little bit better than
41 the overall comment sentiment, which sometimes has like management
42 thoughts thrown in and things like that.
43
44 From these, what you will see is that removing the comments that
45 were not related to stock condition reduced the proportion of
46 neutral comments, but what you will see is there is still a slight
47 majority of positive over negative comments here for the manual
48 sentiment analysis. Again, the automated sentiment analysis

1 dropped a pretty good number of the comments, and so we had a much
2 smaller sample size, but what we see is that removing the comments
3 that were not related to stock condition slightly increased the
4 proportion of neutral comments, but, again, you will see that,
5 here, there is a greater proportion of positive comments overall.
6
7 This will show you a comparison of sentiment by sector, and you
8 will see side-by-side, and we have a comparison of sentiment by
9 sector for all comments and sentiment by sector for comments that
10 were related to stock conditions, and these are both based on
11 manual analysis, just as an FYI, and what you will notice is the
12 commercial and for-hire sector showed a majority of negative
13 sentiment comments in both sections, and yet the private anglers
14 were the ones that were sort of driving the positive sentiment
15 around gag in general and also for the stock-condition-related
16 comments.
17
18 The next analysis we did was respondents by location, and we asked
19 people to self-select the location that they were referencing in
20 their comments. Again, this is based on the manual analysis, and
21 what you will see is most of the responses we get are off of
22 central Florida, which I don't think is a big shocker to anybody,
23 and we did receive very few responses west of Alabama, and many of
24 the areas in the western Gulf had only one response associated
25 with them.
26
27 This will just show you, and I know this one is a little bit hard
28 to see without zooming-in, but this will show you the sentiment of
29 observations by location, and what you will sort of see is, in the
30 western Gulf, there was generally a negative sentiment about stock
31 condition. However, remember that the sample sizes were very small
32 in that western Gulf, where you're seeing most of that orange.
33
34 When you get over to the Florida area, most of those positive
35 comments were coming sort of from the Big Bend area down through
36 Tampa Bay, and then, as you get past Tampa Bay, the negative
37 sentiment begins to sort of take over a little bit again. Here,
38 since folks are allowed to self-select, we actually recorded a
39 total of 557 responses, and so some people would produce one
40 comment, but it would be attached to multiple locations, and so
41 that's important to know, too.
42
43 **CHAIRMAN NANCE:** Emily, just out of curiosity, for the Texas guys,
44 the chance of seeing a gag grouper is quite low.
45
46 **MS. MUEHLSTEIN:** Yes, and it's kind of an incidental catch that
47 they find pretty deep, or near rigs, but there are certain small
48 populations of folks that know how to target them in Texas.

1
2 **CHAIRMAN NANCE:** So are the responses from the western Gulf not
3 really looking at catching fish, but they're listening to what's
4 being said, as opposed to being on the water and actually seeing
5 things?
6
7 **MS. MUEHLSTEIN:** That's a great question. I actually think, and
8 this is part of what drives the negative sentiment, is most of
9 those western Gulf comments that we got were we never see them
10 over here, and my grandfather caught one once, but I have never
11 caught one, and it's kind of like that, and so it based on their
12 on-the-water experience, but it's also sort of a reflection of the
13 fact that gag just aren't really there that frequently. I often
14 don't hear folks reporting anything about gag west of Louisiana at
15 all, but it's every once in a while.
16
17 **CHAIRMAN NANCE:** I'm sorry that I interrupted you, and now we've
18 got questions. Trevor.
19
20 **MR. MONCRIEF:** Thank you, Mr. Chair. I am happy to wait until the
21 end of the presentation, if you would like to do that, just so she
22 can finish up.
23
24 **MS. MUEHLSTEIN:** I think I've got two more slides.
25
26 **CHAIRMAN NANCE:** Let's go ahead and wait until the end, and I
27 apologize for interrupting. Anyway, we'll take the questions at
28 the end.
29
30 **MS. MUEHLSTEIN:** At least you're not ignoring me this time. Okay,
31 and so, through that automated analysis, one of the things that
32 we're able to do is tease out the most frequently used positive
33 and negative words, and what you will see here is we've teased out
34 the top ten, and we've displayed that in two ways, both by these
35 bar graphs and then also this word cloud, and sort of what we kind
36 of can kind of glean from this is that the most frequently used
37 negative words could potentially indicate that anglers with
38 negative perceptions of the stock were seeing small fish or less
39 fish overall.
40
41 Then, based on the most frequently used positive words, we could
42 sort of tease out the idea that maybe anglers with positive
43 perceptions thought that the fishing was good and that they were
44 seeing large and healthy fish.
45
46 Then, through manual analysis, as you read over these four-hundred-
47 and-something comments, you tend to pull out some themes and some
48 sort of interesting things that pop out, and so what we saw was,

1 from the positive comments, we heard a lot about there being
2 juveniles around, which I think is a good report.
3
4 We did hear that there are more of the fish that they're finding
5 do look healthy and colorful, which was kind of an interesting
6 thing, because that reoccurred a couple of times, and we don't
7 usually hear about the actual condition of the fish itself through
8 these tools, and so I thought that was worth kind of bringing out.
9
10 We also heard that there's lots of big fish, and this was
11 especially in reference to big fish being closer to shore, and I
12 think that's something that was kind of focused a lot around the
13 area a little bit more north of Tampa Bay and in Tampa Bay itself.
14 I think those fish seem to be closer inshore and more accessible
15 to those private recreational anglers than they have thought them
16 to be in the past, or people are just figuring out how to catch
17 them in that shallow water.
18
19 Then we heard that they've gotten really easy to catch when the
20 water cools down, and I think that there's a general perception
21 that they either move inshore when the water gets cold or they
22 just start eating inshore.
23
24 Next, from the neutral comments that we heard, and these were
25 interesting, but we heard that males were displaying spawning
26 behavior in the summer, and so maybe outside of some of the typical
27 range of spawning. We heard that people were seeing more fish
28 over sand bottom, and they were speculating that this was to avoid
29 divers, and we heard this a couple of times, but it was mostly in
30 reference to sort of shallow-water diving conditions north of Tampa
31 Bay, where, rather than holding on the reefs, that they were
32 thinking that the gag were actually learning how to move off those
33 reefs when there was spear fishermen in the water, which I thought
34 was kind of interesting. We also heard that potentially the
35 population was shifting to shallow water.
36
37 Of the negative comments we heard, we heard a lot about depredation
38 by goliath and sharks and dolphins. We heard that that depredation
39 has increased in recent years, and we heard that fishing pressure
40 has been much heavier than usual, and so there was a lot of concern
41 expressed about that.
42
43 We did hear that the gags that people were finding are skinnier
44 than usual and don't seem as healthy, and so that's directly
45 contrary to what we heard in some of the positive sentiments. We
46 also heard that commercial fishing during the spawn is a problem,
47 and we heard that gags are being outcompeted by red snapper. With
48 that, that's all I had for you guys, and I am happy to take any

1 questions.
2
3 **CHAIRMAN NANCE:** Thank you. Trevor.
4
5 **MR. MONCRIEF:** Thanks, Mr. Chair. I was hoping that we could go
6 back up to the map of the Gulf, and so I think you hit the nail on
7 the head, Emily, on this answer. I mean, if you're going to get
8 responses from anglers over a species that they don't observe
9 readily, or where the population isn't as high, then I think you
10 are going to get a lot of negative remarks that they're not seeing
11 the fish you're asking about.
12
13 The other one, and so if we can go up, I think, two slides, there
14 was a disparity in -- It looks like, to me, when I was just -- It
15 kind of stuck out to me that, when you move to the automated
16 analysis, when it came to the stock sentiment, the negative
17 comments were more proportionately affected by being removed, and
18 can you speak to that a little bit?
19
20 **MS. MUEHLSTEIN:** You know, Trevor, this was a really interesting
21 situation. Typically, when we do perform these efforts, and we do
22 the manual and automated analysis, they kind of gibe a little bit
23 better than they did here, and I think it's something to do with
24 the fact that there were so many comments that were dropped,
25 because the words that were contained in them were not in that
26 lexicon library that we use for the automated analysis.
27
28 The truth is I think that it's interesting that the number of
29 neutral comments, or the proportion of negative comments, shifted
30 so much, but, to be honest with you, I don't think that I can make
31 any meaningful conclusions about why that happened, based on the
32 fact that we dropped a hundred comments in the automated analysis.
33
34 **MR. MONCRIEF:** Thank you.
35
36 **CHAIRMAN NANCE:** Thank you. Cindy, please.
37
38 **DR. GRACE-MCCASKEY:** Thank you very much. I have just a couple of
39 questions related to the methodology, and I'm curious sort of what
40 the methods are, in terms of soliciting or asking for fishers to
41 submit comments as well as what the prompts are. What are they
42 responding to?
43
44 **MS. MUEHLSTEIN:** That's a really good question, and I appreciate
45 that, Cindy, and I can actually make the tool itself available to
46 you, so that you can take a look at it, and so our approach here
47 is we understand that this is not -- You know, we're not following
48 very strict sample survey protocols at all.

1
2   What we're doing is we are just sort of pushing out a general call
3   for anglers to give us feedback on the species, and so, when we
4   promote this, we promote it through a press release, and we promote
5   it through social media, and we also push our sort of partner
6   communicators in the state agencies to amplify the efforts, just
7   to kind of try and gather as many respondents as we can to the
8   tool.
9
10 As far as the tool itself, we are subject to the Paperwork
11 Reduction Act, and so what that has done is made it so that we
12 can't ask a series of specific questions. What we do instead is
13 sort of say, hey, we are preparing for a stock assessment of gag,
14 and we would like to know a little bit more about your on-the-
15 water understanding of what's happening, and then we give them a
16 very general prompt that just says to submit your comments, and we
17 do that because we have to keep it as general as we can, in order
18 to not trigger the Paperwork Reduction Act, which is why the
19 backend analyses become sort of sentiment related, rather than
20 quantifiable. Does that help?
21
22 **DR. GRACE-MCCASKEY:** Yes, definitely, and I would love to learn
23 more about it, if it's okay for me to get in touch with you.
24
25 **MS. MUEHLSTEIN:** Yes, absolutely, and we do have a full text
26 report, rather than just the PowerPoint, that I am happy to share
27 with you, and that goes a little bit more into the methodology,
28 but we can certainly connect off-line, and I would be happy to
29 talk more about it.
30
31 **DR. GRACE-MCCASKEY:** Great. Thank you.
32
33 **CHAIRMAN NANCE:** Thank you. Richard.
34
35 **DR. WOODWARD:** Sort of following on the previous question, I mean,
36 it's not a representative sample in any way, and you're going to
37 get squeaky wheels, or people that have some other stake in the
38 game, or want to make a point, or at least those are going to be
39 overrepresented, and is there -- How do you use these data to draw
40 any kind of useful information?
41
42 **MS. MUEHLSTEIN:** I think the answer to that is through forums like
43 this. The first thing that we do, actually, is present this
44 information to the assessment scientists as they are performing
45 the analyses, and I know that they take it into consideration when
46 they find sort of strange trends in their data, and this is a good
47 sort of ground-truthing tool.
48

1 I know that this also helps with projections, and so, if they're
2 sort of struggling to figure out how to make projections, they
3 tend to sort of take this into account and look at it and see if
4 it's kind of in-line with what they're seeing, with the empirical
5 numbers, or not. Then what we do is we present it here, to you
6 guys, as you're doing your deliberations, and we also present it
7 to our advisory panels and then to the council itself, as it makes
8 these decisions, and so, really, it's just a way for use to infuse
9 our on-the-water perspectives that are shared with us, but you're
10 right that I can't claim that this is a well-thought-out sample,
11 right, and it is definitely self-selected.
12
13 **CHAIRMAN NANCE:** John, to that point?
14
15 **DR. FROESCHKE:** Yes, and, just to follow -- I was involved in a
16 lot of the actual putting some of this together, and we never set
17 out to conduct a scientific survey or sample, nor have we made any
18 attempt to extrapolate or conclude that any of these proportions
19 are relevant or reflect the Gulf-wide sentiment, if you want to
20 know the perspective of all participants, but it is an interesting
21 way to gather some ideas of people that collectively have a lot of
22 experience on the water, and it is more current than the
23 information in the assessment. Anything in the assessment, those
24 terminal years are always awfully wiggly, and so this does help to
25 try to inform some of that.
26
27 **CHAIRMAN NANCE:** Thank you. Ryan, to that point?
28
29 **MR. RYAN RINDONE:** I was just going to basically say what John had
30 said. This is largely meant to be informative, and it's not meant
31 to change any outcomes or anything like that of any of the
32 assessments, and it can help explain why certain things are being
33 seen or not being seen, but it's not meant to -- It's not expected
34 to have a quantitative effect on any of the assessments.
35
36 **CHAIRMAN NANCE:** Thank you. David, please.
37
38 **DR. GRIFFITH:** Jim, thanks a lot. Cindy raised a couple of issues
39 that I was interested in, but I was also -- I would like to see a
40 copy of that report, and I think maybe it wouldn't be a bad idea
41 to share it with the SSC.
42
43 The other thing is I want to thank you for doing this kind of work.
44 I do find it -- As an anthropologist, I find it important and
45 interesting, and it sheds some light on a whole bunch of
46 qualitative issues associated with stock assessment, but I was
47 wondering, and it seemed to me that about a hundred or so of your
48 respondents were commercial fishermen, and about the same number,

1 it seemed, were for-hire, and it seems that these two populations
2 are the ones that would really have some kind of more vested
3 experience on the water, because their livelihoods depend on
4 observing species and stuff like that.
5
6 I was wondering if there is any -- In the report or elsewhere, any
7 intention to delve a little deeper into separating out these two
8 populations and seeing what they say, versus the whole group, or
9 looking at things at a little more granular level, and then the
10 final thing I would like to ask is whether or not these data are
11 available anywhere, because they do seem interesting, to me, and
12 so that's it. Thank you.
13
14 **MS. MUEHLSTEIN:** Sure. I appreciate all of those thoughts, and
15 so, first, before the end of the day, what I will do is I will get
16 a copy of that report put on the SSC meetings material page under
17 this agenda item, and so that's going to be an easy ask, and we
18 can put that on there almost immediately, and so we'll get that up
19 there.
20
21 Second, if you want to get in touch with me, or just our Gulf
22 Council offices, I have redacted versions of the full-text
23 comments, and I am happy to send you the full-text comments with
24 all personal information redacted from it, if that's of interest
25 to you.
26
27 Then, to sort of address the more granular analyses, the truth is
28 we haven't drilled down any deeper into looking at those two
29 sectors and sort of parsing out what they are saying, versus what
30 the private anglers are saying. I do think that your point is
31 pretty well-founded, because those fishermen do have kind of a
32 vested interest in the fishery.
33
34 I would also speculate that some of those for-hire and commercial
35 guys that are participating in the process are more trusting of
36 the council process itself, and, therefore, their responses might
37 be more honest. They wouldn't have the same sort of motivator to
38 give false information, and not that I want to imply that there
39 would be any motivator to do so, but it's just that we tend to
40 have kind of closer, more trusting relationships with those two
41 groups as well, and I think that's important to note in the
42 conversation.
43
44 **CHAIRMAN NANCE:** Thank you. Jack and then Luiz.
45
46 **DR. ISAACS:** This is really very interesting, and I recently had
47 to go through a survey over here in Louisiana, looking at responses
48 to a survey about spotted seatrout, and all I did was a manual

1 analysis of about 3,000 comments, and it took me forever. I am
2 really looking forward to seeing your report here and seeing a
3 better way of doing it and a way that I might consider next time.
4
5 One thing I remember, in going through my comments, is that some
6 comments talked about more than one theme, and some comments were
7 kind of both positive and negative, and kind of the spirit is
8 willing, but the flesh is weak type of a thing, and I would just
9 be wondering, for my own edification, how you handled comments
10 like that.
11
12 **MS. MUEHLSTEIN:** That's a great question, and so I can easily how
13 the automated analysis does that, right, and so it basically counts
14 words and decides how many positive and how many are negative and
15 see if they cancel each out in some way or not, and then the
16 overall sentiment of their entire comment is classified by that.
17
18 Manual is a little bit different, and it's a little bit more
19 nuanced, as it sounds like you are familiar with, which is why we
20 have two separate analysts, and we both go through them and then
21 reckon any differences, and, honestly, it is a judgement call
22 between the two of the analysts, which is why we've decided to add
23 more than one person.
24
25 We started off doing just one person analyzing this, and, as you
26 know, it's a time-consuming sort of thing to do, but we found that
27 that has really helped us tease those out, and I think, in some
28 instances, somebody might express a positive sentiment and a
29 negative sentiment in the same comment, and that becomes a neutral
30 sentiment, or we kind of sort of manually enumerate the positive
31 versus negative points that are made, and so your questions are
32 well founded, and we are more than happy to show you the automated
33 analyses process, and we're happy to talk you through that and
34 kind of get deeper into that.
35
36 We do have a lexicon library that we're fine-tuning over time,
37 but, based on the number of comments that were dropped, it's
38 obviously not perfect yet, but I am happy to share some of our
39 past efforts, where the automated analysis and the manual sentiment
40 analysis were actually closer together. This report itself is
41 kind of an outlier, in that the automated and manual had such
42 different outcomes.
43
44 **DR. ISAACS:** Well, the thought just occurred to me that, if a
45 comment has something that's positive and something that's
46 negative, I think that we would both agree that it might not be
47 appropriate to say that they cancel each other out. I mean, they
48 count as both positive and negative, and I would just raise the

1 possibility that, instead of using a pie chart, you might want to
2 have a bar chart or something, because you're going to have one
3 comment that is both positive and negative, and I really don't
4 think it's right to say that's neutral, in many instances.
5
6 **MS. MUEHLSTEIN:** I think that's a really good point.
7
8 **CHAIRMAN NANCE:** Thank you, Jack.
9
10 **DR. ISAACS:** Very good. This is fascinating.
11
12 **CHAIRMAN NANCE:** Luiz.
13
14 **DR. BARBIERI:** Thank you, Mr. Chairman. Jessica, can you put up
15 Slide 8 there? It was just interesting for me to see this, Emily,
16 because, at times, I wonder if this helps us understand, to some
17 extent, the perceived disconnect between what fishermen are seeing
18 out on the water and the result of the assessment, the stock
19 assessment.
20
21 The stock assessment is looking at the broad regional
22 distributional range of gag and integrating information from all
23 the age classes over that broad geographic scale, but, if you look
24 here in the Big Bend area, where you have positive -- A higher
25 proportion of positive comments, and we saw a presentation that
26 Sue gave last year, or maybe earlier this year, talking about that
27 this is the area where the pre-spawning aggregations of gag seem
28 to form, the younger females that may be on their way to
29 transition, on the way to the areas where they would potentially
30 be more viable for transition.
31
32 Because these fish tend to aggregate in this Big Bend area, catch
33 rates in this area are really high, right, and so the fishermen -
34 - I get these comments all the time, that the fishermen say, hey,
35 we're catching a ton of gag, and, I mean, gag are not in trouble,
36 because we are catching a ton of them, and they are good sizes,
37 and they are not huge, but they are good sizes, and they're going
38 to always be in this area, and I think this aligns perfectly with
39 the assessment, if this is an area where they are aggregating
40 before and moving in their transition phase of life, and it might
41 explain some of the results that we're seeing, in terms of the
42 outcome of the stock assessment as a whole, and so, to me, this is
43 really, really helpful, Emily.
44
45 **CHAIRMAN NANCE:** Thank you, Luiz. Leann.
46
47 **MS. BOSARGE:** Thank you, Mr. Chairman. I just thought that I would
48 offer a couple of comments, to maybe follow-up on some of the

questions from Cindy and others. I was the council member that
really pushed this tool, and it was an idea of mine, and the
impetus behind it was twofold, because I know you all look at
things from a statistically-valid survey-methodology-type of
mindset, but this was more -- From a council member perspective,
we were seeing a lot of public comment, right, and, every meeting,
we go out to sessions in the field, where we get public comment,
and it's very hard, sometimes, especially for a species that's
Gulf-wide, where you have maybe sentiment in one of the area of
the Gulf, where fishermen are saying it's great, sort of like Luiz
just mentioned, and other areas where they're saying it's not.

We really need -- For us to make the most of that, it would be so
helpful to be able to aggregate, somewhere, all of those comments
and see it, and so that's really what this tool helps us to do,
and you can see that with Emily's maps and graphs and things that
she presents to us.

Then, also, as we move forward with it, there is a continuous
improvement, right, and so one of the things that I asked Emily to
do was exactly what one of your members just said, and, you know,
what's the difference between the sentiment commercially, for-
hire, and recreationally, because their styles of fishing and their
goal of fishing is different.

You can see, in her graphs on this, with that bar chart, that
indeed the commercial and for-hire sentiment -- You had more
negative sentiment from those two sectors, whereas, with the
recreational, the largest bar was for the positive sentiment, and,
in my experience, looking at stocks that are in decline, in my
years on the council, you will see that sentiment turn negative
first in the commercial and for-hire fisheries, mainly commercial
more so, because they are trying to catch on a wholesale basis.

They go out, and they need to land hundreds or thousands of pounds.
Well, if the stock is in decline, it's going to be harder and
harder to land thousands of pounds, whereas, as a recreational
fisherman that's going out fishing on his trip, he is still trying
to land maybe two, three, four fish, depending on the species, and
it hasn't dropped off enough that it's that hard for him to do,
and he's still landing three or four fish. Commercially, we could
do that, but we would have trouble landings thousands of pounds.

Anyway, it was that aggregation that is really informative to us,
to me anyway, as a manager, to help me see, overall, what is
happening with this species, from the fishermen-on-the-water
standpoint, and then the second impetus behind it was that nothing
operates in a vacuum, and that goes for science as well, and, in

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1 our scientific process, as we go through these stock assessments,
2 we include fishermen in that process, and we try and have hopefully
3 one from each sector, but, even then, it might be maybe up to six
4 fishermen, depending on the assessment, that are officially asked
5 to be involved and be at the meetings and things of that nature.
6
7 This is a way to almost get more of that involvement, and that
8 feedback, from the fishermen to the scientific process, and, as
9 Emily said, there is not any expectation that this is going to be
10 used quantitatively, or even used at all, and it's there simply to
11 add color to the numbers that the scientists may see, if they find
12 it helpful, and so I just thought I would throw that out.
13
14 **CHAIRMAN NANCE:** Thank you, Leann. I am going to cut off discussion
15 now, and this certainly does help in our deliberation for the
16 assessment and so forth, and what I am going to do is we're going
17 to break for lunch now and come back at 12:45, and I would like
18 to, when we come back at 12:45, entertain motions. I think, Roy,
19 you provided some succinct things, and so, if you could get a
20 motion, and anybody else can do a motion, and then I think we can
21 move forward on the gag stuff, but thank you.
22
23 (Whereupon, the meeting recessed for lunch on November 18, 2021.)
24
25   - - -
26
27   November 18, 2021
28
29   THURSDAY AFTERNOON SESSION
30
31   - - -
32
33 The Meeting of the Gulf of Mexico Fishery Management Council
34 Standing and Special Reef Fish, Special Socioeconomic & Special
35 Ecosystem Scientific and Statistical Committees reconvened on
36 Thursday afternoon, November 18, 2021, and was called to order by
37 Chairman Jim Nance.
38
39 **CHAIRMAN NANCE:** We're back online, and I apologize, but Luiz and
40 I were talking about something, and we got a little carried away,
41 and so we're going to go ahead and reconvene. If anyone has a
42 motion that they have thought about over lunch, if they would sent
43 that to Jessica, and we can put that on, and I think Roy told me
44 that he had a motion that he was going to send.
45
46 Okay. **We have a motion that the SSC finds that the SEDAR 72 based**
47 **Gulf of Mexico gag projections are the best scientific information**
48 **available and are suitable for use in management.** Any discussion

1 on that motion? Then it needs to be seconded, please. Sean
2 seconds that. Any discussion?
3
4 **DR. CRABTREE:** I think this just builds on a motion we passed at
5 the last SSC meeting, where we found that the SEDAR 72 assessment
6 was the best available science and extends this to cover the
7 projections that the Science Center has presented to us.
8
9 **CHAIRMAN NANCE:** Okay. **With no other discussion, and I think we've**
10 **had discussion through time, and while we're not having it right**
11 **this second, but any opposition to this motion? We can show by**
12 **raised hands. The motion carries without opposition.**
13
14 Let's put the second motion up on the screen. **The second motion,**
15 **and I will read it, and the SSC recommends that projections based**
16 **on 30 percent SPR and the medium red tide scenario be used to**
17 **establish OFL, ABC, and rebuilding schedules. Projections based**
18 **on Fmax are scientifically valid and suitable for analytical**
19 **purposes.** I need a second for that motion.
20
21 **DR. BARBIERI:** I will second it, Mr. Chairman.
22
23 **CHAIRMAN NANCE:** Okay. It's seconded by Luiz. Is there
24 discussion?
25
26 **DR. CRABTREE:** If I could, Mr. Chairman, I think we've had a lot
27 of discussion as to why we don't believe that Fmax is suitable for
28 use as a reference point now and we believe that 30 percent SPR is
29 a much better proxy for FMSY, using the sexes combined approach
30 for calculating it, and I understand that the Fmax scenario will
31 have to be looked at, with a process of going through a plan
32 amendment, and we had discussion with Dave Chagaris about the red
33 tide scenarios, and I certainly think we have to take that into
34 account, because we know there was a red tide, and the indications
35 in the analysis that Dave has done all suggest that the median
36 scenario that was analyzed by the Center is the most likely way to
37 look at it, and so that's the basis for what I put together here.
38
39 Then the council will have to determine a longer rebuilding plan,
40 and it's certainly going to be much greater than ten years, because
41 we can't rebuild the stock in ten years or less, but what we saw
42 was ten years plus one generation, or two times Tmin, and there
43 were a variety of ways that you could come at that, and I think
44 the Center has provided, within these sets of projections, enough
45 ways for the council to analyze all of that and make a
46 determination about what the rebuilding timeline ought to be.
47
48 **CHAIRMAN NANCE:** Sean.

1
2 **DR. POWERS:** The motion is fine, except for this second statement,
3 and I think it creates some confusion. I think something like
4 adding "while the projections, based on Fmax, are scientifically
5 valid, the SSC does not recommend", or "the SSC recommends the SPR
6 30 percent approach", just to make it clear.
7
8 **CHAIRMAN NANCE:** Would you want to put something -- Just, after
9 the period there?
10
11 **DR. CRABTREE: Suitable for analytical purposes, but not**
12 **recommended --**
13
14 **CHAIRMAN NANCE:** Not recommended --
15
16 **DR. CRABTREE: For use in setting catch levels.**
17
18 **CHAIRMAN NANCE:** Okay.
19
20 **DR. CRABTREE:**   For use in setting catch levels or rebuilding
21 schedules.
22
23 **DR. POWERS:** I agree that that will -- It would say, if they do
24 choose to do that, we don't need to see it again, and we think,
25 analytically, they're fine.
26
27 **CHAIRMAN NANCE:** I think, Jessica, instead of that period there,
28 put a comma and then it will be -- Luiz, are you happy with that
29 correction?
30
31 **DR. BARBIERI: I am.**
32
33 **CHAIRMAN NANCE:** Okay. Thank you, Sean. Doug, please.
34
35 **MR. GREGORY:** Thank you. I had similar thoughts, and I think that
36 last sentence is actually redundant to the motion we just passed,
37 and it confuses the first sentence in this motion, and I don't
38 think it's necessary. Thank you.
39
40 **CHAIRMAN NANCE:** Okay.
41
42 **DR. CRABTREE:** Jim, it's my motion, and I would defer to staff as
43 to whether they feel that they need this or not. I don't mind
44 being redundant, and there's nothing wrong with being redundant if
45 if it's needed to make the record clear.
46
47 **CHAIRMAN NANCE:** John, to that point?
48

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DR. FROESCHKE: I guess my preference would be to have it, because, at some point, we're going to need to request Fmax, OFL, and ABC projections for the document, for the purposes of analyzing the no action alternative.

CHAIRMAN NANCE: I think this will make it clearer, that, while those are being produced, the SSC is not recommending their use. Doug, thank you for that comment. Steven.

DR. SAUL: Thank you, Mr. Chair. You all captured my concerns in the edit, and I just wanted to reiterate that it's important, and it should be kept in there.

CHAIRMAN NANCE: Okay. Thank you. Jim.

DR. TOLAN: I will withdraw, Mr. Chairman. My points have been addressed. Thank you.

CHAIRMAN NANCE: Okay. Thank you. Jason.

MR. ADRIANCE: Thank you, Mr. Chair. This is a technical question, and so we give a recommendation here, but does this satisfy our charge of providing an ABC eventually, or will there be a follow-up motion to that?

CHAIRMAN NANCE: I see Ms. Levy, and so I'm going to have her answer that. Well, we can answer, but she may have a comment. Mara.

MS. LEVY: Thank you. I don't know about the answer to that question, and I think it depends how staff sees this progressing, and I apologize, and I may have missed it, because I had to step away, but did the SSC make a motion or did we discuss actually changing the status determination criteria and MSY proxy away from Fmax to the SPR 30 percent?

CHAIRMAN NANCE: I am sorry, but I didn't.

MS. LEVY: Right now, in the FMP, the MSY proxy and the other status determination criteria, the MFMT, the MSST, and the OY, are all based on an Fmax, and so I understand what you're saying here is that you believe that 30 percent SPR is a better proxy, but have you made a motion or talked about recommending that the council change those values, those status determination criteria, and, again, I may have missed part of the discussion.

CHAIRMAN NANCE: I think the way the -- Maybe we're trying to do that subtly, I guess, Mara, but what we're trying to do here is

we're recommending -- The SSC is recommending 30 percent SPR to base the projections on. Projection based on Fmax, while the model clearly shows that -- I mean, they're scientifically valid, but we, as the SSC, are not recommending using Fmax for setting any catch levels for the rebuilding schedule. Roy.

DR. CRABTREE: If I could, Mara, if you would like, I could put **one more sentence at the beginning of this motion that says basically that the SSC finds that Fmax -- The SSC finds, based on this new scientific information, that Fmax is not appropriate, or no longer appropriate, for use as a reference point and recommends the use of 30 percent SPR as a proxy for MSY and a basis for status determination criteria.** Would that solve your problem, Mara?

MS. LEVY: I think that would be helpful, because I think -- I get what you're saying, but the council is going to need to make some decisions for all of those reference points.

DR. CRABTREE: Let me ask you this then. Did you or anyone else write down what I just said? **No longer appropriate for use as a proxy for MSY, and the SSC recommends the use of 30 percent SPR -- Leave that in.** We're writing a whole separate sentence from that stuff, and so back up. Before where it says -- **The SSC recommends --** All of this is going to be in a first sentence, and everything else remains the way it was. **The SSC recommends that 30 percent SPR be the MSY proxy and the basis for status determination criteria. Then the next sentence starts with "The SSC recommends that projections --"** and then all the rest of it. How's that, Mara, if you can see that?

CHAIRMAN NANCE: Luiz, do you accept those changes?

DR. BARBIERI: I do, Mr. Chairman. Thank you.

CHAIRMAN NANCE: Thank you.

MS. LEVY: That's helpful. Thank you.

CHAIRMAN NANCE: Okay. Mara, thank you very much. Jason. I think Jason already went.

MR. ADRIANCE: Correct, yes.

CHAIRMAN NANCE: Okay. Paul.

DR. MICKLE: Just a clarification. The last sentence, I would like to make a friendly potential amendment, and the last sentence of "projections based on Fmax" -- I'm sorry. Never mind. It was

redundant at the end. Projections based on Fmax are scientifically
valid and suitable for analytical purposes, but setting catch
levels, rebuilding schedules, is an analytical purpose, and so
that sentence doesn't really make sense.

**To fix that, I propose changing the wording to remove "but not
recommended for use" and insert "excluding the setting of catch
levels for rebuilding schedules", and that's a friendly amendment
change that needs to be approved by the motion maker.**

CHAIRMAN NANCE: Okay. Thank you. Is that the way you want it
written, Paul?

DR. MICKLE: I think so. I've got so many screens open, and I am
trying to find it. Yes, that is the correct language that I
propose. Thank you.

CHAIRMAN NANCE: Okay. Roy and Luiz?

DR. CRABTREE: **I don't have any objection that, if people feel
like that's more clear.**

CHAIRMAN NANCE: I think it reads fine. Luiz, any issue on that
one?

DR. BARBIERI: No, Mr. Chairman. Thank you.

CHAIRMAN NANCE: Okay. Paul. Thanks for that edit. Katie.

DR. SIEGFRIED: Thank you, Mr. Chair. I just have a question as
to what the Science Center can provide, based on what John
Froeschke mentioned earlier, and please let me know if I am
misinterpreting what was said earlier, but it sounded like you
said that you need to request projections using Fmax, and so I was
wondering if it was possible to accompany this motion, should it
pass, that all of the Fmax projections that Lisa has completed
using the red tide could be provided and then the recommended F
SPR 30 percent, using medium red tide, if those three options for
rebuilding could be provided all at one time, so that the council
didn't have to circle back with other requests.

CHAIRMAN NANCE: John, to that point?

DR. FROESCHKE: I think we have those projections now.

CHAIRMAN NANCE: So, Katie, what you're saying is provide them in
this motion at the end, or just say as in Table so-and-so, that
type of thing, because I know that Lisa has already run the data,

1 and so we have all of this information, and it's a matter of which
2 the council uses and that type of thing, but they would have the
3 data to be able to do that.
4
5 **DR. SIEGFRIED:** Yes, and I was just concerned because I thought
6 that I had heard John say earlier that we would need to request
7 Fmax projections, and perhaps there is some other Fmax projections
8 they would need to request, but I would think that -- Again, this
9 is procedural, and perhaps, if all of that is provided upfront,
10 they can make the decision about accepting the SSC's advice for
11 the new proxy and then look at those new projection scenarios.
12
13 **CHAIRMAN NANCE:** Absolutely, and maybe it was misheard, but I think
14 that the runs have already been created, and so there wouldn't be
15 anything that we would need to request. John.
16
17 **DR. SIEGFRIED:** Okay. Thank you.
18
19 **DR. FROESCHKE:** I may have missed it, and I don't recall, but, if
20 we were to reallocate based on the FES, that would be an additional
21 projection request, right?
22
23 **DR. SIEGFRIED:** Yes, and we anticipate that, but we wouldn't
24 anticipate running Fmax projections for the various allocation
25 scenarios.
26
27 **DR. FROESCHKE:** Okay.
28
29 **CHAIRMAN NANCE:** Okay. Any further discussion on this motion?
30 Paul.
31
32 **DR. MICKLE: Mr. Chair, thank you, and I'm sorry, and we may just**
33 **want to get the name of the species in here, and so I suggest,**
34 **right after "Fmax", to just put "gag".** Sorry. I'm just trying to
35 help.
36
37 **CHAIRMAN NANCE: Gulf of Mexico, yes.** Thank you. That way, we're
38 not talking about shrimp or something. Okay. Let me read this
39 motion. **The SSC finds, based on the new scientific information,**
40 **that Fmax -- We need to change that. It doesn't read -- Okay.**
41 **Fmax is no longer appropriate for use as a proxy for Gulf of Mexico**
42 **gag.** Thank you. Perfect. It helps to read it, so we can figure
43 out what we're saying here.
44
45 **The SSC finds, based on the new scientific information, that Fmax**
46 **is no longer appropriate for use as a proxy for MSY for Gulf of**
47 **Mexico gag, and the SSC recommends that 30 percent SPR be the MSY**
48 **proxy and the basis for SDC. The SSC recommends that projections**

78

based on 30 percent SPR and the medium red tide scenario be used
to establish OFL, ABC, and rebuilding schedules. Projections based
on Fmax are scientifically valid and suitable for analytical
purposes, excluding the setting of catch levels for rebuilding
schedules. Any opposition to that motion? Please show by raise
of hand. Seeing none, the motion carries with no opposition.

I appreciate very much that discussion. Lisa, thank you so much
for your presentation and for all the work and efforts and for
getting that to us in a very timely manner.

DR. AILLOUD: Thank you.

CHAIRMAN NANCE: Next, we'll move on to Agenda Item Number VI,
which is Review of SEDAR 68 Gulf of Mexico Scamp Research Track
Assessment, and, Skyler, if you're ready to initiate that
discussion. Doug, did you have a comment?

MR. GREGORY: Yes. Thank you. Don't we need to recommend OFL and
ABCs?

DR. BARBIERI: Well, I think we can -- Well, I don't think we can
as yet, Doug, to set the actual numbers, the values, for OFL and
ABC, and I think that's because, one, the council still needs to
decide whether they will accept our recommendation on the proxy
for MSY, right, and so that would determine the value of the OFL,
and then the council needs to still make a final decision on the
rebuilding schedule, the methodology for the rebuilding schedule,
which will determine what the value of ABC will be. I think that
Dr. Crabtree's motion did not address this, because we are waiting
for the council to make that final decision.

DR. CRABTREE: If I could, Jim, I mean, my intent with that motion
was the council will erect a series of alternatives for the
rebuilding schedules, and then, based on how long the rebuilding
schedule is, the corresponding set of projections will give them
the OFLs and ABCs. They may choose some rebuilding timeframe that
hasn't been looked at yet, and the Center would have to deal with
it, but that was my intent, at any rate.

CHAIRMAN NANCE: Okay. Thank you. Leann, to that point?

MS. BOSARGE: Yes, and I just had a quick question, because you
did the gag in two separate meetings, and I am trying to
understand, maybe relative to the other species that you looked at
earlier with amberjack, how bad off we are on gag, and so I think,
with amberjack, you said that we were at about 86 percent of MSST
and about 42 percent of MSY, and that's kind of where our biomass

1 and our population was with that stock, and what is that for gag,
2 just so, in my mind, I have a little bit of a reference on how bad
3 gag is?
4
5 **CHAIRMAN NANCE:** Lisa, do you know, off the top of your head, for
6 that one?
7
8 **DR. AILLOUD:** I am pulling back up the -- It's Slide 10, and so
9 you're asking for SSB current over MSST?
10
11 **CHAIRMAN NANCE:** I think that's it, yes.
12
13 **DR. AILLOUD:** 0.16.
14
15 **CHAIRMAN NANCE:** Did you hear that, Leann?
16
17 **MS. BOSARGE:** Yes, and so 16 percent of MSST?
18
19 **CHAIRMAN NANCE:** Yes.
20
21 **MS. BOSARGE:** Okay.
22
23 **CHAIRMAN NANCE:** That's why a lot of those scenarios have F equals
24 zero.
25
26 **MS. BOSARGE:** Okay, and then the percent of MSY for gag was what?
27
28 **DR. AILLOUD:** 8.
29
30 **MS. BOSARGE:** All right. Thank you. That helps me understand a
31 little better.
32
33 **CHAIRMAN NANCE:** Thank you. Doug.
34
35 **MR. GREGORY:** I was just going to try to bring up that last question
36 that Leann had, but that's already been done.
37
38 **CHAIRMAN NANCE:** Okay. Thank you, Doug. Go ahead, Roy.
39
40 **DR. CRABTREE:** So this is not a scenario with a fishery closure,
41 because there is still some allowable level of harvest, but I think
42 one thing the Center and the council ought to talk about is trying
43 to maintain sufficient data collection to support a future
44 assessment and somehow ensure that we're still getting catch-at-
45 age information and will that require additional sampling of the
46 catch to cover that or not.
47
48 **CHAIRMAN NANCE:** Thank you, and I know, at our last SSC meeting,

1 we had a discussion about that, the need for this type of data,
2 and I think the council had that same type of discussion at their
3 meeting last month, and so I think everyone is aware that the need
4 to get data is very important. Skyler, sorry for that
5 interruption. We'll go ahead and turn the time over to you.
6
7   **REVIEW OF SEDAR 68: GULF OF MEXICO SCAMP RESEARCH TRACK**
8   **ASSESSMENT**
9
10 **DR. SKYLER SAGARESE:** No problem at all. I am just getting myself
11 situated here. What I'm going to present today -- This is our
12 first attempt at a research track assessment in the Gulf, that
13 we've been looking at for Gulf scamp.
14
15 There is a ton of information that's been covered over the last
16 couple of years, but what I wanted to do with this presentation
17 was kind of start with the -- Maybe work a little bit backwards,
18 where we kind of reiterate the issues that came up during the
19 review phase, and then, as I walk through the data input review
20 and model configuration, I will kind of discuss, in more detail,
21 why those changes were made and what we had done previously, and
22 then I will end the presentation by going through some of the
23 assessment results, and so some of the fits to the data and looking
24 at the diagnostics, basically for the most up-to-date model now,
25 which is the review workshop base model, and so the model after
26 making a lot of the modifications by the reviewers.
27
28 That's kind of our snapshot of where we are in the process now, is
29 the research track is over, and, just to kind of orient for many
30 of you, this has been an ongoing process, and I keep trying to
31 highlight that hopefully this research track is the exception,
32 because it was never assessed, and we had certain challenges, like
33 the yellowmouth grouper species identification issues, and so this
34 process was much, much, much longer, not to mention the issues
35 with COVID and delays that we had.
36
37 The operational, at this point, and we'll talk about it today, and
38 we'll kind of touch on that there are still some outstanding issues
39 that I will discuss, and, when we go through the terms of reference
40 for the operational, there is still some work that needs to be
41 done, but hopefully that process will be starting in early 2022,
42 and then, through that process, we'll produce an assessment model
43 that will show the diagnostics and update the data through the
44 most recent year and then have an assessment that we can provide
45 management advice.
46
47 It's been a long time coming, and I have tried to make this
48 presentation -- I have tried not to -- I tried to make it as short

1 and succinct as possible, but there is definitely a lot of
2 information for us to cover, and I think it's been quite a learning
3 process, I think, for all of us involved.
4
5 What I wanted to, as I mentioned earlier, is basically just kind
6 of summarize. There were a couple of big, key topics that came up
7 during the review workshop, which was a five-day meeting with the
8 reviewers, all virtual, of course, and what we did is, for these
9 first two slides, is these are essentially data questions that
10 came up, where, within the assessment phase, we had made certain
11 decisions, and then, when it came time, maybe we did a little bit
12 more analyses before the review, or the reviewers brought this up,
13 during the meeting or before the meeting, and there were certain
14 issues that we wanted to really touch on and kind of get to the
15 bottom of during the review workshop.
16
17 In red on this table is just the specifications of how we ended
18 essentially the assessment phase, the assessment process. We had
19 an assessment process base model that, when you look through the
20 assessment report, that's the model, all the configurations and
21 diagnostics and results.
22
23 Then we had the review workshop, where we made a bunch of different
24 changes based on the reviewer input and improvements to the model,
25 and, in this table, it's just shown in green, and so there were
26 different reasons behind each of those decisions.
27
28 For example, some of the data issues we talked about were, when it
29 came time to look at all the length data together, the largest
30 fish, the largest scamp, in the dataset that we had was actually
31 129-centimeter fish. There were very few of them in the dataset,
32 and then, when you look at the bigger picture with that and the
33 von Bertalanffy asymptotic length parameter of about eighty
34 centimeters, there's a big difference there, and so the model is
35 thinking that there is always larger fish, when there aren't.
36
37 One of the decisions that we made here was to reduce that N, and
38 so just have a larger plus group for our length data, and so that
39 was from the reviewer input. We also talked about natural
40 mortality, and the reviewers brought up that it seems pretty low
41 for our age-zeroes, that I will kind of touch on more a little bit
42 further. We talked about one of the biggest issues that we've had
43 in the last few years, as we've approached all these allocation
44 discussions, is the issue of how to model the recreational
45 landings.
46
47 Currently -- In the past, we've been doing numbers, but, during
48 this first research track, we -- At some point for the assessment

phase, we were modeling recreational landings in weights, but then, at the review workshop, we ended up proposing to go back to numbers, but use mean weight, and, again, I will kind of touch on these in more detail later on, but I just wanted to kind of give the big picture.

The last data question that we talked about at the workshop, and, for those of you that followed the gag assessment, this also came up during that assessment, was the conditional age-at-length data that we initially attempted to input conditional age-at-length information for our commercial fleets, but, ultimately, for reasons that were discovered basically after the assessment phase, that that was not the most -- That we were not confident moving forward with the data that we had.

Just to highlight that this was really an ongoing process throughout the whole phase, getting the data together, getting the assessment panel, the ADT, the assessment development team, going through the review, but there were still some of these issues that we touched on during the workshop.

Then, in terms of model configuration, and so just some modeling issues that came up was the use of the Dirichlet multinomial for the composition data, just some technical specifications about how best to treat these parameters within Stock Synthesis, that setting the bounds -- You know, really setting a bound of up to five, and that's all you really need to go, and you don't need to go higher, because, once you hit that estimate of five, it basically says that your sample sizes are appropriate and that you don't have to -- You can essentially fix those parameters and estimate one less parameter.

We also talked a lot about the indices of abundance, which is always a hot topic, it seems, for our assessments, and, in this case, while we were initially using the Francis reweighting approach for the indices, one of the reviewers mentioned that it seems to be more standard practice to include an actual parameter for each index, to estimate an extra standard deviation, and it's just a way for us to keep the index in the assessment model, but, if it's not fitting well, to essentially downweight it, and, again, I will go into a lot more detail later on with specifically the indices.

The other issue that always comes up as well is our retention and how we parameterize retention. Basically, what we ended up doing for the assessment process was fixing the inflection points for some of the curves at their respective size limits, but, during the review phase, we ended up freeing those estimates up and

1 allowing the model to estimate the inflection points, given the
2 length data that were in the model, and that kind of -- When you
3 look through the assessment report, you see these pretty large
4 predicted discards in the early 1990s, which just didn't seem
5 realistic, given the regulations at the time, but, again, I will
6 detail this more later.
7
8 The other big issue that came up is steepness. Ultimately, from
9 the assessment portion, we were estimating steepness, but, after
10 reviewing all of the diagnostics, during the review workshop, the
11 reviewers felt that steepness was not estimable, and, after quite
12 a bit of discussion about what we should specify with the base
13 model, ultimately, they recommended fixing it a biologically-
14 realistic value, which, in this case, was a weighted combination
15 of the South Atlantic estimate and then the estimate coming from
16 FishLife.
17
18 I thought we had a really good review workshop, and I thought there
19 was a lot of really good feedback and a lot of changes that we
20 were able to make, but, also, and I will touch on it at the end of
21 this presentation, but just a lot of issues for us to go back and
22 refine as we move forward in this process.
23
24 What I wanted to do now is walk through all the different data
25 inputs for scamp and kind of touch on some of those key issues as
26 we move through it. All of what I'm going to present really
27 focuses on this review workshop base model, and so the inputs that
28 come from basically the most recent model is what we'll go through
29 now.
30
31 Just to give you the big-picture idea for this assessment, we've
32 got the landings, and we've got four fleets. We've got commercial
33 vertical line, commercial longline, and then recreational charter
34 private and recreational headboat. We had four indices of
35 abundance that were recommended for use. We had the pre-IFQ
36 commercial vertical line index from 1993 to 2009, the headboat
37 index, which is actually our largest index of abundance throughout
38 the entire modeled time period of 1986 to 2017, the combined video
39 survey was recommended, and then a new index, a new survey,
40 basically the reef fish observer program vertical line survey,
41 and, again, I will touch on this later on. There were a lot of
42 discussions during the review workshop pertaining to that index.
43
44 Composition data in the current model, we've got the length
45 compositions of both discarded and landed fish for each of the
46 four fishing fleets and then the length comps for our combined
47 video and the reef fish observer program vertical line survey.
48

1 Ultimately, we have ended up with nominal age comps in the model,
2 at present, and we have included the mean body weight of
3 recreationally-landed fish from both the charter private and the
4 headboat, and I will touch on that in a little bit, and, of course,
5 we have estimates of discards. In this case, we have discards for
6 the recreational charter private all the way back to 1986, but,
7 for the other fleets, they were assumed negligible prior to the
8 federal size limit, but, again, just kind of bigger picture, and
9 I will go through a lot more detail piece-by-piece now, as we walk
10 through the presentation.
11
12 Back in, and it seems like ages ago, but I think it was summer of
13 2029, we had the stock ID workshop for scamp. The big-picture
14 questions were how would we treat the stock boundaries and what
15 were we to do with yellowmouth grouper, and so, long story short,
16 ultimately what ended up happening is there was not a lot of very
17 convincing evidence for, one way or another, how to treat the
18 stock, and the default was that, if we don't have strong genetic
19 evidence to support a single stock from Texas through the South
20 Atlantic, then we would assess the stock as it's currently managed,
21 which is separate from the Gulf and then the South Atlantic.
22
23 There were also, for example, changes in size limits, and there
24 were differences between regions, and so, ultimately, the stock ID
25 workshop said let's assess the Gulf separate from the South
26 Atlantic, basically so that -- There just wasn't a lot of
27 information, and there are some ongoing studies now to kind of get
28 more at the differentiation between scamp and yellowmouth grouper,
29 because, even during that stock ID process, the life history group
30 spent an entire presentation looking just at specific differences
31 between gill rakers and all these different details, which really
32 were not that different between species, and so, ultimately, it
33 was decided to lump in the yellowmouth grouper, all the data we
34 had, and treat this assessment basically for the scamp and
35 yellowmouth complex, but, overwhelmingly, most of the data is
36 scamp.
37
38 For those of you that were around back in 2016, I think, when we
39 did the data-limited assessment, yellowmouth grouper was one of
40 the eight species on the docket for assessment, but, ultimately,
41 there were so few data that we could not implement any approaches
42 there, and so there is so little information currently on
43 yellowmouth grouper, and, for the purpose of this assessment,
44 everything was just lumped together in the assessment, and,
45 basically, it's a scamp assessment with very minor information
46 from yellowmouth. The landings are -- The entire commercial
47 landings stream was confidential in that SEDAR 49.
48

1   Basically, there was a lot of back-and-forth, but, ultimately,
2   this is an assessment for the Gulf, and it includes yellowmouth
3   grouper.
4
5   In terms of regulations, and so this slide is just kind of
6   providing a snapshot of the regulations for the Gulf stock over
7   time, and so starting in 1990, and, importantly, there's been
8   changes in size limits, and there's been a recreational grouper
9   aggregate limit, and then the commercial trip limit, and so scamp
10 are in the -- They are currently in the shallow-water grouper
11 complex, but they're also considered deepwater grouper, and
12 they're in the IFQ program, and so they're not necessarily a
13 targeted --
14
15 Over time, they haven't consistently been targeting, and I think
16 one of the biggest challenges we had, looking back at this
17 assessment, was, when we do these assessments, we often have the
18 species blinders. We're doing scamp, and let's look primarily at
19 regulations for scamp, and, here, we see they're part of the
20 seasonal closures, and there are size limits, both in state waters
21 and then more recently in federal waters, but it's important to
22 keep in mind, moving forward, this is a multispecies fishery, and,
23 therefore, it's likely that the gag regulations, for example, might
24 have affected behavior of fishing for scamp.
25
26 That's something that I think we didn't really have the big-picture
27 meta-analysis, or just plots of all the regulations over time, to
28 be able to address some of those topics, and I think that's one of
29 the big, overwhelming needs, moving forward, especially for this
30 stock, is to have a better understanding of what big regulation
31 changes for other species might have influenced what we're seeing
32 with scamp, because you'll see, when we get to the results, that
33 we see some patterns in the data that really can't be explained by
34 just scamp regulations, and so that's something, I think, to think
35 about.
36
37 If I had to summarize this entire two-plus years of my life now,
38 scamp is really more of a data-moderate species, where we don't
39 have a ton of data, but we have a lot of different types of data,
40 and we've had a lot of new challenges come up during this first
41 research track, and so there's definitely been a lot of topics to
42 keep everyone on their toes.
43
44 I just want to -- I think let me move through the life history,
45 and then I will try to stop for questions related to different
46 topics, but what I wanted to do now is walk through the data
47 inputs, in terms of life history.
48

1 As I mentioned, most of what we saw -- All the data, for the most
2 part, was scamp that was presented, the parameters and a lot of
3 the information, was mostly scamp. There are some yellowmouth
4 grouper samples. For example, there were maybe 700 ages, and,
5 again, that's an ongoing recommendation, to kind of get at the
6 species. Are they really two distinct species, and to get a better
7 understanding of that relationship, but, for now, what we did was
8 the life history working group provided a growth curve, and so
9 it's essentially the combined sexes, and we do not have sex-
10 specific data, for the most part, to get at sex curves for females
11 and males separately.
12
13 We have a single size modified growth curve that takes into account
14 the changes due to the size limits that have gone into place. The
15 life history parameters that were recommended for use are in the
16 table in the top-right, where we have the L-infinity, and so keep
17 in mind this L-infinity, in this case, was about seventy
18 centimeters for scamp. The growth rate parameter, K, was 0.134,
19 and then the CV, and so the figure on the bottom-left is just
20 plotting over the thirty-four age classes of scamp on the X-axis,
21 and on the Y is a coefficient of variation.
22
23 What you can see is, for the most part, the CV across ages is
24 fairly constant. There are some data points that diverge from
25 that later on, but, of course, there is very small sample sizes.
26 As you got into these older ages, there were much fewer data to
27 kind of get at that. The life history working group recommending
28 a constant CV at-age was the best way to characterize the
29 variability within the age data.
30
31 What we're seeing on the right, and this is the growth curve, and
32 so the von Bertalanffy growth curve over the different ages up to
33 a max age of thirty-four, which is recommended by the working
34 group. Again, it's fork length that we used for the assessment
35 model, and the thick black line is basically the curve that was
36 recommended from the data workshop.
37
38 It's blue and red, and that's essentially the curve that comes out
39 of the Stock Synthesis assessment model, and all of the parameters
40 were fixed, except within Stock Synthesis, and growth is modeled
41 using essentially three big parameters, the length at minimum age,
42 which is this length at Amin of one year, and then the L-infinity,
43 which we treat as asymptotic length, and then the growth rate, in
44 addition to the CV of the younger fish and the older fish.
45
46 Within the assessment, we fixed all of the parameters except that
47 length at the first age, and so we actually -- You can see that
48 this curve gets drawn lower because Stock Synthesis is assuming -

1 - Based on the data that it has, it's saying the length is actually
2 smaller than what our curve, based on the data, would say, and so
3 we get an estimate of about fifteen centimeters here of what length
4 at the minimum age, and I will come back to that, I think in the
5 next slide or two, but just to keep that in mind, that, oftentimes,
6 we do fix the growth. We estimate the growth curves externally to
7 SS, and then we fix them in SS, and sometimes we often do we
8 estimate this length at Amin, because we often don't have a lot of
9 information.
10
11 This was the recommendation from the life history, from what we
12 ended up doing, in both the assessment phase model and then the
13 review phase model, and so, going into this a little bit more in
14 detail, the issue with the length data that we have -- I tried to
15 dig into the different data sources, because I was curious that,
16 when you look at the growth curve and the estimates that come out
17 of that, it says, essentially, your asymptotic length is about
18 seventy centimeters, which you would think is the average size of
19 the population.
20
21 It really shouldn't be the outlier, and it should really be the
22 average size, and so that's about seventy centimeters, but then,
23 when we look at the data that were provided for the assessment,
24 the composition data, and so the length comps of the retained scamp
25 or yellowmouth, basically, we have almost all the data are fish
26 eighty-four centimeters or smaller.
27
28 The largest scamp that we have is 129 centimeters, and so I think
29 this is something that, when we do this again for the operational,
30 we want to be really careful when we go through each of the datasets
31 and we QA/QC and we look for outliers, because the video survey
32 did not have any large fish above eighty-four centimeters.
33
34 The reef fish observer program vertical line survey also didn't
35 have any really large fish, but, when we tell the model that we're
36 seeing fish up to 129 centimeters, that is a much larger size than
37 our von Bertalanffy asymptotic size, and so that can kind of lead
38 to some -- It could lead to issues in fitting in the model, and I
39 think that's one of the issues that we've seen with this research
40 track, is that that's causing some problems, potentially, that
41 we're seeing within the model at present. I think this is
42 something that we talked about a bit, and it's something that we
43 absolutely hope that we will be able to address during the
44 operational when we get all of this information again.
45
46 In terms of the maturity and the meristics, and so the maturity is
47 a function of age, where females was fixed in the model, and so
48 age at 50 percent is about 3.4 years, and this was the

recommendation from the life history group, and then the length-
weight relationship, and so, within the Stock Synthesis model for
scamp, all of our body weights are in kilograms gutted weight, and
then the lengths are in centimeters fork length, and these
relationships were fixed in the assessment model based on the data
provided for the assessment for scamp. Most of these data, again,
are scamp. Very, very few data were attributed to yellowmouth.

I wanted to -- I know we've had some questions and discussion in
the past with the hermaphrodism and how this is handled in Stock
Synthesis, and so what Stock Synthesis needs -- In this case, we
can actually account for hermaphrodism by inputting a vector that
is the transition rate of female scamp to male scamp. What the
assessment model needs is there's parameters, and so it needs the
-- Essentially, there is Gaussian parameters, which are mu and
sigma, that account for the probability of switching to a male,
given those parameters are estimated based on the observed data
that we have.

For example, when we get the reproductive data for the data
workshop, that is the information that we're using to get the
observed proportions male, and then, ultimately, we're fitting to
the proportions male. Oftentimes, what we get is the age, or the
length, at 50 percent female, and what we actually need here is -
- It's not that 50 percent female, but it's this transition rate,
and so it's a conditional probability of transitioning from female
to male.

What I tried to do here is give you more of the equations, to kind
of see exactly what's happening, where we have -- We're estimating
-- The first thing at the bottom is this thick black, and it's
basically our fitted proportion male at-age, and we'll see it on
the next slide, and we'll visualize this, but what we do is we
find that fitted proportion, and we're finding this probability of
transitioning that we're iteratively solving for to find those
parameters, the mu and sigma, that minimize the sums of squares
between the relationship, and then that is what we actually get
and input into Stock Synthesis, ultimately as fixed vector.

We often fix these parameters, and these are the three parameters
that define what tells Stock Synthesis how to transition scamp
from female to male, and so here these black dots are those
observed proportion male that we get from the data workshop.

The thick black line then is the fitted proportion male that we're
seeing and that we're trying to minimize, and this thick blue --
This is what goes into Stock Synthesis, and so this probability of
transition is defined by these three parameters: the inflection

89

age, which is, in this case, about twenty-one; the standard deviation in age, which is ten; and this asymptotic rate, and, basically, this tells you whether -- In this case for scamp, what this estimates is that it's 0.89, and so it does not go to one, and so, even at that oldest age, there is not 100 percent probability of transitioning to a male, but it's very high.

The one caveat, and I will kind of say it again throughout this presentation, is scamp are pretty data-moderate. There is not a ton of data, and so we had just about 1,900 samples to analyze this information, but this is -- One thing to point out is we did have some discussions back-and-forth with Rick Methot on this topic, and he did modify the source code for Stock Synthesis to allow us to specify what age do we first start to see males, because, initially, it had been, you know, it would start males at age-one, but now we can see that it's more appropriate for -- Our youngest male is three years, and so we can say that younger than three years is all female, and then, starting at age-three, there's a probability that that fish at age-three and older will then transition from female to male, based on this curve. From this, the sex ratios are actually a derived quantity out of Stock Synthesis.

Just wrapping up the life history a little bit more, in terms of the measure of reproductive potential for scamp, what was decided upon and recommended at the data workshop was to treat the combined male and female SSB as the reproductive potential, and we did not have batch fecundity estimates in the Gulf, and we didn't have that kind of more in-depth data to use like we do for red grouper, and we actually have batch fecundity estimates.

In the case where you don't have specific reproductive data, and you have concerns over -- Where you don't have a one-to-one sex ratio, what we see with scamp is that, in the 1990s, it ranged from about 18 percent to about 37 percent and that there are differences between size and age, and so, ultimately, what the data workshop, the life history group, recommended was this combined male and female SSB. Because of the questions, the uncertainty, they decided to recommend that in this case, and so our measure of reproductive potential will be, ultimately, male and female metric tons, in this case.

I think this is the last life history topic to touch on, and so natural mortality was also a big topic of discussion. What we ended up doing is using the Lorenzen vector of natural mortality at-age that essentially takes into account the younger fish are going to have higher mortality. As you get older, you're going to kind of see it level off, and what we do, at the Southeast Center,

90

1   is we generally estimate this curve externally to SS and then fix
2   it in the assessment model.
3
4   In this case, we don't have that much information male/female, and
5   so we often assume that it's constant. We also tend to adjust
6   this vector for the peak spawning that occurs, at least for the
7   grouper species. We, essentially, want the mortality -- We want
8   to be able to say this is what mortality would be halfway through
9   the year, but also accounting for that peak in spawning.
10
11 Now, this was a point of contention, or not contention, but an
12 issue of discussion during the review workshop, because one of the
13 reviewers said, why don't you just use the Lorenzen function in
14 Stock Synthesis?
15
16 The reason why we don't do that is there are a couple of differences
17 with how we externally estimate this and how Stock Synthesis
18 currently works. Currently, to implement the Lorenzen curve, SS
19 uses a reference age, and so a single age and, for example, it
20 could be ten, or it could be twelve, but it basically scales the
21 whole vector to that single age.
22
23 What we end up doing, when we fit this curve externally, is we
24 scale it to the point estimate of natural mortality across a range
25 of ages that are fully selected to the fishery, and so there's a
26 difference in that scaling, and that's one of the issues why we
27 see a difference in terms of the curve and why the reviewer was
28 saying, you know, this is a pretty small natural mortality estimate
29 for our age-zeroes.
30
31 Also, if you think back to the growth curves, when we estimate
32 this natural mortality external to Stock Synthesis, we're using
33 that curve as given by the data workshop, and so, for our age-one
34 fish, it's about twenty centimeters, and so, basically, the data
35 and the growth curves that are provided say that those age-ones
36 are twenty centimeters.
37
38 They're fairly large fish, because we really just don't have a lot
39 of information, but, when you estimate Lorenzen mortality in the
40 assessment model, and, in our case, we're also estimating that
41 length at Amin, that length at the minimum age, and SS says that
42 that minimum age, that length at that age-one, is a lot smaller,
43 and, therefore, it's kind of compensating that there's a lot more
44 smaller fish, and, therefore, when you see the vector estimated in
45 SS, that's why the reviewer was saying we have such a lower
46 mortality than what you would see, and so that's just kind of a -
47 - We had more time to dig into this, as a group, internally and
48 also at the review panel, to just kind of get more down to why we

1 see these differences.
2
3 We, of course, wanted to make sure we weren't doing something
4 incorrectly, and we weren't, but it's just we make -- We have a
5 different set of parameters that we use to estimate this vector,
6 ad so that's just something that I wanted to highlight here, and
7 I think, on this curve, that kind of just shows you, visualizes,
8 what I was just saying about the differences in the growth curve.
9 When we use the data as given, you see that there's a lot -- The
10 age-one fish are a lot larger, versus what Stock Synthesis. Given
11 all the length and age data we put in the model, it's actually
12 estimating that length at Amin to be smaller, and that's why we
13 tend to see that change in the natural mortality for those ages.
14
15 I just wanted to highlight that there are only a few datapoints
16 where we have fish that are at least one year or younger, based on
17 the information given, and they tend to be caught in our surveys,
18 and so this kind of -- I think this is one of those areas where,
19 at the data phase, with the data experts, where we could
20 potentially discuss how realistic -- What sort of information, and
21 do we think we have enough survey data to have a better idea of
22 what size those age-ones should be, and that would potentially
23 help us kind of ground-truth, or just double-check, and maybe a
24 gut check, as we move forward in the process, because that was
25 something that was a big area of discussion.
26
27 There is still some life history information, I think, that we
28 want to, as we move forward with the informational, to just refine.
29 That's the end of life history, and I would like to take any
30 questions now for the life history, and kind of go piece-by-piece.
31
32 **CHAIRMAN NANCE:** Okay. Thank you for that presentation thus far.
33 Any specific questions on what has been discussed thus far? Roy.
34
35 **DR. CRABTREE:** I am just curious, Skyler, or maybe even Luiz, about
36 the ages. I know some grouper, particularly as you get into deeper
37 water, can be difficult to age, and do you know how scamp are? Do
38 you feel like the ages were solid?
39
40 **DR. SAGARESE:** That's a great question, Roy. Before this process
41 started, we actually had an ageing workshop that I was lucky enough
42 to go to, where analysts from Panama City and Beaufort and the
43 State of Florida -- All the agers met and went through some of the
44 samples, and I can say, with seeing that they've gone through --
45 Basically, when you get above ten years, it's extremely difficult
46 to tell the difference between the rings. Scamp is an extremely
47 challenging species to age.
48

1 We do have -- I will touch on it later, and we have an ageing error
2 matrix to account for that uncertainty, but this really is a very
3 difficult species to age, and yellowmouth -- The same as
4 yellowmouth, and I think one thing we saw with this assessment,
5 because it was Gulf and South Atlantic, is you can see the greater
6 complexity in the Gulf samples compared to the South Atlantic, and
7 my guess is due to the environmental conditions or the depth
8 profiles, but Gulf otoliths are a lot more difficult to age.
9
10 **DR. CRABTREE:** I'm not surprised, because I've looked at a lot of
11 grouper otoliths, and they are kind of messy. Can you give me
12 just a ballpark of about what the release mortality rate for
13 discards is thought to be?
14
15 **DR. SAGARESE:** That is my next slide, and so soon. I mean, that's
16 -- While we're chatting about this quickly, the discard mortality
17 rates came from an approach that's been used in the past to
18 estimate from the observer data in the reef fish observer program
19 for commercial. What we used for release mortality, total discard
20 mortality, for the bottom longline was 68 percent.
21
22 For the vertical line, it was 47 percent, and then the recreational
23 data -- Ideally, we had hoped that a similar analysis would be
24 conducted, using the FWRI observer data, but, ultimately, what was
25 used was they found an estimate of about 26 percent, and that was
26 just based on the available information, and it wasn't based on a
27 similar generalized linear modeling approach that's being used for
28 commercial, and so it's pretty high commercially, and,
29 recreationally, it's about 26 percent for both fleets.
30
31 **DR. CRABTREE:** Okay. That sounds about right. The other thing
32 that was interesting to me, since we just went through gag, is I
33 think the percentage of males in the sample is like 36 percent,
34 which, with gag, I think it was a little over 1 percent, and so
35 quite a contrast.
36
37 **DR. SAGARESE:** Yes, and it's definitely not as male-limited right
38 now as gag is, and I think that's -- We did have a lot of those
39 discussions during the data phase, talking about the differences
40 between species and how gag is -- The sex ratio, especially now,
41 and there's been a lot of work that Sue Barbieri has been looking
42 into, but scamp didn't really have that sort of -- It doesn't seem
43 to be in as dire condition right now, and, yes, we see that within
44 the sex ratio information that we have.
45
46 **DR. CRABTREE:** Thanks, Skyler.
47
48 **CHAIRMAN NANCE:** Any other questions? Then let's go ahead and

1 continue on.
2
3 **DR. SAGARESE:** Okay. Moving into the removals, the commercial
4 landings, we ended up using -- Of course, for the Gulf of Mexico,
5 we have our landings for scamp, and, as I mentioned, everything is
6 going to be in gutted weight. The data sources came from the
7 annual landings system, and that's a Southeast Fisheries Science
8 Center database. All the landings from Texas through Alabama came
9 from that data source for all the years included.
10
11 We used the Florida trip ticket program to get landings for west
12 Florida, because that was considered a more reliable source from
13 the commercial working group. Then, because this species is in
14 the IFQ program, we used the IFQ landings for all of the Gulf
15 states, starting in 2010.
16
17 The one thing that I wanted to touch on is that, for scamp, the
18 base run recommendations from the data workshop, we start the model
19 in 1986, largely because, yes, we do have historic landings that
20 were provided for scamp, but the commercial working group was very
21 uncomfortable and did not recommend those historical landings for
22 use.
23
24 This is one issue that I found, going through some of the review
25 workshops, where other scientists coming from different regions -
26 - You know, we have a lot more challenges, I think, in certain
27 topics, and I think this is one of them. It's hard to -- Ideally,
28 you want to create your entire historic time series. Even if it's
29 just kind of a rough guess, you would want to have some way of
30 going back in time, because that would get us away from some of
31 the assumptions we have to make, but, unfortunately, especially
32 for scamp, when we looked at the historical time series of
33 commercial landings, there really wasn't a ramp, and it was just
34 essentially a constant, back in time, and it just didn't seem
35 realistic.
36
37 While, if we have these historic landings, and we have some ideas
38 of an uncertainty estimate that we can incorporate now in Stock
39 Synthesis, and we can put annual estimates of error with these
40 landings, and we can't really give the model historic landings
41 that we just don't know, because there is no information in the
42 model, really, to tell it what it should be, and so, for this
43 assessment, we decided to start in 1986.
44
45 I know this is different from what was done with gag, because gag
46 is started earlier in time, and red grouper, at least, was started
47 in 1986, and so there is some differences in these decisions
48 between species, but we did spend a lot of time trying to go back

1 in time, but it's just, for this analysis, we decided, again, to
2 start in 1986.
3
4 We did have -- I believe this is the first assessment in the Gulf
5 where estimates of uncertainty were provided, at least a rough
6 ballpark, for the commercial landings. In this case, we ended up
7 using 0.05 from the 1986 to 2009 period, and so, within Stock
8 Synthesis, we input the standard errors, on a logscale, for our
9 landings, and, again, 0.05 -- This comes from how the South
10 Atlantic handles landings, where they also have sort of an expert
11 opinion specification of errors for landings.
12
13 We didn't have any quantitative information from the Gulf, and so
14 we just went with the next-best thing, which would be assuming
15 what the South Atlantic does, and that would be the 0.05, and so,
16 basically, we're treating our commercial landings as they're
17 pretty known and we have a pretty good understanding of them, and
18 we're anchoring the model around those landings.
19
20 Then, from 2010, more recently, given the implementation of the
21 IFQ, we're putting in even a smaller standard error of 0.01,
22 because we're pretty confident -- Given the IFQ and how those
23 landings and tracked and provided, we're pretty confident in our
24 commercial landings estimates, at least from 1986 recently, given
25 improvements in how the data were reported. This was something
26 that I know the reviewers had a hard time wrapping their head
27 around, but, for the purpose of this assessment, we did start in
28 1986, and, again, our commercial are always in weights.
29
30 Now, the recreational landings, we initially, as many of you that
31 were involved in the SSC for the last few years, when we did the
32 red grouper assessment, we had the discussions about is it more
33 appropriate to model our input, our recreational landings, in
34 numbers or weights, because, with that assessment, we saw the model
35 was not predicting the same size of landed red grouper by the
36 recreational fleet.
37
38 What we did with this research track was try to dig in a bit more,
39 and, while we, at the assessment phase, had considered, or
40 suggested, switching to inputting recreational landings in weight
41 estimates, what we ended up then deciding is, because, for many of
42 these different data sources, almost all of these surveys were,
43 first and foremost, designed to collect data on numbers.
44
45 The Marine Recreational Information Program is our big source of
46 recreational landings. For this assessment, we did include the
47 Fishing Effort Survey data. These landings and discards are now
48 provided in addition to annual CVs, and so we have annual error

1 estimates to accompany the landings and discards.
2
3 The other sources for the recreational landings we have are the
4 Louisiana Creel Survey, from that 2014, and that just essentially
5 gets lumped into the recreational landings from MRIP, and we had
6 the Texas Parks and Wildlife Department, the landings, and, here,
7 my years start in 1986, because of the start year, but some of
8 these -- For example, that data stream starts a little earlier, in
9 1983, and then, the Southeast Region Headboat Survey, that's
10 essentially a census of headboat landings, and so we have a pretty
11 good understanding of that data source.
12
13 We have, as you all know, are well aware, there's a lot of different
14 sources of recreational data out there right now, and we -- During
15 this research track, and, again, I think this is the first
16 assessment in the Gulf where annual error estimates were provided
17 by the data providers by year for consideration during the stock
18 assessment, which, again, is a very important thing as we move
19 forward, but one thing to highlight and caveat here is that, for
20 the base models, even though we tested the actual CVs that were
21 provided by the data providers, which, for example, MRIP -- The
22 CVs range from 0.29 to 0.89, and so you can there's a really large
23 range of uncertainty in some of those landings.
24
25 When we give the model that much flexibility, and we input those
26 actual CVs, the fits to the model don't get that different, but,
27 when it comes time to run diagnostics, the model is just too
28 flexible, and it just bounces around too much, and so it seems
29 like the sweet spot -- Instead of assuming we know our recreational
30 landings perfectly in the assessment, in this case, we input a
31 standard error of about 0.3 for each of the fleets, for charter
32 private and then headboat, which is sort of in the middle.
33
34 We don't know them perfectly, but we can't really, at the moment,
35 account for that much variability in the base model, and so what
36 we've ended up doing here was just setting a fixed CV of 0.3, or
37 a logscale standard error of 0.3, and so, again, this is one of
38 those decisions that comes up a lot, but, for the purpose of the
39 base model from the review phase, we are, again, inputting our
40 recreational landings in numbers, and I think I have now just kind
41 of -- Why do we do that, and why did we decide to plow ahead with
42 just the numbers?
43
44 This is one of the topics that the analytical team -- You know, we
45 did a little bit more research, and we tried to approach this from,
46 you know, traditionally, all of the surveys, first and foremost,
47 have always sampled the number of fish.
48

1 Yes, there are weight estimates, but not every single fish
2 monitored or surveyed during the recreational surveys is weighed,
3 and so what was done, in I think it's like around 2000, when the
4 annual catch limits went in -- Because we monitor in weights, at
5 that point, a lot of statistical power was used to figure out how
6 could we best estimate the recreational landings in weights, and
7 that was done by Vivian Matter, at the time, and Steve Turner, and
8 this is where the recreational landings are monitored in weights,
9 and the SEFSC has its own weight estimation approach that basically
10 looks at a different -- It looks at by strata, and so the coarsest
11 strata would just be by species, where you don't have enough
12 information by region or year or state or mode, and the finest
13 would be knowing the area fished.
14
15 If you have the cutoff sample size of I think it might be about
16 fifteen fish now that they had statistically shown that that was
17 a good enough representation of the strata, you basically find the
18 number in a strata and then find the average weight in that strata,
19 and that's how you get your weight estimate.
20
21 While, for this assessment, we had the estimates in both numbers
22 and weight, we ultimately wanted to go back and model them in
23 numbers, because that is traditionally how we've done it, and the
24 numbers have been the most consistent, in that we have estimates
25 of variability in just the numbers. Using another estimate would
26 also incorporate uncertainty that, at the time of this assessment,
27 we did not have any idea of the uncertainty within those weight
28 estimates.
29
30 In conjunction with this question of how do we model, or how do we
31 input, recreational landings, what we ended up doing, and this
32 came about from the red grouper analysis and the allocation
33 questions, was, well, for these surveys, we now have information
34 on the mean body weight, and so the mean size of a fish that's
35 landed, either charter private or headboat, and we have that
36 information that's provided at the data workshop.
37
38 If we input the recreational landings in numbers, and then we also
39 input this mean body weight for each fleet, we can at least test
40 the model and see how close -- Not even fitting to it, we could
41 use it as a gut check, or we have the information, and we can fit
42 to the mean weight, or the mean body weight, of landed fish, and
43 that's what we've done in this model, is we're putting in numbers,
44 and we're putting in the observed weights, and then we're fitting
45 to those, so that the model is then able to track the sizes, and
46 we won't see the big discrepancy that we saw with red grouper.
47
48 Now, because this was the first research track, and this topic was

sort of ongoing as we were going through the process, we put together a working paper for the review workshop that just kind of goes through the different options, and the hope is that, for the operational track assessment, what we'll get from the data providers is this mean weight vector for each fleet, in addition to the standard deviation of that body weight, and so we'll have what we need to put in the model, and we'll use that.

The one sort of question that we've had internally, and I think we've also discussed potentially in past SSC meetings, is, essentially, when you have the recreational landings -- What they put out for monitoring is their weight estimate, and so it's the best estimate of recreational landings in weight, and then they also put out the estimates in numbers, and so, to get the mean body weight, essentially the one option is just to divide those weight estimates by the numbers, the estimate numbers, to get essentially a mean weight.

The other option, and I think it's less ideal, is to use the raw data, but I think what we proposed, and what did for scamp, was to propose using -- Basically, using the estimates and so the mean weight is a function of that weight estimate over the numbers estimate, just to get an average size of fish. Again, this is something I think that, when we go through the operational, we will hopefully -- We will have the data that we need to put this on the books officially, and, again, this was just sort of a demonstration, because we didn't have the actual vetted data, and some of this was just a table in a working paper, and it wasn't really vetted through the data phase at the time, but it's something that we absolutely can do when we move through the operational.

Just let me finish up this landings comparison, and so, looking at the bigger picture, ultimately, what we see on the left is what we have input into the model, and so our commercial fishery -- The landings go in as weight, in metric tons, and then, on the bottom, you've got the recreational landings go in as thousands of fish and so numbers of fish.

On the right, what we're seeing is the assessment-predicted landings, and so, again, in this case, we're looking at the -- Stock Synthesis will produce -- Outputs of the model will be landings. Even though we only input numbers, the assessment model will predict those landings in weights, and that's what we're seeing here. Everything is in the same units, but we're predicting and comparing weights.

What we see here is that, while, for the most part, early on, it

1 seems to be predominantly commercial removals, we actually do see
2 the charter private landings going up over time, to very high
3 levels in the most recent years, and so there has seemed to be
4 this shift, which I think matches what we're sort of hearing from
5 stakeholders and such, but, ultimately, what we're seeing is a
6 shift in the fishery. I wanted to pause and take any questions.
7 I know this recreational landings in weights, in the body weight,
8 has been a big issue in the last couple of years, and so I just
9 wanted to pause, if anyone has any questions or comments, before
10 we proceed.
11
12 **CHAIRMAN NANCE:** Any SSC comments? Trevor.
13
14 **MR. MONCRIEF:** Thanks for the presentation so far, and I've really
15 been enjoying going through all this stuff. I did have a question
16 about the recreational landings, and so I can see the thousands of
17 fish in the bottom-left on this figure, and it's pretty stochastic,
18 and it's bouncing back and forth, year by year and back and forth,
19 and then you're saying there's an increase in the trend, which I
20 would agree with. You've got more folks out there being able to
21 target these fish.
22
23 I was going to ask, and during the actual review phase, was there
24 any look at the wave-specific landings for this species across
25 time and kind of the representativeness across waves, patterns or
26 anything?
27
28 **DR. SAGARESE:** You know, that's a great question. To my knowledge,
29 I don't believe any wave-specific information was shown or reviewed
30 during the assessment, because we tend to look at data on an annual
31 basis, but I think, especially now with COVID and potentially
32 having to look at the different waves, to see are we similar to
33 the last few years or not, and I think that's something that, maybe
34 moving forward, we'll be able to look at. Maybe for monitoring,
35 and that's a question for the folks that use the data for more
36 real-time in-season monitoring, but, no, at the assessment phase,
37 we did not look at that.
38
39 **MR. MONCRIEF:** All right. I've got you. I pulled them up, just
40 to have a coarse look at it, trying to look at the peaks and
41 everything else, and, I mean, just for informational purposes at
42 this point, and it has no bearing on the work you all have done or
43 anything, but it looks like peak landings jumped wave-by-wave
44 across each state by year in this species, and so, in some years,
45 it's March/April, and, in some years, it's July/August, and it
46 just seems to kind of bounce around a little bit, and so it might
47 be a consideration to be able to look at, because this is one of
48 those species that aren't observed readily in the fishery, I

1 wouldn't believe, or I wouldn't assume so.
2
3 **DR. SAGARESE:** I mean, that's a great idea, and that's something
4 that I would be very curious to see how those trends -- Maybe how
5 did they correspond to the regulations for the other maybe more
6 targeted groupers, and that seems like something that would be
7 very valuable to look at.
8
9 The one thing I should point out is, while we don't look at wave-
10 specific data during the data phase, say, if you see a peak, and
11 so, for example, these big spikes in charter private landings, the
12 analysts do go back and evaluate what point, or what intercept,
13 was driving that trend, and, oftentimes, they will identify that
14 it was this wave, and it was this -- So there is some, when you
15 see that sort of information, and they do go into the wave-specific
16 information, but not generally, but I just wanted to bring that
17 up, but, yes, that's a great idea, and I think maybe that's
18 something that I will put on my -- That would be really neat, to
19 kind of see how that corresponds to the different species, to maybe
20 provide some kind of quantitative backing of how regulations for
21 other species might be driving what we see for scamp.
22
23 **MR. MONCRIEF:** Thank you for that.
24
25 **CHAIRMAN NANCE:** Any other questions? Leann.
26
27 **MS. BOSARGE:** Thanks, Skyler. Would you go back one slide? I
28 have one question. Those last two bullet points, and I like the
29 formula that you all have there at the bottom, to kind of get at
30 this in a different way, and my question is that the weights that
31 you're inputting into that formula are still raw weights, right,
32 and they're not the imputed weights, and there's some imputation
33 that does take place, and you're putting in the raw weights, right?
34
35 **DR. SAGARESE:** That's a good question, and so the first bullet is
36 basically the observed raw data observations. If you look back at
37 the working paper from the data phase, they actually have a table
38 of the raw data, and so they have the raw size, and they have the
39 min, the max, the mean, and potentially they can give the standard
40 deviation of the raw observations.
41
42 The second bullet, to me, those weight estimates and number
43 estimates, I think those are after the imputation, and so those
44 would assume, or would take into account, the imputations, but all
45 that weight over numbers is doing is just giving a guide of what
46 that mean weight would be.
47
48 I think this is something that maybe should be considered when we

write the terms of reference, is how best to characterize the mean
weight. Do you just want -- Would the observed be the most
appropriate, but, again, thinking back that those monitoring
surveys don't always have weight estimates for every single -- Or
measured weights, observed weights, for every single fish, and so
which would be the most appropriate input, I think is still
potentially up for debate.

MS. BOSARGE: Okay. Thanks. It seems like, if you use the imputed,
you're actually pulling -- When you didn't have observations,
you're pulling them from some other either area or mode or
something like that and imputing, and so then, if you put that
into your formula, it just seems like uncertainty on top of
uncertainty, and so, anyway, that's just something to consider.
Thanks for the info.

CHAIRMAN NANCE: Thank you. John.

DR. FROESCHKE: On that same thread, I was just looking at -- It
seems like, if you're imputing numbers from other areas, that would
really complicate the variance calculation, because you really
don't have any -- You don't have fully independent estimates, and
just an observation on the charts. The uncertainty is quite large,
and many of them are negative, and perhaps the normal distribution
of the variance is not the right way to do that.

DR. SAGARESE: Thanks, John, and so that's another really good
point, and this is something that the Science Center is aware of.
They are currently working on trying to get at CV estimates for
body size, as well as the recreational landings in weights, and so
hopefully the estimates that we will get will account for that
uncertainty, but you're absolutely correct, in that you see, in
these trends, that there's a lot of uncertainty in the sizes, and
that's -- The review workshop working paper kind of shows what
sensitivity runs -- Whether we use the observed data or the
derived, to give you an idea, but the uncertainty is going to be
key in how we specify this information in the assessment model,
and, yes, that's something that is -- I believe it's in the works,
because this is -- We recognize this is a big issue, a big topic.

CHAIRMAN NANCE: Okay. Thank you. Skyler, you can go ahead, I
think.

DR. SAGARESE: Okay, and so moving into discards, and so the
commercial discards -- We did have estimates of commercial discards
for the two fleets, for the commercial vertical line and the
commercial longline.

1 What we have input into Stock Synthesis is actually the total
2 discards, and so we input the total number of fish discarded and
3 then we implement the discard mortality in the model and have that
4 -- Basically, the model estimates discards, applies the discard
5 mortality, and then an output of the assessment model is the total
6 number of fish discarded as well as the total number of fish that
7 are dead that are discarded.
8
9 The total discards that were provided -- Estimates came from, in
10 this case, the catch per unit effort expansion approach that has
11 become pretty common in the Gulf, and I think it was first applied
12 for red grouper, and, basically, it uses the observer program to
13 get the CPUE, and then it takes the total effort from the
14 commercial logbook information.
15
16 What we see for scamp -- The one thing that I want to point out
17 first is what we're plotting here is the total number of discards
18 per fleet, and the Y-axis is in thousands of fish, and,
19 essentially, the commercial vertical line estimates are about
20 4,000 fish, on average, a year, whereas commercial longline is
21 discarding only about 500 or 700 fish, and not thousands, but like
22 700 fish, and so there are very, very few fish discarded compared
23 to the landings.
24
25 For the assessment model, we have assumed -- We are using the data
26 as they were provided, and we're using the annual error estimates
27 that were provided with the data in the assessment model, and so,
28 when we're estimating, or fitting, to these discards, there is a
29 lot of uncertainty in some of these years, and that's what we see
30 in this figure. We assume a lognormal distribution for the
31 discards, and we're fitting to them, but, again, they are extremely
32 small, in magnitude, compared to the landings.
33
34 One thing that I just want to quickly mention is that, because
35 this was a research track, we also -- Through some of the process,
36 we tried to implement a model that was modeling discards separately
37 as their own fleets, to basically disconnect the fishing mortality
38 of landed and discarded fish, so that they were treated
39 differently, and I think that's how the South Atlantic tends to
40 model the removals, but, ultimately, for a couple of different
41 reasons, we decided to stick with -- One of the strengths of Stock
42 Synthesis is we have the retention function, and we have the
43 ability to input the discards.
44
45 We have the discard length compositions to estimate the retention,
46 and so, while we did pursue a different way of treating discards,
47 we ended up going forward with how we've done it in the past, is
48 modeling retention, for different reasons, but I just wanted to

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1   highlight that, because that was something that we tried.
2
3   In terms of the recreational discards, again, we put in the total
4   number of discards before applying discard mortality rates, and
5   so, recreationally, all of the discard information that we had,
6   for the most part, came from the charter private, and it came from
7   MRIP, and, ultimately, there were no discards assumed for Louisiana
8   or Texas, because there were no discards reported for the Texas
9   survey, although they were assumed negligible, given that there
10 were so few fish landed in Texas, and then, for LA Creel, because
11 LA Creel does not report discards, because the MRIP discards were
12 very sparse, the discards in Louisiana were assumed negligible.
13
14 Basically, what we see is that we do have some discard information,
15 mostly for the West Florida Shelf and not really for the western
16 Gulf. For the headboat discards, the working group suggested --
17 They ultimately ended up saying to use the self-reported discards
18 from 2004 and more recently, and then, for that first period of
19 2000 to 2003, just to use a proxy, a proxy of the mean headboat
20 discard ratio, to get at what those four years of discards would
21 have been, based on the average from 2004 to 2018.
22
23 There's a couple of things to touch on here, and so, just looking
24 at the plots on the left is the charter private. Again, the Y-
25 axis is in thousands of discarded fish, and, on the right, it's
26 headboat, and so charter private -- You can tell, in this figure,
27 the discards are extremely variable, and they are very uncertain,
28 and so you have estimates, for the most part, that can go up to
29 200,000 fish, whereas, earlier in the time period, very few fish
30 were discarded, but, in this instance, I touched on it earlier
31 with the regulations.
32
33 In 1990, a Florida state size limit went into place, and so what
34 the charter private discards from MRIP show is that fish were being
35 discarded even before that state size limit went into place, but,
36 during the data phase, the headboat discards prior to 2000, prior
37 to the federal size limit -- Basically, they said that, before
38 that federal size limit went in, that fish probably weren't
39 discarded, or they were at least negligible, but there weren't any
40 estimates, and so that's why you see why we have estimates of
41 discards for charter private starting in 1986, but, for all the
42 other fisheries, we have discards starting in 2000, because those
43 three of the four fisheries assume that discards were negligible
44 before that federal size limit.
45
46 Scamp, for the most part, are caught further offshore, and they're
47 not really -- Keepers are probably not going to be -- Well, in
48 terms of landings, and they might be discarding smaller scamp,

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1 but, for the most part, fish were likely caught in federal waters,
2 and so I just wanted to highlight that one difference, in terms of
3 the years where discards start, and the other thing is that, again,
4 as we did with commercial, we used -- In the assessment, we input
5 the actual error estimates for each of the annual discard estimates
6 that came from charter private, which the CVs come from MRIP.
7
8 Then, for headboat, there were CVs that were provided, and there
9 was a big effort by the data analysts to provide us those
10 estimates, and there are working papers that describe how they did
11 it, but, ultimately, those estimates were extremely small, and
12 some years it was essentially zero, because the thinking was it's
13 supposed to be a census, but, ultimately, we ended up assuming
14 that those discards -- Headboat discards from the Southeast Region
15 Headboat Survey, we still don't have estimates of uncertainty for
16 the discarded fish, and so we assume a CV of 0.5.
17
18 There is a lot of uncertainty in the discards, and, again, for the
19 MRIP, the uncertainties of discards range from 0.32 to essentially
20 one, based on the data provided, and so, again, they're pretty
21 small, and they're pretty uncertain, and that's kind of where we
22 came with -- I didn't plot the comparison, just because,
23 overwhelmingly, most of the fish discarded are charter private, in
24 terms of total magnitude, and some of those discards actually are
25 very high, or are much higher compared to the other fleets, when
26 compared with landings.
27
28 In terms of the composition data, we do have discard length
29 compositions, which, in the Gulf, are very important, and most of
30 them, in terms of the commercial data, come from the reef fish
31 observer program, and from the recreational, both charter private
32 and headboat, comes from the FWRI at-sea observer program.
33
34 This information is really important, because it gives us an idea
35 of the sizes that are discarded, and, from that, we can estimate
36 the retention curves throughout the time series. For this
37 assessment, normally, in the past, there has been some
38 inconsistencies, and we always haven't had account of the number
39 of trips to go with the compositions, and, in those cases, we would
40 use the number of fishes, the input sample sizes, but, for this
41 assessment, the composition analysts put a lot of time into making
42 sure that we had that information, so that we could count up the
43 number of trips that these samples correspond to.
44
45 All of the input sample sizes for this assessment, for the
46 composition data, are actually the number of trips and not the
47 number of fish, and so it's thought to be a more appropriate
48 metric, because, oftentimes, if different fish are caught on the

1 same trip, you would assume that they're not independent, and so
2 this is a better representation of what those input sample sizes
3 would be.
4
5 Just for comparison, the teal line that you're going to see in
6 each of the figures is essentially just showing the federal size
7 limit that went in in I think it was 1999 for scamp, but, overall,
8 there has been a size limit, and you can see most of these fish,
9 for the most part, the data that we have, a lot of them are
10 discarded underneath the size limit, but, commercially, there are
11 some fish discarded above the size limit.
12
13 In the IFQ program that went in in 2010, you can see that the
14 commercial longline, which is the top-right figure, the data
15 available, we only had a few years of data that were included in
16 the model, because many of the years had fewer than ten trips, and
17 so they were deemed too low to include, and so we're pretty lucky
18 to have some information, in terms of discard length compositions.
19
20 The one thing to note is that the headboat, the discard length
21 composition for headboat, is weighted by the trip type, because of
22 -- Depending upon trip type, it will determine how far they're
23 going offshore and the potential sizes they will come into, they
24 will come across, but, otherwise, it's nominal compositions for
25 the discards.
26
27 We also, in this model, we've got the length compositions for the
28 landed fish, and so, for commercial, most of that data comes from
29 the trip interview program, but also from GulfFIN, and the
30 composition analyst was able to provide weighted estimates, where
31 they developed compositions in sub-regions for the Gulf, and so
32 the Southeast, the Northeast, and then the West, and then they
33 weighted those distributions based on the landings in each of the
34 regions.
35
36 That is what we've got, in terms of commercial, and we've got
37 weighted length compositions that have gone into the assessment
38 model as data inputs, and the input sample sizes are the number of
39 trips, and so, as long as it had ten or more trips, the data are
40 included in the model.
41
42 The plots here are showing over the different -- From 1986 onward,
43 and so you can see the implementation of the Florida size limit
44 early in the 1990s and then the federal size limit in 1999, and so
45 the one thing to note that is important is that the Florida state
46 size limit, from 1990 to 1998, basically, if a fish was caught in
47 state waters below that size limit, it would have to be thrown
48 back, but, if a fish that size was caught in federal waters, there

1 was no size limit, and so that's why we see there is a mix-and-
2 match of fish above and below, and that's because of that, and
3 that was only Florida.
4
5 In 1999, when the federal size limit goes in, and it was actually
6 not the same size as Florida until I think this is 2003, and they
7 then became consistent, and so there has been some changes in that
8 size limit, and then I will touch on it later on, how we accounted
9 for that with retention, but what we can see is that, overall,
10 since the federal size limit, we can see that most of the fish
11 landed you would expect are above, and, again, this is -- The teal
12 line is just kind of an approximate, and it's not exactly at the
13 size limit, converted into the centimeters fork length, but, over
14 time, we can see that we have a lot of pretty good information, in
15 terms of lengths, and I think that -- I will touch on it later,
16 when we get to the age data, but we have a lot of lengths for
17 scamp, and we also have length data from the recreational fleet,
18 and so we get the length data for recreational from a couple of
19 different sources, from the MRIP program, from Texas, from the
20 headboats, and then also from GulfFIN.
21
22 There were not enough samples to weight, or to develop a weighted
23 composition, and so what we have input into the model is just the
24 nominal length compositions for the recreational fleets, and,
25 again, there is a lot of details in the working paper that talks
26 about that it was attempted but there just wasn't enough to
27 separate by regions, and then weight by landings, and so what we
28 have here is we do have length compositions.
29
30 Again, you can see the Florida size limit in red and then the
31 federal size limit, and you can see how most of the length data -
32 - Most of it is above the size limits, although, for headboat, you
33 do actually see some fish that are landed below the size limit,
34 and we'll see that later on, when we look at the model fits, and
35 so we have a lot of information, length-wise.
36
37 Looking at the age data, this was another big topic of discussion
38 during the review phase, and also during the assessment phase, and
39 so we had initially -- What I mentioned earlier is we did have a
40 lot of length data in the model, and we have both discarded and
41 landed, or retained, compositions in the assessment.
42
43 Because of that, we have decided to use the length-based
44 selectivity approach for each of the fleets and surveys, to
45 essentially -- We have a lot more confidence in the length
46 information that we currently have.
47
48 At the time, when we were developing the inputs, we wanted to use

the conditional age-at-length for the commercial fleets, because one of the -- There is a couple of different benefits. If you have this sort of information, and it's deemed representative -- For example, if you have a program that is length stratified, and so, if you are collecting random samples across lengths, then you could actually use this information in the model to condition the ages on the length data, and it allows you to estimate growth, and it allows you to get at the variability, to estimate the variability in the model, and there's a lot of benefits.

At the time, we were under the assumption that we could apply this approach, and, ultimately, when we got to the review phase, and as we were going through gag as well, and we started having more conversations with the life history folks, and we realized that the conditional age-at-length is -- We're likely violating that assumption, that the data, at least for the species of interest, for scamp, that it was not likely representative, and so we ended up switching back to the nominals for the review workshop phase.

For the recreational data, we only had nominal age comps, because we had fewer sample sizes, and so we tried to use a more appropriate -- Best practices is to use conditional age-at-length, but, again, it's really dependent upon how our data were collected and how we're treating it, and I think this is something that, when we get to the operational, just to re-review the representativeness of what we're inputting into the assessment, to make sure what we're putting in is our best guess at what we think those compositions could be.

That is something that will be really important for us to get to the bottom of, and I can say that we are internally having our best practices for composition data right now, and we are discussing all these issues, and we'll have some resolution with this workshop that's ongoing, and so that's just something to keep in mind.

Comparing all the, again, nominal age comps, currently, the review workshop base model just has the age comps as all nominals for all the fleets, and input sample size is, again, the number of trips, and you can see that the one thing that we see with this species is we really don't have a ton of age data, and it's not like red grouper, where we have a bunch of ages and we see strong cohorts. We really don't have a lot of information, and one big gap that was identified for the research track was the issue of all the age data between 2003 and 2012.

They were processed in a different way, and so there were concerns with inaccuracies with what was reported as the age and what was

1 reported for the fish, the size and for the other metrics, and so
2 all those age data were not used in the research track, and,
3 instead, just proxy age data, using the otolith weight, was used,
4 just as a placeholder for the research track.
5
6 Panama City is currently going back through those years. They had
7 additional otolith samples that were not processed, because they
8 only sub-sampled, and so they are processing the remaining otoliths
9 for those years and reading them for the first time, and those age
10 estimates will be available for the operational for that gap in
11 years.
12
13 One of the issues that we had is we used proxy ages just to have
14 placeholders for now. Could that potentially have led to some of
15 the issues we're seeing in the model? It's possible, and so I
16 think this is one of those areas where, when we get to the
17 operational, we get the best available data, and we'll be able to
18 go from there and see if any of the issues were resolved, and maybe
19 they got better, or, if not, what other potential places could we
20 be looking, and so that was just a unique issue for scamp, for
21 this research track.
22
23 Hopefully we'll never really see that proxy age information needed,
24 but this was just for scamp for those select years, and you can
25 see the clear gaps for vertical line, charter private, and
26 headboat, and, actually, most of the proxy data came out for the
27 longline, and so you don't really see a gap there, but that's just
28 something that I wanted to emphasize, that that was just a scamp
29 issue, and so no worries with the other stocks for now.
30
31 Then, I think, moving into the last few pieces of data, and then
32 I will kind of break for the data review, but the indices. Again,
33 this was a big issue, a big topic for discussion, for the review
34 phase, and also for the assessment phase.
35
36 For this assessment, we had two CPUE indices, and the one was the
37 pre-IFQ commercial vertical line index, and so from the logbook
38 data from 1993 to 2009. While other indices were produced,
39 ultimately, just this logbook index was recommended for the
40 assessment. Overall, you can see that, for the time period model,
41 it's kind of flat, and there's not a lot of contrast, and it just
42 kind of bounces around, and we see that later on, when we look at
43 the results.
44
45 The headboat index, on the other hand, we see a lot more variation,
46 and we see a lot more variability across the index, and what we
47 want to point out here is this is our longest time series for the
48 model, and so it does have an important -- It is an important

1   driver of the dynamics that we're seeing in the assessment.
2
3   The headboat index, you can see, for the most part, we see a drop
4   in the most recent years, but there is a bit more contrast. For
5   these fishery indices, we ended up -- Normally, when you
6   standardize indices, you get estimates of uncertainty with the
7   index.
8
9   What we did for input into the assessment model was to scale the
10 standard errors for each index for the fishery, so that they had
11 a mean of 0.2, and so each of these fishery-independent indices -
12 - It would maintain the interannual variability in the uncertainty,
13 but they would be scaled to 0.2, and so they would have,
14 essentially, the same scale. Then, when I talk about the model
15 configuration, I will talk about the extra uncertainty that we
16 considered in the assessment.
17
18 Then, for this assessment, we had two surveys, and the only
19 fishery-independent survey was the combined video survey, which is
20 the three labs, the FWRI, Panama City, and the Pascagoula, the
21 SEAMAP reef fish survey, and the combined video index was included
22 and recommended for this assessment. Again, you can see it's a
23 lot lower abundance in more recent years.
24
25 Then we had length information from that survey for most of the
26 years available, and the second -- While we consider the reef fish
27 observer program a vertical line index, it was a novel index of
28 abundance that was not developed using the standard delta lognormal
29 type approach, and it was essentially almost a mix between -- With
30 fishery-independent surveys, you often have a mean stratified
31 approach to designing a survey, and so the analysts that put this
32 index together took the observer data, which we know always comes
33 from -- It is fishery-dependent, in a way, but the design of that
34 survey, the design of the development of the index, took into
35 account the uneven sampling and depths and areas and such, and so
36 it also had information on landings and discarded fish, and so it
37 was an inventory of the total catch.
38
39 For the purpose of input into the stock assessment model, we
40 treated this index as a survey, because it had its own length
41 composition, and, again, it's both discarded and landed fish, and
42 so total fish, and so we ended up inputting this into the stock
43 assessment as its own data source.
44
45 The one thing to note here is that, when we look at the four
46 indices that were recommended for use and the correlations, and
47 this is just the correlation matrix, and you can see that some of
48 the indices are not very correlated, and some of them are, but,

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for the most part, the big discussion for the review workshop, and
we had it with the assessment phase too, was the two indices that
we have throughout the terminal year of 2017 for the research track
showed that -- Actually, you can see these two indices actually
were provided for 2018, but our terminal year for the assessment
was 2017, but, overall, two of the three indices were showing a
decline in the most recent years, the headboat and the video
survey, but that reef fish observer program survey for vertical
line, in that lime green color, was actually going up.

You can imagine that this conflict in these indices was a big area
of discussion at the review workshop. We did sensitivity runs
where we removed the reef fish observer program vertical line
index. The diagnostics didn't -- They got a tiny bit better, but
it didn't solve all the problems, but the problem with the
conflicts in these indices -- This was a big issue, and, instead
of removing the index, because the index -- There was a lot of
time and effort put in, and there is a lot of value in fishery-
dependent data that ultimately it was decided to retain this index
in the base model from the review phase, but just to downweight it
later on in the process.

This was the data workshop, and we also were in the middle of
COVID, and so there was a lot going on, and maybe, if we had been
more selective, maybe we could have evaluated some of these issues
instead of kind of pushing them through the whole process, and
that might have contributed to some of the issues, but it is
difficult trying to justify keeping or excluding an index,
especially based on the trend, because, if it is reliable, and the
way the survey was designed -- You know, it covers the big range
of the fishery depth-wise.

It covered most of the depth ranges, and it covered most of the
sizes, and the analysts were pretty confident that that index
should be indexing abundance, but, during the review workshop, one
of the reviewers ran their own analyses and basically said all of
the indices are in agreement in a surplus production model except
for the reef fish observer program index, and, when they added in
a time-varying catchability for that reef fish observer index
program survey, it actually got a better fit, and so there seems
to be evidence that there's an increase in catchability from that
survey that is not currently accounted for, and so just things to
keep in mind as we move into the results for potential hypotheses
of what's going on.

Let me just quickly touch on the ecosystem considerations, and so,
long story short, this was the first research track, and there was
a big effort by Mandy Karnauskas and Matt McPherson to basically

1 kick off a research track with this conceptual mapping idea, where
2 basically you reach out to stakeholders and scientists, and you
3 kind of come together and identify all the potential drivers,
4 whether biological or physical or management related or economic
5 related, and you identify the system and then try to highlight the
6 key areas, potentially, where further research could be conducted
7 or just -- Not necessarily that these are all facts, but,
8 basically, that each of these relationships on this graph could
9 just be a working hypothesis.
10
11 I think, in the ideal world, you would have this map, and you would
12 have a couple of years to do your research to address some of these
13 questions, and then you would have a research track assessment
14 where you could then consider all that information at that time
15 and incorporate it right into the assessment model.
16
17 The first issue that I just wanted to note here is the issue of
18 red tide, and what we saw -- What Lisa presented earlier was, with
19 gag and red grouper, that red tide seemed to be a big issue, and
20 that was something that was hypothesized that I will touch on in
21 the next slide.
22
23 Again, this issue, what I really wanted to emphasize here is,
24 because scamp is not really a primarily-targeted species
25 throughout the time series, by fleet, that the regulations for
26 other species probably are driving some of the patterns that we're
27 seeing and not necessarily fishing for scamp, and so these are the
28 kinds of things where we can go back and kind of develop research,
29 looking at regulations and looking at the wave-specific landings,
30 and maybe we can tie different seasons, or different regulations,
31 into changes in fishing behavior, and I think that kind of
32 information -- This would be really helpful to help us hone-in on
33 what actual ecosystem drivers would we need to consider in the
34 stock assessment, because it's not as simple as -- Not only do you
35 need to know the mechanism, but you need to know how to incorporate
36 it in the assessment, what data are needed, and then actually how
37 to model it, how to include it, and so I just wanted to bring that
38 up.
39
40 We really didn't have enough time, during this assessment, to touch
41 on many of the ecosystem or economic points that the terms of
42 reference had, but that's certainly something we're aware of, and
43 I just wanted to bring up now the red tide, where we had -- With
44 gag and red grouper, we had a lot of feedback from stakeholders.
45
46 We had the Something's Fishy survey, where you had a lot of people
47 talking about the red tides and the issues, and, at least for
48 scamp, from the Something's Fishy survey, I think there was maybe

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1 one person that mentioned that red tide might be a driver. All
2 the other documentation that was submitted for SEDAR 68 -- There
3 was very little discussion about the red tides.
4
5 We've been doing oral history interviews at the Science Center,
6 and there just wasn't that big call that red tide mortality might
7 be a significant issue for scamp, not to mention, in this figure
8 -- So we had one of our post-docs who has been looking at this
9 work and has been very collaborative with fishermen, and this is
10 just a plot of scamp distribution, which was developed during the
11 stock ID workshop for scamp, and so the different colors are the
12 relative abundance, and so the darker blues are basically where
13 scamp tend to occur.
14
15 This, on the top-left, is your August 2005, which was the big year
16 where we had a big red tide that was pretty substantial across the
17 shelf, and the top-right is 2014, in August, and so the same month,
18 but just 2014. 2014, in September, is the bottom-left, and then
19 the bottom-right is 2018. The take-home here is that most of the
20 scamp biomass tends to be a bit further offshore.
21
22 The contour lines are just showing the dissolved oxygen, and the
23 red contour lines basically identify areas of hypoxic conditions
24 that potentially could have been caused by the red tide, and
25 there's been some discussion about, with red tide mortality, what's
26 the actual mechanism, and could it be that it's a mix between
27 hypoxia and red tide, and I think Mandy and her post-doc, Brendan,
28 are putting out some work to kind of show some of those results,
29 but, overall, none of this data really suggested that red tide
30 mortality would be a significant source of mortality for scamp at
31 this time.
32
33 Again, hopefully, if there's further research in the future that
34 comes to light, this is the kind of information that we could
35 consider, but, for now, there is no red tide mortality. We do not
36 have any environmental considerations in the assessment at this
37 time for scamp, and so I think that's the end of the data. Are
38 there any other questions or comments for the data portion?
39
40 **CHAIRMAN NANCE:** Trevor.
41
42 **MR. MONCRIEF:** Thanks, Mr. Chair. Just a quick question, and so,
43 for the fishery-independent indices, on Slide 15, where you have
44 some younger individuals, you list that you got some of these ages
45 from SEAMAP cruises, and was there an evaluation of that survey,
46 to see if it could be used as a fishery-independent index?
47
48 **DR. SAGARESE:** Absolutely, and so, during the data phase, all the

1 different surveys were considered. Basically, to determine if we
2 have enough data for an index of abundance, you would have to look
3 at the proportion positive. The table that I showed earlier with
4 the ages, and so the information used to develop the growth curves
5 and the meristic conversions, basically any data point in any data
6 source that exists, is used to develop the data for the growth or
7 the life history, but the index data -- Those different indices
8 had very few samples overall, and we're not able to develop a time
9 series of abundance.
10
11 I think, for scamp, if you're curious about the other indices, the
12 SEDAR 49 -- We had a data triage report that kind of went through
13 each of the available federal surveys, and you would see the
14 proportion positive for each of the different surveys for scamp,
15 to just give you an idea. The proportion positive was very low,
16 or inconsistent, and so they were very sparse, but, basically, for
17 scamp, the biggest source of the indices and fishery-independent
18 we had is the video survey.
19
20 **MR. MONCRIEF:** Okay. I've got you, and I appreciate that. You
21 figure, with a species that's living a little bit deeper than the
22 others, and staying around those shelves, it's going to be kind of
23 hard to have an independent survey that's going to get after them,
24 and so I appreciate that.
25
26 **DR. SAGARESE:** That was a great question.
27
28 **CHAIRMAN NANCE:** Thank you. We're going to take a five-minute
29 break, and so we'll come back at 2:55 Eastern Time, and then,
30 Skyler, if we can do our best to -- We need to wrap up the
31 presentation, for sure, before 4:00, so that we have time for
32 discussion and those types of things from the committee. We will
33 see everybody at 2:55.
34
35 (Whereupon, a brief recess was taken.)
36
37 **CHAIRMAN NANCE:** We're going to go ahead and start. Skyler, are
38 you ready to continue?
39
40 **DR. SAGARESE:** Yes, I am.
41
42 **CHAIRMAN NANCE:** Okay. Thank you.
43
44 **DR. SAGARESE:** Moving into the assessment configuration, and so I
45 only have a couple more slides basically describing the
46 configuration, and then we're going to jump into the model fits
47 and some of the results.
48

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1 For scamp, basically, we have a one-area, one-season model. We've
2 got both males and females in the assessment, so that we can
3 implement the hermaphrodism function, and males and females --
4 When I say that we don't have male and female-specific data, but
5 we essentially have data that's a combination of both, and that's
6 how we specify the model, and the reproductive potentials, the
7 combined male and female SSB, and we've got the von Bertalanffy
8 growth that we talked about, and we are only estimating the length
9 at the minimum age of one year.
10
11 The natural mortality vector for Lorenzen is fixed in the
12 assessment model. We estimated external, and then we have an
13 ageing error matrix, and this is very important, because this
14 allows us to account for what Roy had asked earlier, and scamp are
15 very difficult to age, and so you can see in this matrix -- So the
16 true age over the observed age, and, basically, the younger fish
17 -- It's fairly simple, when they only have a couple of rings, to
18 correctly identify the age, but, as they get about, and I think
19 it's about maybe eight or older, you can see that there's just a
20 lot more variability, and so we input this into the assessment
21 model, to allow the model some flexibility with those exact ageing
22 specifications.
23
24 Scamp is definitely a species of notice, with the difficulty with
25 ageing, and, for the purpose of the assessment, we've got our plus
26 group, in terms of data inputs, and anything twenty years or older
27 is in a plus group for the age. We have -- As I mentioned, we
28 start the model in 1986, and, because we know that there were
29 removals before that period, we have to develop -- We have to
30 estimate the initial conditions.
31
32 To do that, we input the average landings for each fleet between
33 1986 and 1990, just to kind of give us an area to start the model,
34 and then, from there, we consider diagnostics to address how well
35 are our estimates of initial fishing mortality, and the assessment
36 then -- It uses that information, in terms of estimating the
37 initial conditions and being able to start the model basically in
38 a fished state.
39
40 We used the approach in Stock Synthesis where we treat the annual
41 fishing mortality rates for each fleet as their own parameters,
42 and so we estimate annual estimates for each fleet. Part of the
43 reason for this, why it tends to be used in the Southeast, is
44 because we basically have landings that we know of, like
45 recreational charter private, or headboat, and we have landings
46 that have considerable uncertainty.
47
48 In this sort of instance, we can account for that, by giving these

1 annual error estimates, to allow the model not to have to fit the
2 catches precisely, and that's what is done in many other regions,
3 especially for Stock Synthesis, and so, in particular, have this
4 approach, and I do want to mention that, for the operational, we'll
5 consider recent modifications in SS to treat this as a hybrid, a
6 different hybrid, where you can have some fleets in continuous F
7 and some not, and so that's a new method that has come out, and
8 we'll be considering it during the operational.
9
10 In terms of -- What I mentioned earlier is so we have the indices
11 that go in with uncertainty estimates. During the fitting phase,
12 rather than having to iteratively reweight, or readjust, based on
13 the Francis approach, we can estimate an actual parameter for each
14 index that accounts for additional uncertainty that it sees --
15 When we fit to all the different data inputs in the assessment,
16 we'll downweight -- The model will downweight indices that it's
17 not fitting particularly well, which we'll see later on.
18
19 For each index, we can estimate that extra parameter, and that
20 avoids having to iteratively reweight the indices to get into the
21 model weighting, and so that's something that was a recommendation
22 from the review panel, and that's also been talked about in
23 modeling courses that we've had recently, too.
24
25 For the purpose of this assessment, none of our indices have time-
26 varying catchability, and we just assume constant catchability
27 across the time series, and the population has an age structure
28 from one to thirty-four years old. The data that we're inputting
29 in there, the age data, has a plus group of twenty years old. That
30 plus group, for the age data, was just based on examining the data
31 we had available that most of the ages are up to age-twenty, most
32 of the data, and we have implemented the Dirichlet multinomial
33 error distribution for our composition data.
34
35 This has been done in the last few assessments, and I think maybe
36 the first one was greater amberjack, but the way that this works
37 is we have a parameter estimate for each of the composition data,
38 or each of the input data for composition, and the model estimates
39 that parameter, and we can then specify, when that parameter is
40 about five or higher, basically, that the initial input sample
41 sizes that we put in are appropriate, or it's a way to downweight
42 some of the samples, and so, if the model thinks that it's too
43 high, it can set that parameter lower and downweight those
44 different data sources.
45
46 This is a better practice. This has sort of been recommended from
47 different analysts, and so this is what we consider more of a move
48 to best practices, and our reviewers were in agreement with that.

1
2 We are assuming the Beverton-Holt stock-recruitment relationship,
3 and we're currently estimating the R0, the virgin recruitment, R0,
4 the sigma-R, the standard deviation in the recruitment, and we're
5 estimating that. We also are estimating recruitment deviations
6 from 1986 to 2014. We're not estimating them through the terminal
7 year, because we don't really see age-one or two, and I think we
8 start with age-three fish in some of the fisheries, and so we don't
9 have really any information in the model for those few years.
10
11 Steepness, just to touch on -- We spent hours during the review
12 workshop kind of debating and going back and forth with steepness,
13 but, for the purpose of the research track, the recommendation
14 from the reviewers was we have -- Rather than fix steepness at
15 0.99, which we've done in the past, not to be representative of
16 the spawner-recruit relationship, but just to kind of fix it for
17 computational purposes, and they really did not support that, and
18 instead supported fixing it at a value that was plausible, or more
19 realistic, for our stock.
20
21 In this case, they recommended the FishLife as a package, an R
22 package, that summarizes all the information from FishBase and
23 other sources, and it basically gives you a prior, and so it's
24 very important for data-limited stocks, because you can go and you
25 can find for my species, and FishLife tells me that the prior for
26 the species will be 0.77, with a CV of 0.27.
27
28 One of the reviewers was very involved with using that sort of
29 information in the assessment, and so that was the one, and then
30 other panelists that were also reviewing the South Atlantic
31 assessment at the same time said, well, we have an estimate of
32 steepness from the South Atlantic that they believed was estimable
33 and was a valid estimate, and so they recommended this weighted
34 mean of those two values to be -- The Gulf model would be fixed at
35 that, and so 0.69. Currently, steepness is fixed at this 0.69.
36
37 The one thing I do want to highlight is, when this model was
38 getting reviewed in the South Atlantic, I think there was some
39 concern over the estimate of steepness, and so that's something
40 for the operational that we might have to revisit, is, if that
41 steepness value from the base model for the South Atlantic is
42 changed, we might have to just re-estimate, or reevaluate, this
43 assumption for steepness, but steepness is always a big topic for
44 discussion.
45
46 The selectivity I mentioned earlier, and so we are assuming length-
47 based selectivity for all the fleets and surveys, and the two
48 recreational fisheries were estimating a dome-shaped pattern,

1 because they tend to not cover -- They tend to be closer to shore,
2 for the most part, and there seems to be some evidence that they're
3 not really going after the largest of fish, as compared to some of
4 the commercial fisheries and the video survey.
5
6 We are not estimating time-varying selectivity for anything, and
7 it's just constant across the time periods. We do know that there
8 have been changes in regulations, and we tend to believe that those
9 are affecting retention, and so minimum sizes will affect whether
10 fish are retained or not, and so, for this assessment, we have
11 three blocks for the recreational and four blocks for commercial.
12
13 On the bottom-right, those blocks essentially are based on the
14 different size limits, and the first block, 1990 to 1998, was that
15 there was a Florida state size limit, and the block between 1999
16 and 2002 is when there were mismatching state and federal size
17 limits, and then, from 2003 through 2017, there was one
18 recreational block where the federal size limit was implemented,
19 and then, for the commercial, we split that into two, starting in
20 2010, because of the implementation of the IFQ. We are modeling
21 time-varying retention to account for how those changes in
22 management would affect the sizes of fish retained.
23
24 Just to give you some more context, before -- Basically, before
25 the size limits for the headboat and the commercial fisheries, we
26 really didn't think that discards would be -- You know, most of
27 the fish would have been -- If they were caught, they were probably
28 retained. There really wasn't discarding before that size limit.
29
30 We do have data before the size limit for recreational charter
31 private, and so there was some discarding before the size limit,
32 and then what we wanted to do with the -- Initially, during the
33 assessment phase, we had tried fixing the inflection points, to
34 have fewer parameters, but, ultimately, fixing those size limits,
35 especially the one in Florida, that was just not -- That was
36 basically telling the model that all those fish below the Florida
37 size limit should have been discarded, but not necessarily if they
38 were caught in federal waters, and so that decision was changed
39 during the review workshop.
40
41 The reviewers noticed that, as well as us, when we were going back
42 and kind of reevaluating everything with a fine-tooth comb, and so
43 we wanted to make sure that that was re-reviewed during the review
44 phase, and, ultimately, now, at the moment, we are estimating all
45 the inflection points and the width parameters, and so the
46 parameter defines how quickly the asymptote is reached for each of
47 the curves, for each of the fisheries.
48

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1   In terms of the asymptote, the asymptote is fixed at the maximum
2   value for commercial for all the periods except the IFQ period,
3   because we assumed that, if fish were above the size limit, they
4   were retained, and, for recreational, because there's bag limits
5   and other regulations, we just assumed -- We estimated the
6   asymptote, basically to say that, just because a fish was above
7   the size limit, it might not have been retained.
8
9   Now, that's something that we may be able to reevaluate, and the
10 one caveat is that we are estimating a lot of parameters in the
11 current model, and we have not fixed any selectivity, or very few
12 retention parameters, and we don't have any priors, and so we'll
13 see that when we get to the diagnostics. You can see how all the
14 flexibility in the model kind of -- We're seeing that become
15 evident, but I just wanted to highlight that, for this purpose, we
16 really have not -- We have fixed as few parameters as possible,
17 and that's something that, with the operational, we will be looking
18 into more. Are there any questions on configuration, or maybe I
19 will just jump into the results, and then we'll finish with a
20 summary of everything?
21
22 **CHAIRMAN NANCE:** I think that would be good, Skyler.
23
24 **DR. SAGARESE:** Okay. Perfect. The estimated selectivity patterns
25 on the top here is the length-based patterns by fleet or survey,
26 and so the different colors is each its own fleet. We have the
27 logistic selectivity for the commercial, and then we've got the
28 dome-shaped, and so the first thing to note here is that we're
29 fitting to the length-based. Stock Synthesis then is taking the
30 lengths and converting the lengths into ages, and so we see this
31 derived age-based selectivity. We're not estimating age
32 selectivity, but it's a derived quantity of the assessment, as
33 we're using length information, first and foremost.
34
35 The one improvement we saw between the assessment phase and the
36 review phase is now the only parameter that had a high CV above
37 one is our headboat, and so the lime green is the descending limb,
38 and you can see it's kind of sharp, and so this is a pretty
39 uncertain part of this curve, and that's something that, with the
40 operational, we can dive more into that and look at likelihood
41 profiles and potentially talk about either fixing it or giving it
42 a prior, and so, before this, there were more parameters that were
43 uncertain, but one of the big improvements for the review workshop
44 was only this one parameter was uncertain.
45
46 Now, the landings -- So these are showing the input landings are
47 the thick-colored lines and the expected, and so the assessment-
48 predicted landings are that dashed line, and so you can see, first

1 and foremost, in the top, basically, we're treating the commercial
2 landings as known. What we're putting in is what we're getting
3 out, because we gave very low uncertainty estimates.
4
5 The big difference is the recreational. You can see that headboat,
6 for the most part, landings are very small, and it's this charter
7 private, and so the green line, or aqua, is basically the input
8 data, and then the dashed line around is the observed, and so the
9 assessment-predicted recreational landings, in numbers. You can
10 see that they're not identical, and there are some differences,
11 and the reason why we see this is because the assessment is fitting
12 to a bunch of different datasets.
13
14 We've got landings, and we've got discards, and we've got pretty
15 high uncertainty estimates for some of these inputs, and so we're
16 going to see divergence. We're going to see places where it's not
17 exact, and this is something that we saw with red grouper, that
18 they weren't matching, but that's by design, because we have
19 allowed a lot of uncertainty within these inputs. We're telling
20 the model that you don't have to fit those big peaks, if you don't
21 believe it, and we see that the model is not, and so the expected
22 values -- It's not hitting those big peaks.
23
24 We did sensitivity runs using the actual error estimates from the
25 data phase, and, when you give the model that much more
26 uncertainty, you might see some differences in the outputs that
27 you can see in the report, when comparing the sensitivities, but
28 just allowing more flexibility made the diagnostics much worse
29 than what we're seeing now, and so that was something that there
30 is a fine line between allowing too much flexibility and being
31 able to anchor the model.
32
33 Normally, landings -- You need to anchor these age-structured
34 models on landings, and so we have different situations, where we
35 have a lot more uncertainty that even the reviewers are -- That
36 they're used to, and so this is a big topic, I think, for further
37 research, getting a better handle on our uncertainty in our
38 landings and incorporating the information. Maybe not necessarily
39 in the base model, but potentially in a Monte Carlo type
40 uncertainty analysis, like is done in the South Atlantic, and so
41 that's just something to keep in mind, moving forward.
42
43 In terms of the discards, total discards, again, big picture, the
44 magnitude of discards is very small, with the exception of charter
45 private. Charter private was very variable, and the fits are
46 fairly decent for many of the commercial years. There is still
47 the 2003 to 2005, and both of the fleets show this big change. I
48 think something similar was seen for the gag assessment too, and

1 so whether there was something that happened in the fishery in
2 2003 to 2005, and that's maybe something to look into.
3
4 Charter private, we're fitting fairly well early on, but there's
5 still some of these years that the model is just not really able
6 to fit these discards, and headboat, early on, between 2007, we
7 see better fits, and then we're underestimating, consistently,
8 after that period, but, again, there's always a play between
9 fitting the discards and landings, in particular, and the retention
10 and how that plays into the compositions and what fish are
11 discarded, and so I think, overall, we saw much improved fits for
12 the review phase, but still, with the operational, we'll be,
13 hopefully, reevaluating the retention and selectivity parameters,
14 to just work on our fits.
15
16 The Dirichlet parameters, and so, for each of the data inputs, and
17 so the length compositions and the age compositions, and what we
18 ended up getting is that the commercial length data -- That
19 basically these values close to five -- They were bounding out,
20 and so we ended up fixing them in the assessment model, and that
21 just says that our input sample sizes are representative and that,
22 even with this weighting, that they were converging to the same
23 input sample size.
24
25 We saw that the reef fish observer program length data actually
26 was the lowest, and so it was downweighting that information quite
27 a bit, as well as the age comp data, and so the ages, you can see,
28 have values much lower than five, and so that kind of information
29 -- We see, and we'll get to it in a little bit, but we definitely
30 see a tradeoff between length data, fitting to the length data,
31 and then fitting to the age data, and you can see that here, not
32 only in these Dirichlet parameters, but later on, when we look at
33 the fits.
34
35 Moving into the commercial selectivity retention, the figures on
36 the left are just for the 2017, and so the terminal year, the most
37 recent retention block, and we were plotting for each of the fleets
38 across the length, and so we have length-based selectivity is the
39 blue, the blue dots, and the length-based retention is the red,
40 and the discard mortality is just fixed at -- In this case,
41 vertical line is 0.47, and this is just showing you, by length,
42 each of those functions.
43
44 On the right, this is our time-varying retention, and so you can
45 see, early on, all the fish were retained, and it didn't matter
46 what size they were, and then, once size limits came into play in
47 1990, we started estimating time-varying retention to account for
48 changes in size limits, but, again, estimating each of those

1 inflection points and the width parameters, as well as that last
2 asymptote for the IFQ period.
3
4 The take-home here, for both commercial vertical line and longline,
5 is none of the parameters for selectivity or retention were highly
6 uncertain. They all had CVs below one, and so there was no cause
7 for concern there, and you can see there are some slight changes,
8 and so, for example, for both fleets, they're pretty similar, where
9 we have, earlier on, they were retaining larger fish, and then,
10 when the size limits changes for federal, we see it drops a little
11 bit, and so you see they start retaining fish below about I think
12 it's sixteen inches, which is about maybe thirty-eight centimeters
13 fork length, versus the state period, and so you see those changes
14 in the time-varying retention. Then, even though the asymptote -
15 - We allowed estimation for commercial, they're still retaining
16 most of the fish that they catch, and so that's one thing of note.
17
18 In terms of -- This is where we start to see some of the results
19 that we spent a lot of time trying to get to the bottom of during
20 the research track. There were some concerns with patterns, and
21 so, of course, you never want to see patterns in your data. This
22 is the discard length compositions for vertical line, and retained
23 is on the right, or landed fish, and so what we see is that,
24 especially for the retained, you see these blobs of the dark
25 filled-in, and it just basically means that we observed fish that
26 were larger than what the model is predicting.
27
28 We see sort of this decline over time, and then you see some
29 pattern here as well from 2004 onward, and so we see these
30 patterns. We tried looking into -- Actually, what I should say
31 is, before we -- Earlier in the modeling phase, we ended up only
32 blocking retention, based on the federal size limits, and when, we
33 only considered federal regulations, these residual patterns --
34 They were much larger in magnitude, and they were much worse, and
35 so, when we then went back and said there was the Florida size
36 limit, and most of the data, and most of the landings, are from
37 Florida, and so those regulations had some impact.
38
39 When we added those blocks to account for those changes, we saw
40 much improved fits to these composition data, and so the maximum
41 is about two, which is a lot more desirable than what we were
42 seeing earlier on, and so the patterns -- There is still some
43 patterns, but I think, overall, we're seeing improved fits that
44 hopefully, during the operational, we will be able to get even
45 better.
46
47 Commercial longline is a similar fashion, and we see, again, with
48 mostly the retained length compositions, we do see these patterns,

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1 where we've got blobs that we're observing more fish of those sizes
2 than what the model is predicting. Again, it's not necessarily
3 ideal, especially these last few years, and you can see there is
4 some groupings of residuals, and the magnitudes are not terrible,
5 but, still, this is something that hopefully, with the operational,
6 we'll be able to dig into a bit further.
7
8 Now, where things get really, I think, squirrelly with this
9 assessment was the theme of we're either fitting the length comps
10 fairly well or we're fitting the age comps. We can't fit both at
11 the same time, and so what you will see here is we're seeing fairly
12 decent fits to the length compositions, but then the age
13 compositions we're not, and so we're seeing these big patterns.
14
15 Yes, the residuals are fairly small in magnitude, but this is not
16 good, where you see all the open circles, and so they're expecting
17 larger fish than we're observing, versus, above that age-ten, we're
18 observing older fish than we expect, and so that's not good.
19 That's something that we are well aware of and is one of the
20 outstanding issues that the reviewers noted for this assessment,
21 and, again, this was because, up until the review phase, we were
22 using the conditional age-at-length, whereas, right during the
23 review phase, we switched back to nominals.
24
25 Now, whether the nominal age compositions -- I think this is
26 something that wasn't considered. It wasn't considered during the
27 data phase, because weighted age compositions for commercial were
28 provided, but they were weighted by the length comps, and the
29 reason why we don't want to use weighted age comps weighted by the
30 length comps is because, if we use the length comps in the
31 assessment, and then we weight the age comps by them, we're double-
32 dipping.
33
34 We're double using the information, and so I think the operational
35 will hopefully be able to reevaluate, with fresh eyes, all the
36 composition data and talk about the representativeness of them and
37 proceed with the best available information for the operational,
38 in terms of whether we can develop weighted age compositions or
39 whether the nominals are in fact representative of the landings
40 and what we expect or what we would assume would be representative
41 of the fleet.
42
43 Looking at the recreational, and so the charter private and the
44 headboat, and, again, just highlighting that, in this case, the
45 one selectivity parameter that was very uncertain was the
46 descending limb of our headboat selectivity pattern, and so this
47 part of the curve. In terms of the retention parameters, only two
48 retention parameters had a CV above one. In this case, they both

1 specified the asymptote for charter private, for the 1990 and then
2 the 1999 time block.
3
4 What I should say is, as you can tell just by this figure, they
5 were basically estimated up about nine, and so that's essentially
6 saying that almost all the fish caught above that size limit were
7 retained. This is something that hopefully we can dig into the
8 data a bit more, and, if we have reason to believe that that
9 follows from the data, we can essentially consider fixing that, or
10 we can do profiles, to see where the likelihood is supported, and
11 potentially either add priors or fix those parameters, to alleviate
12 some of those issues.
13
14 We do see, looking at the residuals and the patterns for the
15 charter private, and, again, we sort of see a similar outcome with
16 the length comps, and the magnitudes are not terrible. We do see
17 some patterns. For example, in this case, you can see the observed
18 data, and we sort of see this increase over time, starting about
19 2010, where we're actually observing this cohort, and we're
20 observing more of that cohort moving through the fishery than we
21 would -- Or not really a cohort, and we're looking at changes in
22 length comp, but, basically, you can see that pattern moving
23 forward in the length composition by year.
24
25 It's not as bad, but there's still some reason to believe that, if
26 we maybe look at the regulations a bit closer for other species,
27 maybe we can sort of address some of these issues and test some of
28 these hypotheses.
29
30 We see a similar outcome for the headboat length compositions. In
31 this case, we see some pretty big patterns below the federal size
32 limit in the 2000s, where we actually were observing much -- We
33 were observing fish below the size limit, and, of course, the model
34 is not expecting that, because we have -- We're fixing it at the
35 size limit, or we're estimating close to that size limit, and so
36 there's still some reason some places for concern, and, in this
37 case, the headboat -- You can see the magnitudes are very high,
38 and so up to ten, and so this is not the kind of residuals that we
39 would hope to see, but, when looking through the whole research
40 track, what we see, from the review workshop, is a much improved
41 model than what we reviewed at the beginning of it, and so we're
42 working towards better fits and a better-behaving model, but
43 there's still some work to do.
44
45 Looking at the age compositions for the recreational fleets, you
46 can see, in this case, we have these big gaps from those missing
47 years that we didn't have a lot of data. Hopefully, when we do
48 have that information for the operational, maybe some of these

1 issues won't rear their heads, or maybe they will, but we'll have
2 to wait and see when we get the new information.
3
4 I think the recreational fleets, to me, really stood out, in terms
5 of the magnitudes of those residuals. They're really large,
6 although they are better than the assessment phase model, but what
7 stood out was these big shifts in the most recent years, and so
8 we're actually observing younger fish than the model thinks, and
9 what we've heard, from folks on the water, and some of the
10 hypotheses, is that, if the recreational fisheries are changing
11 where they fish, if they're fishing closer to shore, it would make
12 sense that they're seeing smaller fish, because we're not blocking.
13 We don't have blocks that refer to those sorts of changes.
14
15 It's possible that that's what we're actually seeing in the data,
16 that there is a spatial change in the fishery or some sort of
17 change in behavior, and closed seasons for other species might
18 have affected this, and that's what we see now, and so we really
19 need to have a better understanding of what's going on in this
20 multispecies fishery with the other target species, and perhaps
21 evaluating maps of the fisheries over time could give some insight
22 into what we're seeing here, which is what our hypothesis is.
23
24 Summarizing, looking at the -- Seeing this tradeoff, when we look
25 at the fits to the length data, and so these are the aggregate
26 compositions over each of the years for discards and retained or
27 landed fish, for the most part, the length comps are fitting fairly
28 well, with the exception of sometimes the discards, and that's
29 pretty normal, that we don't always have very good fits for
30 discards, especially longline, and we only had those four years of
31 data, but, for the most part, they fit okay.
32
33 There is something here with the combined video that we'll look
34 into further refining, and one suggestion the reviewers had is
35 maybe assuming logistic selectivity wasn't the -- Maybe we could
36 look into whether is a dome-shaped pattern that SS would allow us
37 to estimate logistic, but that's something that could potentially
38 be looked at, depending upon the list of tasks for the operational,
39 but lengths, the fits to the lengths, look okay.
40
41 Then, when you look at the fits to the age compositions, again,
42 these are all nominal, and you can see that there is a big mismatch,
43 and so, for the most part, commercially, we're actually -- The
44 model is predicting younger fish than what we're seeing in the
45 data, and then the opposite for recreational, where we're actually
46 -- The model is predicting slightly older fish than what we're
47 seeing in the data, but I have a feeling that's driven by that
48 most recent years, where we're seeing younger fish, and so there's

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1   a clear mismatch here in fitting the length and ages.
2
3   We think this is a mixture of the growth parameters, that we have
4   fixed the growth curve, and we've got the L-infinity at 70, and
5   the maximum sizes and the composition data, and we just think that,
6   if we go through and reevaluate the life history and the
7   composition data, that hopefully some of these issues will be at
8   least reduced, in terms of the misfits, and so that's one of the
9   plans, one of the charges, I think, for the operational.
10
11 Looking at the indices, and so, in these plots, we're looking at
12 the blue lines are the model-predicted index value, and the dots
13 are the observed index value that went into the model, and the
14 thick lines are the uncertainty estimates that we put into the
15 model as inputs, and then the thin lines are the extra variance
16 estimated by the assessment.
17
18 The root mean square error is just comparing the observed to the
19 expected, and then the extra standard deviation, with the CV, is
20 that parameter that SS said there is extra variation here, and
21 that's what it is estimating for each index, and the big take-home
22 here is that we're fitting the headboat fairly well, which this is
23 our longest time series, and so that's one of the drivers of the
24 trends we see in the outputs.
25
26 The combined video is not fitting as well, and there's a fairly
27 high root mean square error, but some of the years are looking
28 good, and we are getting the increase, and then, more recently, we
29 see sort of a decline.
30
31 The pre-IFQ commercial vertical line index, we're not quite fitting
32 it, but there is really not a lot of contrast here in the model,
33 in the input data, and so it's not terrible, but this reef fish
34 observer program vertical line index -- We're not fitting this.
35 The assessment is predicting a decline, mostly being informed by
36 the other data streams, whereas, if you look at the observed data,
37 there is kind of this increase, except for 2017, and you sort of
38 see it ticking up a little bit, but, overall, we're not fitting
39 very well to the survey, and the SS is downweighting it. It's
40 estimating a pretty large standard deviation.
41
42 Rather than remove that index, the review workshop recommended
43 just allowing the model to absorb -- To allow extra variability
44 and just not fit it, and so this is one of those issues that I
45 think had a lot of discussion. This conflict in the indices is
46 potentially also causing some of the issues we're seeing,
47 potentially, with the retrospective pattern, that we'll touch on
48 later, but there always seems to be -- We always have more -- We

always have multiple indices, and they're not always telling the same story.

I do think it was comforting though to see that the reviewer found complementary signals in the indices except that vertical line, and so maybe there is just more evaluation that we need to go back and just thoroughly investigate and potentially look at maybe some sort of changing catchability of that survey.

Now we're going to transition into the derived quantities. This is a couple of plots here going on, but what we have is the recruitment quantities. On the top-right is the spawner-recruit curve, and we've got recruitment on the Y-axis, over the spawning biomass on the X, and the first thing to point out is each point is a different year.

We've got some high-recruitment events in 1999 and 2001, and this thick line is basically our curve, and there is not a well-defined spawner-recruit curve. We don't have a lot of samples in this bottom-left quadrant. There's not a lot here, and there was not a lot of contrast, unfortunately, in the data for the Gulf. I think the South Atlantic had a lot more information, and they had more contrast within their data streams, and so they had a different -- They told a different picture, in terms of the ability to estimate steepness and actually having the curve, and so that's something, in the Gulf, for scamp, that we -- Unfortunately, we see issues with the contrast, and I think that that's also potentially what we see with the retrospective concerns.

We see the steepness, again, was fixed at that weighted value from the review workshop, and we're estimating a sigma R of about 0.45. One of the reviewers mentioned that this is usually fixed at 0.6, and that was done for this assessment, and we also estimated sigma-R for red grouper, and so it has not always been fixed. I mean, that's certainly something we could look into, but I think that the information that we had -- We see some support within mostly the composition data, and, of course, the length compositions, where we see, from the recreational fleets, where we have smaller fish and younger fish, that we have some information for recruits.

We've got some high recruitment estimates, although we do have a lot of estimates with CVs above one, and so a lot of these recruitment events are highly uncertain, and we can see that with the recruitment deviations, with having very large CVs, but peak recruitment in 1999 and then 2001, but, really, since then, we haven't seen very high recruitment, and, since 2008 onward, it's been pretty low, below the average, and that's something -- Unfortuntely, I think we don't have a ton of data to show those

1 strong signals moving through, like we do for other stocks, and so
2 that's something that may also be causing some of the issues.
3
4 Looking at the trends in the -- Spawning stock biomass is on the
5 top-left, which, again, was male and female SSB combined, and the
6 top-right is total biomass of the vulnerable species, which is
7 ages-three and up, and numbers-at-age of females is in the bottom-
8 left, and that's millions of fish, and then males in thousands of
9 fish on the bottom right.
10
11 Basically, the numbers of fish over time and age, and you can see
12 that, for females, for the most part, the mean age is about two to
13 three years, but you can see that, obviously, age-zeroes are all
14 females, and we see those big cohorts moving through in 1999 and
15 2001, and maybe 2002 and 2003, and so we can kind of see those
16 guys moving through the population.
17
18 The numbers for males, again, males don't start until age-three,
19 and then you can see that mean age for males is between ten and -
20 - More recently, it's actually been the oldest is about thirteen,
21 and that's a slight change, and so you can see the numbers moving
22 through the population. Overall, the trend in spawning stock
23 biomass -- Unexploited equilibrium, and so the unexploited, the
24 SSB0, is basically what we use to look at the ratio of depletion,
25 and so each of these annual estimates over that unfished value, to
26 give us an idea of how depleted the stock is from the unexploited.
27
28 What we see is, over time, SSB and total biomass a pretty similar.
29 We had an increase throughout the 1990s, largely attributed to
30 that composition data, a peak in about 2007, and since we've seen
31 a decline. Again, we didn't really -- Because this was a research
32 track, we did not produce stock status, because we did not
33 undertake our projections, and, as we've kind of touched on today
34 already, the way we get the reference points is by projecting
35 equilibrium conditions forward, and so we did not do that for the
36 research track.
37
38 I think that's one topic that the reviewers brought up, that it
39 would have been helpful to kind of look at, in that general sense,
40 what would have happened, and so that's one thing to consider.
41
42 I think it was helpful for us to not have to spend time on the
43 projections, because we had a lot more time to go in and do more
44 diagnostics and do more sensitivities. We present a few in the
45 report, but we do a lot more work behind the scenes that really
46 never comes to public view, and so just to keep that in mind, and
47 that's one thing to note, moving forward.
48

1 Then I think this is the last derived quantity to look through,
2 and this is the estimates of the initial fishing mortality rates,
3 and so, for -- Because we started the stock in a fished condition,
4 we estimate these conditions, inputting average landings for each
5 fleet from 1986 to 1990, and we ended up not estimating the initial
6 F for headboat, because the landings were so small that, when we
7 did, it was bounding out at zero, and so it was just not -- We
8 deemed that it wasn't helpful, because we were concerned that that
9 bounding parameter would potentially have another impact in the
10 assessment and would impede the ability of coming to a good
11 solution.
12
13 What we see over time, and this is for the entire stock, the
14 exploitation rate over time, and so, for all the fisheries, the
15 fraction of the biomass killed, and, in this top-right, we're
16 showing it by fleet, and so fleet-specific, and so you can see
17 what we mentioned earlier, earlier on, is that much of the fishing
18 mortality and exploitation was from commercial, but then we see
19 this increase over time for recreational, which peak values in
20 2014, and then commercial actually we saw some increases in about
21 2016, and then recent declines.
22
23 Headboat, over time, has been very small, and, for charter private,
24 we see that big change over time, and so we have seen increases in
25 fishing mortality recently. It will be interesting to get the
26 more recent information, and maybe, once we look at stock status,
27 to kind of consider what the stock status would be, especially
28 given the fisheries and what's going on with gag and red grouper.
29 It would be very interesting to see how those regulations, or how
30 the status of those stocks, how we start to see maybe shifting
31 exploitation to scamp, which might be going on here with especially
32 charter private.
33
34 I think -- Let me pause and ask for questions on the fits, if
35 anyone wants me to go back, and then I think the last set of slides
36 are diagnostics.   I think we have maybe seven slides of
37 diagnostics, and then that's about it.
38
39 **CHAIRMAN NANCE:** I think that's perfect, Skyler. Let's go ahead,
40 and are there any questions on any aspects of these models thus
41 far? I don't see any questions, Skyler.
42
43 **DR. SAGARESE:** Okay. Let's plow ahead.
44
45 **CHAIRMAN NANCE:** Okay.
46
47 **DR. SAGARESE:** Moving into the diagnostics, this is where -- Before
48 we touch on these diagnostics, I just want to reiterate here, and

1 I touched on it earlier, but we really did not fix a lot of
2 parameters, and we did not give priors on any of the selectivity
3 or retention parameters, and the model is very flexible to estimate
4 what it wants, and we see that in the jitter.
5
6 Normally, with the jitter, you would expect to see some sort of
7 consistent result. You would want to come to a very similar
8 solution. Now, one thing we discussed, with the research track,
9 is there's two ways you can do that.
10
11 On one hand, you can not put priors and not fix parameters, but,
12 in this case, what we did is where we highlight the uncertainty,
13 and you can see how some of those -- For example, the headboat,
14 the selectivity parameters, a couple of these jitter runs, which
15 are much different, the model doesn't converge. Those headboat
16 selectivity parameters can wreak havoc on trying to get a solution.
17
18 In one case, you can see the uncertainty in all these plots, and
19 you would want consistency. You would want a single line across
20 each of these components, the likelihood components, and we don't
21 see that with this assessment, because there's so much flexibility.
22
23 Now, when it comes time for the operational, we can spend more
24 time fine-tuning this, once we've got all the data into the
25 assessment and start looking at likelihood profiles and trying to
26 pin some of these parameters down and maybe give them priors or
27 fix them at supported values, and that's where we'll start to get
28 more of a consistent result, but there is something to be said
29 about you could fix everything and get a jitter that shows you a
30 single run, but that doesn't necessarily highlight your
31 uncertainty.
32
33 For the purpose of the research track, we just kept it flexible,
34 and we wanted to highlight these issues. Of a hundred jitter runs,
35 only twenty of them had the same negative loglikelihood. You can
36 see that some of these runs, especially -- There was one that
37 jumped up about 2,000 units, again mostly due to the length
38 compositions, and so some of those selectivity patterns, or
39 retention parameters, sometimes will just go into a space and we'll
40 get these runs that may not even converge, and that's the issue
41 with this analysis.
42
43 The figure on the top-right, it's just showing you, for each of
44 those 100 runs, that's what the trajectory and the spawning stock
45 biomass look like, and so there are some shifts. There are some
46 of these really jagged ones that didn't converge, but, overall,
47 when you look at this in terms of a relative sense, oftentimes the
48 status won't change, but there is some variability there, and I

1 think that this is something that we will be looking into further
2 when we get into the operational track, is trying to get a better-
3 behaving model, because this was cause for concern, and we
4 discussed it with the review panel, and this is something that is
5 always an issue that deserves a lot of attention, because there
6 are so many ways that you can specify and parameterize a model.
7
8 The other diagnostics that we looked at was looking at the
9 likelihood profiles for some of the key parameters. I will show
10 here the natural log of the unfished, or virgin, recruitment, the
11 R0, and, basically, we plot the change in the loglikelihood, and
12 so, for each of the values, we ran from, in this case, an lnR0 of
13 seven to eight, in I think 0.05 intervals, and, basically, you fix
14 the model at each of those runs, and you re-estimate the
15 parameters, and then you see at what point you would want to be at
16 the bottom of this space.
17
18 Where this likelihood profile minimizes, total is basically, in
19 many of these cases, where our model estimate is, and so there's
20 good agreement there, but, because we have so many different data
21 sources, we often do see conflicts, and so, for example, the
22 indices here would support the lowest value of about 7.8, and so
23 your indices alone would support a higher value, whereas many of
24 the other data streams would be in agreement with that, at about
25 a 7.4 estimate.
26
27 This is pretty typical of what we see, but you always -- Total-
28 wise, you want to see a good agreement there. Our estimates, for
29 the most part, of these values -- For lnR0, we have a pretty low
30 CV, and so that's one positive, is that we are seeing a similar
31 result with our likelihood profile, and a similar result for our
32 sigma-R, where we have a minimum of about 0.445, and so that would
33 be about here in this profile, but, when you also compare the
34 different values -- I think a rule-of-thumb is that any values
35 within two negative loglikelihood units could be supported, and
36 so, here, you can see there's a pretty wide range of about 0.36 to
37 I think about 0.58 that are within two negative loglikelihood
38 units.
39
40 Basically, it just says that there's not a lot of -- That there is
41 so much variability in the data that the model really can't
42 distinguish between those values of that range, and so this is one
43 instance where perhaps, in other assessments, and I think maybe
44 amberjack might have been one where both steepness and sigma-R
45 were fixed, and maybe doing a bivariate likelihood profile could
46 kind of simultaneously provide the values for -- If we wanted to
47 fix, for example, sigma-R and steepness, and maybe that's the kind
48 of analysis that should be done to find out where we should be,

1   and, again, we do see tradeoffs in the length data supporting a
2   higher estimate of sigma-R versus our index and age data supporting
3   lower values.
4
5   We're also looking at -- Again, the initial conditions for the
6   groupers are pretty important, because we can't recreate the
7   historic time series, and so we want to be sure that the initial
8   conditions that we specify are -- That there is low uncertainty,
9   and so what we've done here is we do these likelihood profiles for
10 a range of initial F values for each of our fleets.
11
12 In this case, we went up to 0.1, from 0.01 up to 0.1, and we see
13 that that model estimate, and so the maximum likelihood estimates
14 from the base model, are pretty similar to the minimums for each
15 of these profiles, and so there is support there that says, you
16 know, we're basically -- The base model is in the space where we
17 would want to be with the support, based on this information, but,
18 again, there is always potential tradeoffs in different data
19 streams, and we tend to see -- Between the length and age data, we
20 see some conflicts there, which is expected, given the tradeoff in
21 fits.
22
23 The one profile that I did want to show, in addition to the key
24 ones that we generally show are, in this case, the von Bertalanffy
25 growth rate, because this kind of highlights that tradeoff in the
26 growth, and so the assessment model, if we estimated that -- In
27 our sensitivity runs, we also did runs where we estimated the
28 growth parameters, and, in those cases, we did get our K values
29 changed considerably from the estimate recommended by the life
30 history.
31
32 In the base model, K is fixed to 0.13. In this case, when we did
33 the profile over a range of K values from 0.05 up to 0.15, we can
34 see that, if we estimated that, or, across those ranges, the model
35 supports a value of about 0.1. In conflict though, you can see
36 that the age data supports a slightly lower value here in this
37 case, or just lower than that 0.1 and then the length data goes a
38 bit higher, about 0.12, or maybe 0.15, and so you can see that the
39 age data and the length data would support different K values.
40
41 I think that, moving forward, the life history and reevaluating
42 that and just kind of looking more into the L-infinity issue and
43 the growth, and we want to make sure that the growth curves that
44 we have in the assessment model are the most appropriate for the
45 assessment, because that could be one of the reasons why we're
46 seeing the tradeoffs and the mismatches between length and age
47 fits.
48

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1 Again, here is just plotting the trajectories, and you can see
2 that, relative to the SSB unfished -- For the most part, they are
3 all above 0.3, and there is one run that didn't converge, but just
4 to kind of give some context how those different values -- We can
5 see changes in the assessment, and I think it's really important
6 for us, for this species at least, to pay close attention to those
7 growth parameters, and I think Lisa saw a fairly similar result
8 when she was using the conditional age-at-length in the gag
9 assessment model as well, where, when you actually allow the model
10 to estimate K and L-infinity, the estimates go off in space and
11 diverge pretty much from the values that you input, and so,
12 basically, your best starting parameters. That is something that
13 want to pursue a little further, and we'll be looking at some of
14 those issues hopefully with the operational.
15
16 The other type of diagnostic that we like to do in the Gulf,
17 because we often have multiple indices, is we rerun the model
18 leaving out one index of abundance at a time, as well as one run
19 where we leave out all the fishery-dependent indices, which is
20 this red line in the future, and so, basically, that just means
21 that's a run with only the combined video survey, and so that was
22 our only fishery-independent survey that we had.
23
24 What we see with this analysis is, bigger picture, when you include
25 the uncertainty bounds, there is really no distinguishable
26 differences, with the exception of early on in this time series,
27 when we remove the headboat and the fishery-dependent, which is
28 largely driven by headboat, or solely driven by headboat, and we
29 do see this change in spawning stock biomass.
30
31 You also see much more variability in the SSB unfished, and so the
32 SSB0 estimates, and so there is some change early on in the time
33 series, and so that headboat survey seems to be extremely important
34 in driving what we're seeing within the assessment, which is
35 expected, given it's the longest time series, and, then in the
36 terminal, in the most recent year, we see some slight changes, and
37 so, if you remove the video survey, our SSB would be slightly
38 lower. If you removed the headboat survey, you would see a
39 slightly higher SSB, but, again, taking into account the
40 uncertainty bounds, it's not that large of a change in the
41 trajectory.
42
43 In the recruitments, there are some differences with the
44 recruitment, and so you can see -- Well, when considering the
45 bounds, you're within the bounds, but there are some little shifts,
46 and so, without the fishery-dependent or headboat, for example,
47 you would see slightly higher more recently and earlier on in the
48 time series.

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1
2 Overall, there is not a huge change, but there is something to be
3 said with part of the discussions about should the review panel
4 remove the reef fish observer program. If the signal in the --
5 Well, it sounds like there are concerns with that signal and that
6 there could be a trend in catchability that might not -- That might
7 render that index not as representative of the stock as we thought,
8 and that might be something that we do want to consider for the
9 research track, because that index in conflict with the others
10 could potentially be another issue that we're having within this
11 model, which is causing some of the poor diagnostics that we see.
12
13 The one concern that we talked about at the review phase was this
14 retrospective pattern. Unfortunately, there is a rule-of-thumb
15 that generally this Rho value, and so the retrospective bias value,
16 Mohn's Rho, you would want to be -- For our long-lived species,
17 you would want to be within a range of negative 0.15 to 0.2, and
18 that's generally the rule-of-thumb.
19
20 What our model estimates is that we're actually -- We have a bias
21 value, a Mohn's Rho, of negative 0.24, and so we're actually
22 outside that range, and this is a plot that comes out of one of
23 the new diagnostics packages that we were made aware of during
24 this review phase, that one of the reviewers was intimately
25 involved with the SS3 diagnostics.
26
27 I am not going to show a lot of them today, but I think that's
28 something that, moving forward in the Gulf, we will -- Our toolbox
29 is growing by the day, and this is the kind of information that
30 we'll be able to quantify in more standard practice as we move
31 forward.
32
33 In addition to that Mohn's Rho value, and so for the retrospective,
34 as we peel each year of data off, we can see that, in our spawning
35 stock biomass, and this is just -- On the right, it's just the
36 most recent, and I think this is ten years, but you can see that,
37 as you peel the year back, there's a big change in the scale, and
38 so the biomass drops down, and that's the kind of pattern that you
39 don't want to see.
40
41 This is something that we're aware of, and hopefully we'll be able
42 to solve it when we move into the operational, as we get new data
43 and refine the model a bit more, and the peels are not in the
44 confidence intervals of that terminal year, and this is something
45 that did concern the reviewers.
46
47 The other value that is of note here is that this -- I guess it's
48 the Rho for the forecasting bias, another metric for diagnostics

in that SS3 diagnostics by Carvahlo, and, basically, what you do is, from your peels, you -- This is maybe 2013, and, basically, you forecast a year ahead for each of those years, and then you get your bias value for your forecasting, and, again, it's probably not ideal, and we're seeing a bias, and we're not able to forecast either in this case, and so that's concerning, and that is something that we do want to address, moving forward.

I am not going to go into a lot of detail now, and they're all documented pretty in-depth in the report, in the addendum, but there were additional diagnostics that the reviewers have brought to our attention from this 2021 publication. There was a way to look for non-random patterns in each of the inputs, and so, in our index data, our age data, and our length data, and, basically, you would want to identify -- You would want to see non-random patterns in the residuals for each of the data inputs.

When we ran those runs tests, what we saw was that, for the indices, there were non-random -- We had no patterns in our residuals for all of the indices except the commercial vertical line, and the pre-IFQ index had some patterns. That's one cause for concern. The age data, especially, for three of the four fleets, we had non-random patterns, which we know there's issues with the age data, and so that's one thing that is on our radar. We did have non-random patterns in the length compositions for headboat and video, and those, unfortunately, did not pass this test.

Another thing that I guess a more recent analysis that's been looked at is what's really important with these models is the ability to predict what's going to happen, and we do projections to identify the future forecasts, and there are now tests to characterize the predictive skill of these models and each of these data inputs, which of them are useful for forecasting in the future and which of them aren't, and, ultimately, the take-home here is that the indices of abundance, actually our video and reef fish observer program vertical line, and they did not have a strong predictive skill.

The age data, except for charter private, was okay, and the length data, and the only one that didn't have good predictive skill was the video survey, and so the way that the reviewers discussed all these different diagnostics -- Not that one of these would completely fail a model, but, when it comes time to develop your base model, when you look at all of this information combined, you can see where some of the problem issues could be, and, if you had the resources to develop more than one model, for example in an ensemble, you could potentially weight across the different assumptions and look at it that way.

1
2 Of course, within the current SEDAR framework, how we operate, we
3 develop a single base model to move forward in the process, but at
4 least these additional diagnostics give us a place to start when
5 we go back and we provide information, in terms of the ability of
6 our model to forecast, or some of these other issues, and try to
7 dig into some of the poor diagnostics, or I should say less-than-
8 ideal diagnostics.
9
10 I am just going to briefly touch on this, and I know we don't have
11 time to go through all the sensitivities, but I just wanted to
12 highlight, in the assessment report, we did a few sensitivities
13 looking at key issues, such as the ability to estimate steepness,
14 and we looked at scenarios for natural mortality. We looked at
15 sensitivity runs that looked at different fractions of male
16 contribution to the spawning stock biomass, and so, depending upon
17 how much male SSB contributed, and was it female only, or was there
18 25 percent male, or 50 percent, and that was really just
19 demonstrative, to kind of show what the result would be.
20
21 There is really not a clear understanding of how we would discount
22 male SSB, but, for the current base, and moving forward for scamp,
23 we've got combined male and female SSB for now.
24
25 We did sensitivities, during both phases, for the growth
26 parameters, and there was a lot of work, and we tried to estimate
27 them with the conditional age-at-length, but, ultimately, we were
28 not -- We were concerned with the model estimates and the issues
29 we've talked about with the composition data, the tradeoffs, the
30 growth versus the size, and so I think those are certainly things
31 we will revisit with the operational, and, of course, the
32 recreational landings and the standard errors that we input in the
33 base model. That's always a -- Uncertainty in our landings I think
34 is a big topic for discussion.
35
36 To summarize, the biggest issues we currently see are the age and
37 growth. There is the big gap of missing data, the 2003 to 2012.
38 For the operational, we'll have all of that information provided.
39 We'll have more recent age and growth data, and hopefully we'll
40 have a -- We have proposed to have a topical working group to
41 really thoroughly evaluate and address all the issues with the age
42 and growth and any of the life history parameters, and, for
43 example, even the ageing error matrix, and that may be stuff that
44 we want to touch on.
45
46 I talked about looking at the jitter, and there is some work to be
47 done with our selectivity and retention parameters, to look into
48 some of those issues noted, and then that retrospective bias, and

1 so these are really the big outstanding modeling or data issues
2 that we currently see, moving forward.
3
4 Then I just wanted to use this last slide to summarize the big
5 take-home from the reviewers, and, basically, they had a couple of
6 short-term recommendations, and they had other long-term
7 recommendations that -- Not necessarily for consideration for the
8 operational, but just different issues that might help with this
9 assessment.
10
11 I think that's my last slide, but I just wanted to kind of -- I'm
12 sure you all will be discussing this when we talk about the terms
13 of reference, and, for now, I am happy to answer any outstanding
14 questions with the model or diagnostics.
15
16 **CHAIRMAN NANCE:** Okay.
17
18 **DR. SAGARESE:** I know it's a lot, and so thank you.
19
20 **CHAIRMAN NANCE:** As usual, you gave an excellent presentation. It
21 was very clear and excellent. Let's -- We can ask questions on
22 the model, and the two things that we need to consider here is
23 whether the SEDAR 68 base model requires any modifications, and,
24 if it does, we need to kind of recommend those, and is it
25 appropriate to use in the operational assessment? Those are the
26 two things, and I would -- Once we get questions answered and
27 things, we need to have a motion that either says here's the stuff
28 we need to do and that type of thing. Trevor.
29
30 **MR. MONCRIEF:** Thank you, Mr. Chair, and thanks for that
31 presentation. It was very informative, and I appreciate the things
32 covered, and I certainly learned a fair amount about scamp and the
33 process you all went through.
34
35 I will say that it seems like there's a lot of things that still
36 need to be worked on, and I am still trying to wrap my head around
37 the research track process and how it translates and everything
38 else, but I kind of thought, and correct me if I'm wrong, but the
39 research track was made so that you could spend some time to make
40 sure you get the optimal model configuration and kind of work out
41 all the kinks before moving to the operational, and the operational
42 was just kind of a turn-of-the-crank, but it seemed like there was
43 going to be a lot of additional work on you all for the operational
44 assessment, and so I guess my question is --
45
46 I don't know if it's to the staff, to the Science Center staff or
47 council staff, or whoever else, but, I mean, it seems like there's
48 a lot of work that's going to go into this operational assessment,

1 and I just -- I am wondering if that's how the process is supposed
2 to go.
3
4 **CHAIRMAN NANCE:** I am not sure who the best one to answer it is.
5 This is our first one we've done. Katie, go ahead.
6
7 **DR. SIEGFRIED:** Thank you, Chair. Trevor, I understand your
8 question, and we are understanding what this process will look
9 like ourselves. I think, because this was a species that was never
10 assessed before, unlike the red snapper that's coming up for the
11 next research track, there was a lot more to delve into here than
12 there might have been otherwise.
13
14 This is a completely newly-assessed species, and I think the list
15 that Skyler has there for you from the reviewers was maybe smaller
16 than it looks like, and, I mean, Skyler has very high expectations
17 for assessments, which is great, because we get the best product,
18 but the CIE reviewers didn't seem to think that it needed to go
19 back to the drawing board, and that was one of the things that
20 they were tasked to tell us.
21
22 They thought that it could move forward with the work on just a
23 few items that we thought could be covered by at least one topical
24 working group for life history, and potentially two, but we
25 certainly expected you all to recommend those groups, in order to
26 delve into some of these issues, but, because it was a newly-
27 assessed species, I'm not surprised at all that there's a little
28 bit more to do between the research track and when the operational
29 would be reviewed and accepted by you all. I hope that answers
30 your question.
31
32 **MR. MONCRIEF:** It kind of does, and I hate to -- I'm sorry, because
33 it was such an open-ended question, but it's just kind of -- You
34 know, I am just trying to think about an open-ended product moving
35 forward, and, obviously, you all did a ton of work on it, and it's
36 the first time it's been done, and I am just trying to think
37 forward that, if you include two more years, or three more years,
38 of data, is this going to make that big of a difference, to where
39 I guess the next model, the operational assessment -- Would it be
40 fit to be able to give management advice for the species?
41
42 I know that's like a crystal-ball question, and it's something you
43 have to go through the process with, but I was just trying to see
44 -- You know, there was a lot of stuff that still needed to be
45 reconciled, and that's what my concern was.
46
47 **CHAIRMAN NANCE:** Thank you, Trevor. Doug.
48

1 **MR. GREGORY:** Thank you. Katie said basically everything I was
2 going to say, but, to Trevor, I agree, and I think each of us have
3 slightly different expectations of what a research track will
4 provide, and, like Katie said, this species has never been assessed
5 before, and this was the first research track, and so it's got
6 probably a lot more loose ends than other species will have that
7 we've been dealing with.
8
9 This was new to everybody, the analysts and the data providers,
10 and things to look into is the yellowmouth grouper, and one thing
11 that Skyler didn't say about these larger fish that we were beyond
12 the growth model -- In our discussion at the review workshop, it
13 was thought that maybe those are other species, like warsaw, that
14 were misidentified and they're not really scamp, and so that's one
15 of the things they're going to look into, but, yes, I agree with
16 you, Trevor, that this is not what I think we are expecting in
17 other research tracks, and a lot was learned in the review
18 workshop, and so it's not surprising, and it asked a lot more
19 questions than it did answers. Thank you.
20
21 **CHAIRMAN NANCE:** Thank you, Doug. Luiz.
22
23 **DR. BARBIERI:** Thank you, Mr. Chairman. I was a representative,
24 SSC representative, on this review panel, and, for starters, I
25 want to compliment, really, Skyler and Katie and the Science Center
26 team that worked on this, because this is a big challenge, this
27 assessment.
28
29 I mean, we can see the data gaps that exist and all the
30 uncertainties and all the issues that have to be addressed, and I
31 feel that the team did an amazing job, really, putting this
32 together and bringing something that came to this level of results,
33 and so, I mean, having said that, yes, it's a challenge to deal
34 with a quantitative, model-based assessment for a species that is
35 so data poor, and now 20/20 hindsight -- When we were discussing
36 how to test drive the research track assessment process, at the
37 time, we thought, well, let's start with a species that, if it
38 takes a longer period of time, we may not need immediate management
39 advice, and so let's start with scamp, and now we realize that we
40 just created an additional challenge for the team. I just wanted
41 to --
42
43 **CHAIRMAN NANCE:** I am going to interrupt. It does look like though
44 the only way to get anything was to do a research track for this.
45
46 **DR. BARBIERI:** Right. Exactly, yes, and so it's painful, but it's
47 a pain that we had to incur, the team had to incur, to be able to
48 accomplish this much and take this long to get there, and that's

1 right, but, you know, I have a motion that I will make later in
2 regard to this, but I do feel that, as we move on to the operational
3 assessment, that the SSC is going to have to look at this and think
4 about the degree -- I mean, how to handle a quantitative assessment
5 with this level of uncertainty. We've got something that is --
6 It's unusual compared to a lot of the other assessments that we
7 usually get to see, and so it's just something for us to think
8 about as this process moves forward.
9
10 **CHAIRMAN NANCE:** Thank you. Josh.
11
12 **DR. KILBORN:**   Thank you.   First of all, thanks for the
13 presentation, and it's obvious that a ton of work went into this.
14 I think my first comment would be that I suppose that we did, or
15 you did, rise to the challenge of conducting a research track
16 assessment, and I think that's great, but I guess I'm a little
17 disappointed that there was less information than I was hoping for
18 on the ecosystem-related things.
19
20 I see that a couple of the long-term reviewer goals were related
21 to the ecosystem considerations, and so my question is this
22 research track went on for two-and-a-half years, and apparently
23 you ran out of time to add ecosystem considerations, and so I don't
24 understand, and like when are we going to actually get to really
25 start looking at the nitty-gritty details of evaluating ecosystem
26 considerations, because it seems to me the only place to get that
27 done is during a research track.
28
29 I know that this particular research track was a little difficult,
30 because it was the first time this species had been assessed, and
31 there was a lot more on your plate than you thought might be there,
32 but I guess, moving forward, am I going to be disappointed again
33 at the next research track, when it comes time for ecosystem
34 considerations? I don't know, and I guess I was just a little
35 disappointed, and I thought there would be a little more meat to
36 that aspect of this particular assessment, and I think Mandy
37 probably has a comment.
38
39 **CHAIRMAN NANCE:** It looks like Mandy is prepared to answer that.
40 Go ahead, Mandy.
41
42 **DR. KARNAUSKAS:** Thanks. I can sort of answer that question,
43 wearing my Science Center hat, because I was largely in charge of
44 that terms of reference regarding the ecosystem aspects. I guess
45 I will just say that, largely, in a lot of the research that we've
46 done at the Science Center in trying to incorporate ecosystem into
47 stock assessments, is that it can often do more harm than good if
48 you don't get the relationships really correct, and so I always

1 approach it very cautiously, and so that's sort of the short answer
2 to why you didn't see more ecosystem work in this stock assessment.
3
4 Skyler did present some of the conceptual modeling work that we
5 did, and that's something that we have put forward as sort of a
6 framework for trying to capture what are the really critical
7 ecosystem elements that need to be included in a stock assessment,
8 and we thought this method was perhaps preferable to just a
9 literature search of what sort of relationships exist in the
10 scientific literature, and so we're trying to come up with more
11 efficient and more robust ways to think about the potential factors
12 that could be included in the stock assessment, but I will just go
13 back to saying that we do have to be really careful including these
14 factors, especially when we have a lot of the basic data inputs
15 that still need to be sorted through.
16
17 **CHAIRMAN NANCE:** Thank you. John.
18
19 **DR. FROESCHKE:** Just following-up on an earlier comment about how
20 to address an assessment that has a lot of uncertainty, and sort
21 of what I was thinking, on a positive note, is that what's
22 interesting about this assessment is that almost all of the
23 parameters were actually estimated by the model, which should
24 result in propagating that uncertainty through the assessment,
25 which would actually fit well into how our ABC Control Rule is
26 developed, because it's supposed to -- When you actually have the
27 uncertainty characterized in the model, you should result in a
28 larger P* buffer that would actually result in the management
29 advice accounting for the scientific uncertainty, which usually is
30 not the case in our assessments.
31
32 **CHAIRMAN NANCE:** Okay. Thank you. Any other specific questions?
33 I think I would rather -- Luiz, have you sent your -- Go ahead and
34 put that up, and I think this will give us an opportunity to --
35 Here's a motion, and we can discuss this, should we get a second.
36
37 **The SSC determined that the base model developed during the SEDAR**
38 **68 research track assessment for Gulf of Mexico scamp represents**
39 **the best scientific information available and is appropriate for**
40 **use in the subsequent operational assessment.** Do I have a second
41 for that motion? Sean seconds that. Is there discussion, please?
42 Julie.
43
44 **DR. JULIE NEER:** Just one quick clarification, Luiz. Recall that
45 the review panel came up with a new base model, and I want to make
46 sure that your motion reflects whichever base model you're
47 referring to, the one that came out of the assessment panel or the
48 one that came out of the review.

1
2   **DR. BARBIERI:** I meant the one that was presented today to us.
3
4   **DR. NEER: That would be the review, RW, approved base model, is**
5   **I think the language we were using, just to make sure there is no**
6   **confusion, and that's all.**
7
8   **DR. BARBIERI:** Thank you, Julie. **Yes.**
9
10 **CHAIRMAN NANCE:** Okay. When I see a base model, I think it's the
11 one we saw. If there's something else, I'm in trouble. Okay.
12 Perfect. That answers that, and, Julie, thank you for that
13 clarification. Is there discussion on this motion? **Is there any**
14 **opposition to this motion? We can show by a raise of hands.**
15 **Seeing none, the motion carries with no opposition.** Thank you.
16
17 We will now do the Something's Fishy, although I think we're
18 changing the name, and I can't remember what the real name is now.
19 Is it Fishermen Feedback? Okay. Are you going to do it, young
20 lady?
21
22 **MS. CARLY SOMERSET:** I am.
23
24 **CHAIRMAN NANCE:** Okay. You mean we drove the other one out?
25
26 **MS. SOMERSET:** I am going to fill in for Emily. She had to hop on
27 another meeting.
28
29 **CHAIRMAN NANCE:** Okay. Thank you.
30
31 **MS. SOMERSET:** Thank you, Mr. Chair. I will make this pretty
32 quick, because I know we're running out of time, and I think, based
33 on the discussion earlier, we already had a good comments.
34
35 **CHAIRMAN NANCE:** Yes, and, for this one, and I will just be very
36 blunt, and, for this one, we want to just talk about what is
37 presented here and not necessarily any of the aspects of the model.
38
39 **MS. SOMERSET:** All right, and so, as Emily stated earlier, this is
40 a tool used to gather information on the fish stock from fishermen
41 who are on the water, and so we want to have what they observe,
42 and responses for this Something's Fishy for scamp were gathered
43 from February 25 of 2020 to March 25 of 2020.
44
45 We received far fewer comments for this Something's Fishy than we
46 did for the gag, and we only had thirty-six responses. Four were
47 dropped, because they were repeats, and then the final report was
48 generated and presented to the data workshop in February of 2021.

1
2 We had the thirty-two respondents, self-identified with sector,
3 and, again, you can see that the majority of respondents were
4 attributed to the recreational sector, and they were not limited
5 to a single response. Coming in second was the commercial,
6 followed by -- Sorry. Coming in second was the for-hire, followed
7 by the commercial and the other category.
8
9 Response sentiment, both manual and automated sentiment analysis
10 showed a small majority of respondents reported a negative
11 sentiment, and so, in the manual, there was a greater proportion
12 that expressed negative compared to the automated, but, again, as
13 explained earlier by Emily, and in the discussion, we do end up
14 with some dropped responses in the automated if they are not
15 recognized in the lexicon library, but, similar to the manual and
16 the automated, there was more negative comments than neutral or
17 positive.
18
19 In this one, you notice that we did not do a comparison by stock
20 health, or this one was done prior to the one on gag, and we have
21 been striving to make each one better as we go, and so this one
22 just did an overall response sentiment, but we did do the by
23 sector, and you can see that, in the private and other and
24 commercial categories, the majority of responses were negative.
25 However, in the for-hire, we had higher positive responses than we
26 did negative or neutral.
27
28 Response rate by location, most responses were gathered off of
29 central Florida, and you can see the purple area just off of Tampa,
30 and respondents could report observations for one or more grid
31 locations, and so that's why we had 126 responses, because they
32 could choose multiple grid areas, and this is based on the manual
33 sentiment analysis.
34
35 Response sentiment by location, again, they could report
36 observations for more than one grid location, and this is the --
37 Based on manual analysis related to stock condition, you can see
38 that, again, the majority of responses were off of the central
39 Florida area, and we had very few responses off the coast of Texas
40 and then the southern tip of Florida.
41
42 For the automated analysis, the negative words that occurred most
43 frequently were small, problem, and less. Positive words that
44 were used more frequently were good, plentiful, incredible, easy,
45 better, and so this could indicate the anglers with negative
46 perceptions of the scamp stock were seeing fewer fish and that the
47 fish they were seeing were potentially smaller.
48

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1   Just some observations from the comments that we combed through
2   for the manual analysis, the scamp population is simply not as
3   prolific as some other reef fish species. Offshore, scamp occur
4   less frequently, but are much larger, on average, and scamp may be
5   more hook-shy than other reef fish, and then just some observations
6   from the negative comments is red tide ruined spawning and nursery
7   grounds and divers observe undersized scamp, greater than sixteen
8   inches, nearshore. I believe that was the last slide.

10 **CHAIRMAN NANCE:** Any specific questions on that, the data and so
11 forth? David, please.

13 **DR. GRIFFITH:** Thanks. I was just wondering why there is so many
14 fewer responses to this than there were for the other one, and I'm
15 just curious.

17 **MS. SOMERSET:** That's an excellent question, and so Emily does
18 send this out the same way for each time we develop and employ the
19 Something's Fishy tool, and I guess, just based on -- I mean, I
20 would imagine that those who are vested in fishing for scamp
21 replied, but maybe, if scamp isn't seen as often off the west
22 coast, or farther west, then they're not going to reply to the
23 tool, but I was surprised by how few responses we received compared
24 to other species that we've done Something's Fishy on.

26 **CHAIRMAN NANCE:** Lisa.

28 **DR. LISA HOLLENSEAD:** I believe too that FWC actually picked up
29 the gag request for our Something's Fishy, and so we had some state
30 partners help promote that as well, which is why we may see some
31 differences in the responses.

33 **CHAIRMAN NANCE:** I think it may also be with how many are targeting
34 a particular species.

36 **DR. GRIFFITH:** Yes, I imagine, and can I ask a follow-up question?

38 **CHAIRMAN NANCE:** Absolutely.

40 **DR. GRIFFITH:** Is this a pretty new method? Are you trying to
41 figure out how to maybe increase the feedback?

43 **MS. SOMERSET:** We are always trying to do that. With development
44 of the tool, the iterations are hopefully getting better as we do
45 each one, and so you saw earlier that Emily was discussing stock
46 condition, and then I believe Ms. Bosarge had asked, at one of the
47 council meetings, to look at response sentiment by sector, and so,
48 over time, we have added those, and so we're doing the same thing

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1 when we send out the tool for feedback and response from anglers.
2 We're always trying to get the states to pick up and help us get
3 it out to as many people as possible, and also to get them to
4 respond.
5
6 **CHAIRMAN NANCE:** Thank you very much.
7
8 **DR. GRIFFITH:** Thank you.
9
10 **CHAIRMAN NANCE:** We appreciate the presentation. Thank you. Let's
11 go ahead and move on to Item Number VII, and we're going to talk
12 about the terms of reference for SEDAR 68. John, I think you have
13 that for us.
14
15   **TERMS OF REFERENCE FOR SEDAR 68: GULF OF MEXICO SCAMP**
16   **OPERATIONAL ASSESSMENT**
17
18 **DR. FROESCHKE:** I will do my best to fill in for Ryan. If I get
19 too far astray, hopefully Julie can reel me in. What we have here
20 is the Gulf of Mexico scamp operational assessment, and this is
21 what will be used to take the output of the research track, as we
22 have agreed on the base model, incorporating the changes that they
23 have mentioned along the way, and produce an operational assessment
24 with management advice in the next year, and so those are the
25 terms, and I think we've reviewed these before, and the Science
26 Center has looked at those.
27
28 I won't read them all to you, and there is one topical working
29 group assigned for life history, to work a little more on the
30 obvious life history issues in the research track assessment, and
31 so the goal is to get this finalized, so that they can begin work
32 on this in the very near future. Any questions?
33
34 **CHAIRMAN NANCE:** I am not sure, when Skyler was -- At the end of
35 the presentation, but, if she's still on, but was there going to
36 be maybe another topical working group, or was this working group
37 going to be able to handle all of the different questions from the
38 research model?
39
40 **DR. FROESCHKE:** That's a good question for her. I don't know the
41 answer to that.
42
43 **CHAIRMAN NANCE:** Skyler, are you still on, by chance?
44
45 **DR. SAGARESE:** Yes, I am, Mr. Chair. I think that -- I did talk
46 with Ryan while we were developing this, and I think that update
47 life history, the one bullet, is definitely going to be addressed
48 by the topical group, and then I think, under the second bullet,

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1 where it says to evaluate the selectivity and retention, I think
2 those are the two big issues that I envisioned, and then,
3 throughout this whole process, we'll be looking at trying to
4 alleviate that retrospective bias. As far as I'm concerned, this
5 definitely hits on the big issues.
6
7 **CHAIRMAN NANCE:** Okay. Thank you, and I think, to that point,
8 Ryan has his hand up. Ryan.
9
10 **MR. RINDONE:** Mr. Chair, I was just going to say what Skyler said.
11
12 **CHAIRMAN NANCE:** Okay. So you're okay with that, Ryan? Trevor.
13
14 **MR. MONCRIEF:** Thank you, Mr. Chair. The one thing that I was
15 going to bring up is there was a discussion by the Science Center
16 on potentially looking at the drivers of the recreational fishery
17 and why landings are moving around and all that stuff, and
18 potentially how other regulations are impacting, and is that
19 something that will be covered in a working group, or is that
20 something that will be gone through in a process by the Science
21 Center staff or -- That was my question.
22
23 **CHAIRMAN NANCE:** Katie or Skyler?
24
25 **DR. SIEGFRIED:** I can take that one. I think that we would handle
26 it -- At the approval of these TORs, we would handle that
27 internally, in that we have a management history database we've
28 been developing that would allow us to take a closer look at the
29 intersection of regulations across species. We hadn't thought to
30 have it be a topical working group, and it would just more be
31 handled with our investigations of selectivity and retention.
32
33 **CHAIRMAN NANCE:** Okay. Good. I think, Trevor, that's a good
34 point, and I think, as long as it's -- While there may not be a
35 topical working group specifically for that, I'm sure that it will
36 be handled throughout the assessment itself.
37
38 **MR. MONCRIEF:** Thank you.
39
40 **CHAIRMAN NANCE:** Doug.
41
42 **MR. GREGORY:** I have a question for Ryan or Julie. The agenda
43 says this is terms of reference, but the document itself calls it
44 a scope of work, and my understanding is, at least in past
45 assessments, we would look at a scope of work and provide our
46 input, and it would be then reevaluated by the staff and the Center
47 and come back to us at a future date to look at again as a term of
48 reference. Are we going to see this twice, or is this one shot

1 for -- Because it's confusing. The agenda is in conflict with the
2 title, in my mind.
3
4 **CHAIRMAN NANCE:** That's a good point. Ryan.
5
6 **MR. RINDONE:** Doug, that one is on me, and it's just force of
7 habit, that we go scope of work and terms of reference, but you're
8 right.   In this particular case, when we have an operational
9 assessment that's following a research track, it is just a term of
10 reference, and you guys will not see this again, and so this is
11 definitely a speak-now-or-forever-hold-your-piece moment, with
12 respect to how the operational assessment will be conducted.
13
14 **CHAIRMAN NANCE:** Okay. Thank you for that clarification, Ryan.
15 Doug, does that answer your question?
16
17 **MR. GREGORY:** Most certainly, and my only concern is this afternoon
18 whirlwind of presentations, and I think most people haven't had a
19 chance to digest all of this, but, if that's the new system, that's
20 the way it is.
21
22 **CHAIRMAN NANCE:** Julie.
23
24 **DR. NEER:** Well, to Doug's point, and so the difference is between,
25 when you have a statement of work that's for an operational
26 assessment, that's a stand-alone assessment, like the old
27 standards or updates. There is a statement of work to develop the
28 scope of the project, and then there's the negotiation between the
29 council and the Science Center, and then it comes back to you, and
30 you approve terms of reference, and that is all true still for the
31 operationals that are not immediately following a research track.
32
33 The ones that are following immediately after a research track,
34 the thought process was that there should be few modifications
35 that need to happen, because you just did this massive research
36 track process, and we're learning that, at least for scamp, that
37 has not been the case as clearly as we had hoped, and there was
38 more left over than we had hoped, in both the Gulf and the South
39 Atlantic assessments.
40
41 It's a different process, depending on what type of operational
42 assessment is happening, just to clarify that, and then my quick
43 question to Skyler, and so, Skyler, you are happy with just the
44 one topical working group covering both those topics that you
45 mentioned?
46
47 **DR. SAGARESE:** Yes, Julie, and I think the biggest reason for the
48 topical group will be the life history. I think all the other

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1 issues, the selectivity, the retention, the influence of the
2 regulations, we'll be looking at that internally, and I don't think
3 we need topical working groups for any of those things, and I think
4 we will be addressing those as we go through the modeling, but I
5 think the data review of all the life history is very important,
6 that we get the data providers together.
7
8 **DR. NEER:** I would agree with you for the life history one, but I
9 just wanted to be clear. Thank you.
10
11 **CHAIRMAN NANCE:** Okay. Thank you. We've had the presentation for
12 a little while, and we've had this scope of work for a little while
13 also to look at, and is there anything on here that is giving
14 anyone real heartburn? Roy.
15
16 **DR. CRABTREE:** Well, I wouldn't say real heartburn, but, under
17 Number 2, where it says, "use the following status determination
18 criteria" and then "MSY or MSY proxy", and then it lists "yield at
19 FMSY or F rebuild", and that F rebuild, it doesn't seem to me, to
20 be appropriate. I can't understand how MSY or the MSY proxy would
21 ever be the yield at F rebuild. I mean, the F rebuild could be as
22 low as zero, if we were in a ten-year rebuilding plan, and that
23 would not reflect at all on MSY, and so that just doesn't seem
24 correct to me. That's different than MSY.
25
26 **MR. GREGORY:** If I may, Mr. Chairman, if you look at --
27
28 **DR. CRABTREE:** That would be the OFL, but that's not the same thing
29 as MSY.
30
31 **CHAIRMAN NANCE:** Shannon, to that point?
32
33 **DR. SHANNON CALAY:** I was just going to agree with Roy that he is
34 correct that F rebuild would not ever be an MSY or an MSY proxy,
35 and so that bullet point does need revision.
36
37 **CHAIRMAN NANCE:** Okay. Doug, did you have something on that topic,
38 or anything else?
39
40 **MR. GREGORY:** You can just change the word "or" to "and", and then
41 it will read just like the third item below it, the MFMT equals
42 FMSY or proxy and F rebuild, and so you want both items, if it's
43 overfished. If it's not overfished, you just want the one item.
44
45 **CHAIRMAN NANCE:** Okay, and so, on the MSY, or MSY proxy, equals
46 yield at FMSY and F rebuild, if overfished.
47
48 **DR. CRABTREE:** Well, that still doesn't make sense to me, because

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1 the yield at FMSY and the yield at F rebuild are not going to be
2 the same, and so they're not going to be equal. They're two
3 different numbers. I mean, if it was saying that OFL could be the
4 yield at F rebuild, that makes sense how that could be, but I just
5 -- We're talking different numbers.
6
7 **DR. FROESCHKE:** It almost seems like we need a separate bullet to
8 say something like, if overfished, then we need F rebuild.
9
10 **CHAIRMAN NANCE:** Okay. Why don't we go ahead and just include
11 that?
12
13 **DR. FROESCHKE:** I think that would be for the MFMT as well, or
14 maybe not.
15
16 **CHAIRMAN NANCE:** Can we change that? Thank you.
17
18 **DR. CRABTREE:** I tend to agree that the MFMT needs revision,
19 because the FMSY proxy and F rebuild are not going to be the same
20 quantity, normally, and so you couldn't equal both of them.
21
22 **DR. FROESCHKE:** Yes, and I think the MFMT should be the yield
23 corresponding to the MSY.
24
25 **CHAIRMAN NANCE:** Carrie.
26
27 **EXECUTIVE DIRECTOR SIMMONS:** Thank you, Mr. Chair. I don't think
28 the council has anything on the books for scamp for this, since
29 this is our first stock assessment, and is that right, John, and
30 we just have the generic criteria in the status determination
31 criteria document, and so we would be looking probably at a range
32 of this, potentially, since this is the first time we're getting
33 yield stream projections and such, like we did for gag, or for gag
34 and amberjack, I guess, most recently.
35
36 **DR. FROESCHKE:** I think this is in 48, Reef Fish 48, when it's
37 implemented.
38
39 **EXECUTIVE DIRECTOR SIMMONS:** What's on the books for scamp for
40 status determination criteria?
41
42 **DR. FROESCHKE:** I don't know that we have any, and so that's what
43 I'm saying, is it's going to have to be in there. Whatever we
44 define in there, when that's implemented, is what we'll have, but
45 I suspect that, as of this moment, we don't have anything on the
46 books, is what I am guessing.
47
48 **EXECUTIVE DIRECTOR SIMMONS:** Right, and so, I mean, I don't -- The

1 minimum stock size threshold, for many of the reef fish, we haven't
2 used the one minus M. The council changed it to the 50 percent,
3 I believe, and so I think we may need to take a larger look at
4 this and have staff refine it a little bit.
5
6 **CHAIRMAN NANCE:** This one looks like it's been pulled out of a
7 generic, and it may need to have it a lot more specific for -- Do
8 we need to see this again, or -- Let's go ahead, and we'll work on
9 revising this. Are there any -- Shannon, is that your hand still
10 up? Okay. Julie. Go ahead, Shannon.
11
12 **DR. CALAY:** Thanks. I'm sorry, but I really only had my hand up
13 from before. My apologies.
14
15 **CHAIRMAN NANCE:** That's okay.
16
17 **DR. CALAY:** I mean, if you would like us to take this back and
18 work with the council, the council staff, to correct it, we're
19 happy to do so.
20
21 **CHAIRMAN NANCE:** I think that would be the best way to do it,
22 Shannon, and, that way, when we come back, we've got it where it's
23 a document that we can look at, but before -- This part needs to
24 be reworked, but we need to -- If there any other thing in this
25 document that we want to give our questions on, or comments, please
26 do so now, so that, as it's reworked, we can see this in January
27 and be able to be happy with it. Katie.
28
29 **DR. SIEGFRIED:** Thank you, Chair. As Shannon said, we're happy to
30 work with it, and the thing that's most important though, because
31 we do want to start data scoping for this operational in January,
32 is we just want to make sure that Number 1 is agreeable, and we
33 can work with council staff on Number 2. That way, when you see
34 it again in January, we're not scoping the wrong data at that
35 point.
36
37 **CHAIRMAN NANCE:** Okay. Julie
38
39 **DR. NEER:** They just didn't take my hand down from before. Sorry,
40 Mr. Chair.
41
42 **CHAIRMAN NANCE:** Okay. Thank you. Let's specifically look at
43 Number 1 here. Any issue from any SSC member on Topic Number 1?
44 Seeing no hands raised, it looks like that one is okay. Any
45 comments or changes on any other aspect of this document? Okay.
46 Thank you. I guess we'll see this again, John, in January. Let's
47 go ahead and go into our public comment section. Is there anybody
48 online or anybody in the room? Bob.

2   **PUBLIC COMMENT**
3

4 **MR. ZALES:** I appreciate you all's discussion today, and I've got
5 a question, and it relates to both amberjack and gag, and it could
6 even go further into other stock assessments, but clearly, and I
7 have spoken to several SSC members and others about amberjack,
8 because we have been managing amberjack since 1990.
9

10 For whatever reason, and even with some recommendations from
11 fishermen that have been out there, and I will say that part of
12 the blame for some of the high catches is going to be a result of
13 comments from the recreational sector and the charter sector, and
14 probably even the commercial sector, and so we're partially the
15 problem on the high levels of catch, but amberjack hasn't responded
16 at all, pretty much, to any management measures that have been
17 placed on it since day-one, pretty much.
18

19 It should, because it's a relatively fast-growing fish, from what
20 we can tell, and the bag limits and seasons and everything that's
21 been in there should have constrained catches enough to change and
22 allow this fishery to increase, but that hasn't happened.
23

24 This isn't the first ten-year rebuilding plan that we're in with
25 amberjack, and, in prior ten-year rebuilding plans, after the ten-
26 year plan was done, and nothing happened to benefit the fishery,
27 nobody -- Nothing happened, and you didn't get punished for not
28 complying with the ten-year rebuilding plan, and so now we're into
29 gag, and apparently, from what we're seeing now, in the history of
30 gag, this fishery has been in bad shape for years, and I know, in
31 recent years, that, for sure in the charter sector and the private
32 sector, in the area that I live, in the Panhandle, we've been
33 wondering where the fish are. On the commercial side, some of
34 them have made those questions.
35

36 You have a forty-fathom break area that's closed for four months
37 out of the year to increase spawning activity for gags, and you've
38 got Madison-Swanson and Steamboat closed areas that have been there
39 for years to increase spawning for gag groupers.
40

41 Apparently these things are not working, and so the question that
42 I have is in these assessments, and I don't know where the -- I'm
43 not going to blame anybody, but there is clearly a problem
44 somewhere, and I don't know if it's in modeling, and I don't know
45 if it's in the data, the way the data is prosecuted, in quality
46 control, with the council members themselves, because it used to
47 be, pre-2007, when stock assessments and the SSC made
48 recommendations on total allowable catch, the council could exceed

1 it, and many times they did that, especially in king mackerel.
2 They went above the recommendation that was made.
3
4 After 2007, Congress gave you all the power to say, okay, when you
5 all say this is the most you can do, that's all you can do. You
6 can do anything less, but, no matter what happens in between you
7 all's discussion and the council discussion, the managers on the
8 council couldn't change anything, and so the key question is how
9 did we get here?
10
11 How did we get to the point to where we're going to see such
12 drastic reductions in the amberjack harvest for everybody, for all
13 sectors, and the same thing for gags for all sectors, and I don't
14 know that anyone can answer that question right now, and I don't
15 know if maybe some investigative thing or some review of how these
16 things operate, to see how we get here, because clearly it's a
17 problem, and, when this word really gets out to the stakeholders,
18 that, okay, you're not catching very many groupers next year, and
19 you're not going to catch very many jacks next year, and it's going
20 to be a problem for people.
21
22 **CHAIRMAN NANCE:** Thank you, Bob, for that input. Certainly, from
23 a discussion standpoint, we'll look at that, but I appreciate that
24 comment. Eric. It's nice to have you here today.
25
26 **MR. ERIC SCHMIDT:** Thank you, Mr. Chairman. I will make this
27 really, really quick. My name is Eric Schmidt, and I've been
28 fishing out of Fort Myers for thirty-eight years. I run private
29 boats for individuals, and I run charter and headboats, and I also
30 commercial fish.
31
32 In regard to the gag grouper, I have fished a lot of grouper
33 tournaments on the west coast of Florida since 2013, and what we're
34 seeing is fewer gags being landed, and the average size of the
35 gags is declining. In 2013, I fished a couple of tournaments where
36 we saw fifty-pound fish. Last year, I think the biggest fish that
37 was weighed in one of the tournaments, and I fish against the same
38 guys every year, I think was thirty-one or thirty-two pounds.
39
40 When I commercial fish, I vertical line fish, and we're seeing a
41 decrease in gag grouper, and I don't know if it's because there's
42 a decrease in the fish or it's because several of the places that
43 we do catch our gags -- I primarily fish south of the 27 line,
44 which, if you were to draw a line, is probably around Sarasota,
45 and so I fish from Sarasota south.
46
47 We have seen a decrease in gags, but, also, we've seen an increase
48 in red snapper in the same habitat that we used to catch the gags,

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1 and charter fishing, for the last two years -- In 2018, we had an
2 episodic red tide event in Charlotte Harbor. Charlotte Harbor has
3 been identified as a nursery for juvenile gags, and I personally
4 witnessed several hundred dead juvenile gag grouper, but, in the
5 last two years, we've had a tremendous abundance of juvenile fish,
6 that I would say are ten to sixteen inches, and we have several
7 fish that are right at twenty-one or twenty-two inches.
8
9 That is something that is positive that I see, when I'm on the
10 water, but I would really stress to the SSC and the council that
11 we cannot have this fishery closed for ten years. You've got to
12 find something to do to keep it open, because we just -- From a
13 commercial standpoint, from a recreational, and from a charter
14 standpoint, we cannot have it closed for ten years.
15
16 I know for a fact that someone in our area just bought a commercial
17 boat, and they went and bought shares and allocation. They spent
18 $200,000 on gag grouper, and now you're going to tell that person
19 that they can't harvest those fish for ten years, and they have
20 put $200,000 into the industry, and so that's just something that
21 probably the council will have to figure out, but, anyway, I just
22 wanted to come here in person and let you know how we feel in Fort
23 Myers.
24
25 **CHAIRMAN NANCE:** Eric, thank you. I appreciate the comment. Let
26 me ask you a specific question. When you're on the water and
27 looking at that, are you seeing something environmentally that has
28 changed that you feel would cause a shift or fish moving out of
29 that area that you specifically fish in?
30
31 **MR. SCHMIDT:** I don't know if the fish have moved out of the area.
32 I don't know if the fish are still there. When you get to a spot,
33 and say you're fishing the coral in forty-eight fathoms, and you
34 pull up on that spot, and you make a stop, and you drop your four
35 electric reels down, and the first thing that grabs the bait is
36 red snapper.
37
38 The next thing you know, you've caught fifteen or sixteen or
39 eighteen head of red snapper, and you don't have the allocation,
40 and so you can't keep the fish, and bait is almost two-dollars a
41 pound, and so now you pick up and you move to the next spot. The
42 gags might be there, but you can't afford to sit there and try to
43 weed through all these fish and then have dead discards just to
44 catch two or three fish.
45
46 **CHAIRMAN NANCE:** Thank you. Roy.
47
48 **DR. CRABTREE:** Well, just -- I mean, I'm looking at the yield

1 streams on what I suspect is the most likely place this will end
2 up with the council, and I don't really know what they will do,
3 but the fishery doesn't end up closed, but it takes a heck of a
4 hit.

6 **MR. SCHMIDT:** I understand that.

8 **DR. CRABTREE:** It looks to me like it takes eight or nine years
9 before they get up to where they've been the last few years. Then
10 they go up higher than they've been, but it takes a while.

12 **MR. SCHMIDT:** As to Mr. Zales' previous comment, we've had these
13 closed areas for several years, and, I mean, we're going on
14 probably two decades, and it was sold to the fishermen that, if we
15 close these areas, you're going to get the spillover effect, and
16 this is going to be so beneficial, and it's like Riley's Hump.

18 Riley's Hump has been closed since the 1990s, and the FWC just
19 recently made changes to mutton snapper and reduced the bag limit,
20 and so, if these closed areas don't have the beneficial effect of
21 what they were sold to us as fishermen, then why are they closed
22 to begin with?

24 **DR. CRABTREE:** Well, I don't have a good answer for that, Eric. I
25 mean, I can tell you that I suspect that the closed areas are
26 beneficial and have contributed some to making things better than
27 they otherwise would be, but it's clear that the closed areas we
28 have, in and of themselves, have not been sufficient to keep us
29 out of trouble. Beyond that, I don't have good answers for those
30 questions.

32 **CHAIRMAN NANCE:** Thank you very much. Any other public comment?
33 Yes, sir. Would you state your name again for me, young man?
34 Thank you.

36 **MR. RICK WARREN:** My name is Rick Warren, and I fish a little bit
37 north of Eric, toward the Boca Grande area, Venice and Englewood.
38 This is the first SSC meeting that I've ever been to, and so it's
39 kind of interesting.

41 I just wanted to give you some of my observations on the gag
42 grouper fishery, from what I've seen. I've been fishing for-hire
43 for about ten or eleven years, but I've been fishing in the Gulf,
44 in that area, for coming close to twenty years, and I fished a lot
45 prior to some of those big red tide events around 2005, mostly
46 nearshore, fishing in sixty, seventy, eighty foot, and, to me, it
47 seemed like our gag grouper fishery definitely was a lot stronger
48 back then, and I think there was a little bit smaller of a size

1 limit, but it wasn't as hard to get a limit of fish to take home.
2
3 Since then, we have had some major red tides, and I think that's
4 been a big factor in it, on those nearshore gags, but I am seeing
5 the same thing that Eric is seeing, as far as a lot of small fish,
6 sizes anywhere from like twelve or fourteen inches up to low
7 twenties, and I fished yesterday and caught plenty of them, but I
8 think it's a water quality issue on our nearshore fish.
9
10 I do know it's a very complex fishery, with having the big males
11 offshore, which most anglers never see, and I know that makes
12 things a little bit difficult to manage, and I'm just wondering if
13 there's any option on maybe making it to where there was a slot
14 limit, where you weren't able to keep those bigger fish further
15 offshore, to help increase the population on those gag grouper.
16
17 It's also being -- You know, the Big Bend area north of Tampa,
18 they don't -- In my opinion, it doesn't seem to be as affected by
19 the red tides that we've seen further south of Tampa, and that
20 might be why we see a lot better of a catch rate up there with gag
21 grouper that we don't see in our area on those bigger fish, but
22 that's all I have.
23
24 **CHAIRMAN NANCE:** Rick, thank you for being here. You're welcome
25 at any meeting. Any comments or questions?
26
27 **DR. CRABTREE:** A comment I would make, and, I mean, what's
28 troubling is the ecosystem itself is changing, and that's having
29 effects on these fisheries that there was no way for management to
30 really control them, because they can't stop some of the changes
31 that are happening, and I think that's difficult for people, and
32 I think that's part of what we're seeing clearly with gag, with
33 red tides and the incidence, and maybe that's partly why we've
34 seen such poor recruitment in greater amberjack, and it's just
35 hard to know what happens in the course of rebuilding these
36 fisheries when the ecosystem may be different than what the
37 baseline period we've observed is.
38
39   **OTHER BUSINESS**
40
41 **CHAIRMAN NANCE:** Thank you. Just one -- On other business, I had
42 that SCS 7 topic. We talked about it last time, and I don't think
43 I've received any input on that subject. David Chagaris, do you
44 think that red tide would be something that would be possible on
45 that one?
46
47 **DR. CHAGARIS:** Are you referring to Item --
48

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1 **CHAIRMAN NANCE:** We talked about it last time, and there's that
2 Alaska meeting, and it's being put on next year, and it's looking
3 at environmental effects on fisheries and those types of things.
4 Ryan sent out a link to look at that, and we were looking for any
5 comments or suggested topics and those types of things.
6
7 The only thing I can think of that we would be able to input as a
8 region would be red tide, and so I would appreciate it if you would
9 look at that, and I'm not telling you to do anything, but I think
10 it would be something we could do, and, if you think that, if you
11 would put something in there, so I can discuss that at our next
12 meeting.
13
14 **DR. CHAGARIS:** Yes, absolutely. I don't know that I have the link,
15 but I agree that I think the red tide issue is very pertinent and
16 timely, and it's something that we can really sink our teeth into
17 right now. I mean, the Gulf is undergoing a lot of changes, I
18 believe, and some we know more about than others, and definitely
19 the red tide would be a good case study to dive into that.
20
21 **CHAIRMAN NANCE:** Okay. Ryan, if you're still on, would you send
22 that link to David, please, again? David, if you consider that,
23 I would appreciate you letting me know, so we can submit that to
24 the group.
25
26 **DR. CHAGARIS:** Absolutely. Sorry that I missed it the first time.
27
28 **CHAIRMAN NANCE:** That's okay. Thank you very much. Anything else
29 for our meeting? Okay. I think, for the January meeting, if there
30 are specific things that you would like to see, you can submit
31 those to Dr. Barbieri and I, and or Carrie and John and Ryan, so
32 we can consider those for our meeting.
33
34 Some of the things we're looking at, we'll have a pretty full
35 meeting, and we want to make sure we have everything there to
36 consider. Roy.
37
38 **DR. CRABTREE:** I think the January is going to be an important
39 meeting, and so I would encourage folks to try to attend in-person,
40 to the extent they can, and particularly if we have folks down at
41 the Center still on, and it would be worth, I think, exploring to
42 see if, by that point, some travel would be possible, and maybe we
43 could have some Center representation, because virtual works well
44 for what it is, but it's not a replacement for having everyone
45 face-to-face.
46
47 **CHAIRMAN NANCE:** Will, please.
48

1   **DR. PATTERSON:** I was going to say what Roy just said, and I think
2   that's important.
3
4   **CHAIRMAN NANCE:** Okay. Thank you, and let me just say, for each
5   of you, that I really feel like this SSC is a great body, and we're
6   able to discuss things and come to consensus on things and be able
7   to have some good discussions, and I appreciate each of you and
8   the time and effort that you put into this, and so we won't see
9   each other until after the end of the year, and so you guys have
10 a great holiday season, and stay safe, and I hope we're able to
11 get together, because it is nice to be able to sit here as a body
12 and see each other and being able to converse, and I think that
13 helps, and so hopefully we can all come together, but, until our
14 next meeting in January, you guys all take care. Thank you.
15
16 (Whereupon, the meeting adjourned on November 18, 2021.)
17
18   - - -