GULF OF MEXICO FISHERY MANAGEMENT COUNCIL

SUSTAINABLE FISHERIES COMMITTEE

Hyatt Regency Birmingham Birmingham, Alabama

April 3, 2017

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Patrick Banks.....Louisiana
Roy Crabtree.....NMFS, SERO, St. Petersburg, Florida
Dale Diaz.....Mississippi
Tom Frazer.....Florida
John Sanchez.....Florida
Greg Stunz.....Texas
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The Sustainable Fisheries Committee of the Gulf of Mexico Fishery Management Council convened at the Hyatt Regency Birmingham, Birmingham, Alabama, Monday afternoon, April 3, 2017, and was called to order by Chairman David Walker.

ADOPTION OF AGENDA
APPROVAL OF MINUTES
ACTION GUIDE AND NEXT STEPS

CHAIRMAN DAVID WALKER: I would like to call to order the Sustainable Fisheries Committee. The members are Greg Stunz as Vice Chair, Patrick Banks, Roy Crabtree, Dale Diaz, Tom Frazer, John Sanchez, and Ed Swindell.

The first item of business is Adoption of the Agenda, which is Tab E, Number 1. Is there any changes or additions to the agenda? Seeing none, the agenda is approved. The next item of business is the Approval of the October 2015 Minutes, which is Tab E, Number 2. Any changes or revisions to the minutes? The minutes are approved. We are on to the Action Guide and Next Steps, Tab E, Number 3, and is that Mr. Atran?

MR. STEVEN ATRAN: Thank you, Mr. Chairman. There is basically two actions in this committee. The first is to receive a presentation from Dr. Greg Stunz on the effectiveness of techniques to reduce barotrauma effects, and that doesn't require any action by the council, but, if you wish to begin action on some sort of a framework action to require devices, that would be the time to make that recommendation.

Then the next item is I am going to review an options paper, really a very preliminary paper, on possible revisions to the ABC control rules. Then, if there is any other business, it would come up after that.

EXECUTIVE DIRECTOR DOUG GREGORY: While they're getting ready, I just wanted to remind the council how this is going to feed into what we've done in the past and what I hope we do in the future. We had a venting tool requirement for reef fishes. The council had an amendment that all vessels fishing for reef fish had to have a venting tool onboard.

When it was put into the regulations, it was changed to say that all reef fish that were captured had to be vented, and, because that preventing descending devices, that Greg is going to talk about, from being tested, we were asked to withdraw that regulation, and we did.

That created some confusion. Some people in the public thought that we did that because venting did not work, and that's not true, but we wanted to allow descending devices to be tested and used, and so what I would hope would come out of this, is, in some reef fish amendment, we would put back into place a requirement that anybody fishing for reef fish has to have, onboard their boat, and not necessarily use, but onboard their boat, a venting tool and/or descending devices. With that, Greg, thank you.

CHAIRMAN WALKER: Greg, you're going to begin with Tab B-4(a)? Is that correct?

EFFECTIVENESS OF TECHNIQUES TO REDUCE BAROTRAUMA EFFECTS

DR. GREG STUNZ: I provided this for everyone. Some of the videos, I thought that it was important that you guys see this in process, but those videos probably won't appear with what you've got on your tab, but they'll be on the screen.

Maybe I can shed a little bit of light on what Doug was mentioning, and, first, I appreciate you guys hearing about some of the work we're doing. In fact, Dr. Curtis, who we were talking about earlier, is leading our research program as it comes to this barotrauma and discard mortality.

Our primary goal was to estimate the mortality of discarded snapper, and I don't think, no matter what side of the fence, recreational or commercial or for-hire, nobody, any conservation-minded person, wants to leave a resource in the water that's not going to make it, and we wanted to account for how we could do that.

Up until just really a few years ago, we didn't have the technology to really know, if you released a fish, does in fact that fish survive, but we do now, through acoustic telemetry, kind of what we call the silver bullets, and so that's what we are using to do some of this stuff.

Also, during that time, we had this venting issue that Doug brought up. We also had these new descender devices coming out, a variety of them, and that was test those, to see if they really worked and if some worked better than others. Then the last was to look at what type of seasonal effects are influencing this mortality, and, of course, we all know, but also to really put some science to it of what's the real effects of depth and is there some type of depth and temperature interaction.

We have been working on this now for nearly five years or so, and it was funded through Roy's shop and Bonnie, through MARFIN, and NOAA has a program called the Bycatch Reduction Engineering Program, or BREP, as well as the latest study by NFWF.

What I am talking about today isn't particularly any one of those studies, but kind of the culmination of a whole bunch of studies together, and I'm trying to put it in a general story for you guys. Then probably the most important thing is, if we show this works or if it doesn't work, are the anglers going to use it, and assess that angler buy-in, and that was the purpose of our latest NFWF study and some partnerships that we made to assess that factor.

When this really started out was when our first pilot of iSnapper, and one of the questions we would ask, other than the normal catch statistics that we want, was questions about discard rate, and we were very surprised to learn that, in fact, 40 percent of the fish are discarded. Fortunately, only about 5 percent of that are what the anglers would consider dead at the time, but then the real question was what happens to this other 30 or 35 percent that are released alive? Is there ways to reduce mortality that we were sure that was associated with that? The good news is there is.

To give you the punchline right off the bat, descender devices work. In fact, venting works very well, if done properly, and so hopefully this will spur some more discussion among us about how we can use this in the fishery as a tool to reduce some of the mortality, but just to step back just briefly, this is barotrauma. It's the bends.

Fish are compressed with saturated gases in their bloodstreams and in their tissues when they are brought to the surface, just like if you took a balloon down diving, or a diver, for that matter. When you come back up to the surface, you've got to obey the laws of physics, and that gas has to expand. It has to go somewhere, and it creates all of these problems that you see up here, and I will be happy to talk to anyone about what all of this is, but surely that anyone that snapper fishes experiences barotrauma.

To give you some examples of what we have or tools that we can utilize, they're these rapid recompression devices, and, typically, they are all coupled with a weight. You can put them in line with your fishing gear, or what most anglers do now is have a separate rod and reel, or in fact a line attached to a

heavy weight with some type of mechanism that connects the fish to your actual descender device to the weight, to send it back down to the bottom.

What we discovered was that, in fact, if they have got the bends, coming up from the bottom, and all this barotrauma, you can rapidly recompress them and reverse some of those effects, and to give you an example of some of the things -- I've got some. You put a professor up here, and so I've got my show-and-tell. You should have seen me in the airport yesterday with some of this.

This is the SeaQualizer, and we've talked about the SeaQualizer. It clips onto the lip. It's weighted to a heavy device, and it sends the fish back to the bottom. You can dial in the depth that you want it to open up at, in fifty-foot increments. When it reaches those depths, it opens up and releases the fish. I will show you an example of that in just a second.

Here is the SeaQualizer in action, on the bottom right. You typically wouldn't have all that gear, because that is our cameras. You saw it open up, and the fish swims away, and I will show you some more examples.

Another popular one is the Blacktip, which we don't -- We are not thrilled about the Blacktip, but the way it works -- It's the bottom left. It doesn't open up until the end hits the bottom and the pressure on the bottom causes it to open. Well, if you fish in this area, or regions in our area of the Gulf, the bottom is real silty, and it doesn't always open up. In fact, you can see it on this video. It's quite more of a contraption, and you can see the fish struggling to get off. Many times, we bring the fish back up on this device, but, nonetheless, it works, once the fish come off.

These are sort of like the Cadillac options. They roughly cost fifty-dollars, which, in the scheme of an offshore trip, is not that expensive, and, by the way, they are reusable. You can use them over and over again, but there are cheaper options, such as this Shelton descender hook. The one on the left is kind of like a reverse safety pin.

That is all we had when we first started doing these studies. The SeaQualizer and others weren't out, and the fish is weighted with a weight. It stays on the pin, and then you just lift up when it's at the bottom, and it comes right off, but they do come off, and so we don't like that. The SeaQualizer is what we recommend and we think is the best.

Rockfish on the west coast, they even just use an upside-down milk crate that's weighted and put them in the milk crate and turn it upside down and send them back to the bottom, and so there is a lot of low-tech ways. I guess my point here is the cost should not be a preventative means of implementation. Obviously all of these successfully reduce discard mortality is the punchline.

When we started this study, the first thing that we wanted to do was go into the lab, because, as you know, in the field, there is all kinds of inherent variability that we've got to deal with, and so we can recreate this in the lab, through hyperbaric chambers. Essentially, you pressure up the fish and pop the valve. Then it comes back up and you can simulate barotrauma.

We did that for a variety of trials, and, at that time, we were looking at venting and rapid recompression, and so the short story is what you see there on the figure. The fish on the left was vented or rapidly recompressed. We virtually had 100 percent survivorship if you did that across a variety of depths. Then, if you didn't vent, or didn't recompress, it's the fish on the right that floated for a little while, which we assume those would probably have some type of mortality associated with them.

When you really want to look at some of the science results, on the left axis there, that is survival. Across the bottom, the X-axis is the controls. We put the fish obviously in the -- They had to stay in the chamber for several days to make this happen, and so we wanted to make sure that it wasn't some type of caging effect, but we saw no mortality in our controls. We saw 100 percent survivorship across all of our descended fish.

When you looked at the vented fish, 100 percent survival at thirty and sixty-meter depths. Then, when you started looking at non-vented, you got about 25 percent mortality, and then about 75 percent mortality at thirty and sixty meters, and so there was a clear depth effect, but, as a scientist, this was great. You treat it with venting or recompression and it lives. If you don't, it dies, but thirty meters is not real deep.

The symptoms were not near as bad at that depth, and so that's a little bit of good news, but the sixty-meter was somewhat of an issue, and, of course, the question is, well, what about deeper than that? That wasn't a component of this first study. We weren't thinking that far ahead.

I can tell you that part of this is we also repeated these fish

over and over through this process, because, at the time, the fishery wasn't as good, and we thought what if they're rapidly caught and recompressed over and over or decompressed, and it turns out that you have ones that live or ones that die.

We have several fish that we call the zombie fish that made it five times through this, and we finally said enough is enough, but it didn't seem to matter the number of times. It was just how severe is your barotrauma.

Then, of course, the real question is what about in the field, and, of course, the field is obviously a lot more variable. You've got to deal with predators, and there is temperature, and even great depth effects than we could recreate in the field, in our hyperbaric chambers.

Then there is something we haven't quite put our finger on yet, and that is there is something going on with the stress response of capture. Many times, you can go out there, if you're fishing snapper, if they come to the surface really quick, quicker than they could obey the laws of physics, and somehow, they are not affected by that. Once they are captured, they get barotrauma, and so there is something going on there, but in the lab, of course, we don't have that stress of capture, and, of course, the biggie is the predators that are associated when you release those fish.

The solution was our magic bullets, and this is them. They're acoustic tags. Typically, what we would do is we would make an incision and insert this into an animal, and these are mainly for tracking, but, in this case, there is a special type of these acoustic tags that are accelerometers, and we can gauge their acceleration, their depth, and the temperature that the tag is at, and it's a proxy for whether they live or die and not so much where they migrated to.

The problem is, like you see in the picture, is that we had to attach those to the back of the fish, kind of like mini scuba tanks, because, to make an incision and stitch it up, you vented the fish, and so that was a problem, but it turned out that it worked really well, and I will show you some examples of what the profiles look like here in just a second.

Here is an example. We had to do some lab tests, and you can see the fish have the tag. Of course, we didn't want the tag to affect their mortality, or a whole variety of other tag effects that we care about as scientists. That is the black receiver that you see in the background that is listening.

By the way, the receivers listen and gather this information generated from this tag that's produced about every minute or a minute-and-a-half. You can see they feed just fine, and this is literally a day or so after implementation and they're behaving normally again, and so we're confident that there wasn't this tag effect.

Of course, the big problem here is what is the fate of the fish. A survivor would look something like this, kind of like a heartbeat. It's living and doing its thing. It's swimming and it's accelerating. A dead fish looks like that. We figured out that it takes about two days for the fish to die, if they don't die immediately, but, after seventy-two hours, if it's alive, they stay alive.

It would do its thing for a little while and then it would flat-line, and then, of course, we've got -- The drawback of acoustic telemetry is they can leave your array, and that is always a problem when you implement a fish with a $700 tag and it leaves your array. We have a replication issue, and that repeatability is always an issue in controlling our variance.

That would be an emigration there that you see on the bottom. They're doing just fine, and then, all of a sudden, they just leave the array and it's gone. Unfortunately, that happens sometimes.

I don't want to go into a bunch of science stuff, and you can read the papers that are included in the packet if you really want to know about all the different designs and how we approach the experimental design, but, essentially, you've got a seasonal treatment and you've got a depth treatment. Then you've also got vent and non-vent or control or descend.

We would hold fish in captivity, in the lab. Those were our control fish. Then we take them back out, and you have to think about it. We had a little trouble of how do you get a control fish when you've got to catch it from depth, and so we had to catch them, let them heal up, and then take them back to the field as our control fish.

Anyway, the story there is something like this. This is getting a little bit more confusing, but the bottom is winter, spring, and summer. The green dots are vent, the blue are descend, and the red are non-vent. What you see is we don't have nearly as much of a problem in the winter and spring, and that's the story.

There is a big seasonal effect. This decompression is not nearly as much of a problem when you have cooler water temperatures, but, in the summer, if you don't vent, you have a big problem. You see that 80 percent mortality, a little over there, and these are fish from fifty meters, and this would be the same for thirty, sixty, and above. There seems to be a very strong seasonal component to this barotrauma. We can get by without doing anything in the cooler months, but, in the summertime, in fact many times, from some of our non-vent treatments, the fish just would never leave the surface.

Why is that? Obviously, if you look at the top graph, this is the temperature in the summer, and this is in Celsius, but the blue and the red lines are running from about seventy-degrees to about ninety-degrees Fahrenheit. Obviously summer is warmer temperature, and the spring and winter have much cooler temperatures, but what I want to draw your attention to is that bottom graph with the red line. That is the summer.

You are bringing fish from at depth, from seventy degrees, rapidly all the way to the surface, almost up to ninety degrees, and that's the problem with the summer. It's crossing those temperature barriers. One reason we like descender devices is because, unlike venting, you get them back down to those cooler temperatures as fast as you can.

Here is the no-brainer, depth versus mortality. At greater depths, you have much higher mortality, but there is something very interesting that we are just recently discovering, and something we set out to discover was where is that magic depth, because obviously that has a lot of management implications.

Is there a tipping point to where it really matters, and there certainly is, and you will see some other figures in just a second, but, if you look at the middle depths there, about sixty meters, this sort of 180 to 200-foot realm is where you really start seeing what we call catastrophic decompression. That is where, no matter what you're going to do, the fish probably isn't going to make it. We see well over 80 percent mortality, and that's pretty much right at the 200-foot mark. Certainly that has some management implications, that the devices work, but they don't always work beyond a certain depth.

I also want to just mention one thing, before I forget. That is, in these trials, you saw that venting did very well, and it turns out that we don't see a significant difference between venting or rapid recompression, although we recommend rapid

recompression, for those reasons that I pointed out, and it's much easier to do, but here is the standard venting tool, the one that we like. There is a giant needle. They didn't like me on the plane with this either. I had to put all of the safety devices on it.

There is a giant needle that comes out, and you stick this into the fish. As you saw probably from other studies, most people don't know where to put this needle. This is vital organs, obviously, and they want to poke the stomach that is coming out of the mouth, which is certainly not what you want to do. You actually vent it behind the pectoral fin.

It works really well if it's done properly, but it doesn't always work on big fish, because there is air pockets, and even though you can try to massage the air out, we highly recommend these descending devices for that, because you get rid of all the air by recompressing it. You move them through these predation zones, which are high in the water column, and then you get them back down to cooler temperatures.

At $700 a fish, you can imagine this gets expensive, and it's a budget-blower to do the replication we needed, and so we were like, well, what if we can have impairment scores, and actually, Matt Campbell with NOAA did some of this early work on this, and he did a great job, and we have since expanded that to meet our studies.

We found very clearly what we can do, particularly as you see with depth here, and we can develop an impairment score by looking at certain reactions. Are the scales hissing with air coming out, for example? Are its eyes protruding? That and other responses of the fish, we can predict that mortality very well.

We can use that to increase our sample size, but what we discovered was that, while our barotrauma scores work perfectly until you get to about sixty-meters, this 200 or 190-foot realm, and that's when we discovered that, well, this is catastrophic decompression, where they vent -- Everything blows when you're coming from that deep.

When they're at the surface, they look good. They look like they don't have much barotrauma, but it's because all the air has escaped, and probably there is issues with brain hemorrhaging and vital organ damage and that kind of thing, and, generally, those fish don't make it beyond that sort of gray box region that you see there.

Then the last brief study I want to tell you about is we were funded recently by NFWF, and this is still to the -- The BREP and NFWF are still ongoing, and it's trying to refine this. We said, okay, can we really refine that depth, and that's part of the graph that I just showed you, but also we got a lot of feedback from anglers of, hey, do we really have to descend these fish to the bottom? What is the best way to do this?

We already had shown that it worked, and so we had a whole variety of new depth trials, but, also, this is really where we were testing the different devices. Then, also, do you need to go back to the bottom? It turns out that you don't. You just need to get that fish past that huge predator field that often occurs, but not that often, at the surface.

They can recompress enough that they can swim the rest of the way on their own, and that's good news, because imagine you're on a headboat and you're having to release these fish rapidly. You don't have time to go all the way back down to the bottom. In fact, those guys have gotten creative and rigged five and six SeaQualizers in a row and are sending a whole bunch of fish back down at once, and so that's good news as well, as well as refined some of these depth effects as well.

To do that, I am going to show you a series of videos, and I will show you some of the challenges in how this works. This is what we call the crossbow, and it actually stands for something, and you can read it, but, anyway, it's our catch and release scoring system for barotrauma, but everything nowadays that we put in the water has a GoPro camera on it, including fish, and so we can monitor the fish from every direction, to see how it swims off, to also increase our replication size.

Here is one with a SeaQualizer, and I guess I want to point out, under a normal circumstance, you would just have a line or a rod with a weight rigged up. You wouldn't have all this camera contraption. It's very simple and easy to use, and that's one with the Blacktip, which we're not necessarily recommending, because it's quite a contraption to use, and it doesn't always release the fish.

If you watch this, that's the four cameras. It's the same thing, and so if you pick maybe the top left or the bottom right, it's an easy one to follow. It's being released from the surface, and I have sped this up a little bit, so we don't have to watch the whole thing, but, if you pay attention to its stomach in just a minute, you can see it visually recompress,

and I have slowed it down here just a little bit in a second, and you will see that that fish is going back, a lot of other snapper and blue runners and other things.

It is recompressed, and it will release there in just a second. Then, because we have cameras in all directions, you can see them. In that case, it's swimming back to an artificial reef that you see there.

Here is another quick one, just about to release. If you look on the top left there, you can really see him swimming back down. That was a very shallow release, and you can see you just got him down and he swam the rest of the way. I want to point out though that these definitely do work, but it's not all roses.

Here is a fish that died from deep depth. The predators know when these fish aren't alive. I can't even explain how they know it, but the barracuda definitely know it. You've got a predation field that, especially there's something about these fish kind of going through their death throes that draw in the predators.

The good news is, when we're on a spot, sometimes there is a lot of predators, but, most of the time, this doesn't occur. It seems to be very patchy. When you get predators, you get more than one. This fish was just released, and, if you notice, a dolphin is coming around. Then you will see, if the dolphin doesn't get him, you've got a sandbar shark that is swimming through that photo there. You've still got to deal with the predator field in this, and we have ways, in our acoustics, to tell whether it's been eaten by a predator or it has died and that sort of thing from the barotrauma.

Anyway, I think that getting it back to its habitat, versus releasing it at the surface through venting, even though that you're going to deal with predators either way, there is still some benefit there.

I want to bring up one thing, just real quickly. There is ways we have to control predators, and we were experimenting with a study on vessels of opportunity. That means we go on a ride with a charter captain or a headboat or something, and we are experimenting with these devices.

This is one of them called an acoustic deterrent device, an ADD. This is what I couldn't get on the plane with. They finally let me. It's on right now. All you do is put that on a line and

drop it in the water, and it scares away dolphin. It's a deterrent device. It doesn't harm the animal. In fact, they are required, in gillnet fisheries, to be on a gillnet to prevent the dolphin from entangling in the gillnet as it's picking off fish.

If you have ever turned on your car and had the speakers turned up and it's real loud and it startles you, that's exactly what it does to the dolphin. If you look at our graph, we had students go out, and we didn't tell them whether it was on or off. It's on right now, but you just can't tell it.

When it was inactive, the dolphins never left, and this was only when dolphins were present. When you turned it on, they left. In fact, they would tail-slap and leave immediately, and so we thought we were onto something and now we need to do the scientific work that we need to do to keep them away from -- Because, as you know, if you've ever done it and dolphin come around, every snapper is not going to make it, and they have learned very well.

Unfortunately, I have to put Roy on the spot here. We said, well, you can't do the science, because that's going to be Class A harassment and we can't get the permits to test it, and so I'm working closely with Roy's office to see if there is some way, because they are really showing promise. Going on vessels of opportunity doesn't allow us to do the randomization that we need to do to experimentally test these, but, in fact, they work and they are required in fisheries, and so there is some option there to reduce mortality, particularly when dolphin become a problem.

The issue there was that they said it would create a dinner-bell effect. You put these in, because it doesn't hurt them, and then they learn, after a while, that -- It maybe would call dolphins from around that wouldn't otherwise have been there, from this dinner-bell effect.

I was joking and said, well, the dinner-bell effect is diesel engines going into neutral, if you've ever been out there, but that didn't make my case. Anyway, maybe, Roy, you can help me with that, if somebody considers the ADDs in the fishery, but I really think, for us at least, that's enough of a rare occurrence that you're not seeing that dolphin depredation, is what we call it, as much.

Then the last thing to draw your attention to from the last study is we did a whole bunch of things, like fight time and

depth and how much time it was on the deck and all of that and then what level you released it, a third of the water column, two-thirds, or at the bottom, and none of that really mattered. I would just draw your attention here to the bottom with that study, and we're learning as we go too how to better utilize these.

I also want to make one other quick point. Remember that these fish have cameras attached to them, and there is tags. They have been really handled, and so you're seeing very high mortality rates. You wouldn't have near the handling under a normal fishing process, but you can see, if you go along the top, those are the depths. The bottom is overall survival, and you see that inflection point at sixty meters, where, at eighty meters, you have dropped substantially down to barely not even 60 percent of your fish are dying.

Anyway, that is the big results. The question, obviously, to end on here is, is it going to work? All of our research studies had some outreach component, but we got smart, and we got together with other groups, particularly the ASA, and if you know Andy Loftis and his FishSmart group, and we have done some buy-in-type studies all along the Atlantic and Gulf coast, where we have distributed SeaQualizers and done ride-along trips. To give you an idea, I asked Andy if he would please provide some slides, and so we've distributed now 1,100 SeaQualizers across the South Atlantic and Gulf.

These are some of the preliminary results. On average, they used them for eight months. Every person that used it released seventy-five fish, on average. 72 percent of the people that got them weren't even aware that this technology existed, and so that's a good thing. 67 percent felt that they improved releasing their fish by using these devices, and, by the way, this is just our early results. The surveys are still out, in fact.

76 percent of people changed their behavior, in terms of they are more likely to use these descender devices. They definitely preferred this over venting, which is a good thing, for the reasons we described, and it improved perceptions with the use of these, but probably, most importantly, is that 95 percent talked to their -- Word of mouth is how I think these will spread and they will say, hey, these are good things and you should be using it. We've got a lot more work to do in this realm and partnering with different groups on the outreach side of this.

What are the take-home messages? Descender devices and venting works, if it's done properly, in terms of venting. There are strong seasonal effects on mortality, which certainly has management implications. Depth, obviously, is an important factor, but, more importantly, are these sort of tipping points around this 180 to 200-feet realm.

I don't know why it's not numbered, but Number 5 there is angler acceptance, and the fishing community is willing to accept these into practice. I just want to end that there is others around the Gulf doing this with other species. I am talking about red snapper here. There is Will Patterson's group, and I know Deb Murie with amberjack. Will is working on triggerfish, and a bunch of others are working and seeing similar results along these lines, and so maybe we would want to look up some of their studies.

We have several papers in review right now, and at least several that are part of our packet, if you want to really get into the science, and, of course, this was -- Judd Curtis leads this work for us, and, of course, NFWF and NOAA. We are a NOAA Environmental Cooperative Science Center that funded a lot of this work of involving underrepresented students in this science, and, of course, our AgriLIFE research that allows us to do this barotrauma work in the lab, which isn't easy with red snapper.

Several of these guys -- This was Karen's thesis, and Alex is working on the NFWF now, and Matt Streich has also done a bunch of work for his dissertation, and so, anyway, Mr. Chair, that is my presentation. Hopefully I didn't take up too much time, and I will be happy to answer any questions.

CHAIRMAN WALKER: Thank you, Dr. Stunz. I'm sure there's going to be a lot of comments and questions, and so, if anybody has comments or questions, go ahead. Leann.

MS. LEANN BOSARGE: I thought it was really interesting, because I think I was the one that asked for this presentation. I forget from meeting to meeting, but I loved it, and I can't believe you managed to get on a plane with all of these things, and so thanks. That's probably why people told me that you were running late and they weren't sure if you were going to make it or not. Now I understand. You got on a plane with needles and all sorts of things, and so thank you.

CHAIRMAN WALKER: Johnny.

MR. JOHNNY GREENE: Thank you, Dr. Stunz. I have pretty active with a lot of this type of stuff, and I am real familiar with a lot of it. One of the things that we talk to customers about daily is letting snapper go, because we always get beat up about snapper seasons and why we can't keep them, and so we always try to educate them, and we actually get people now to where we just tie them on a fishing pole, and we always have that one guy that wants to hold his beer and drop them back down. Of course, he doesn't always want to reel the lead weight back up, but it does work very effectively, and using multiple SeaQualizers in one drop absolutely works pretty well.

One of the things I have noticed is it seems like some of the marine mammal interactions seem like they have picked up on that pretty quickly, and I always wonder, when I release a fish and he goes back out there and a marine mammal happens to find his way and all, how does that account?

When you're putting your study together and you're looking at the success of it, a fish that swims back down to the reef is considered one thing. A fish that has a predator issue is another, and how does that fit in the whole scheme of things?

DR. STUNZ: That's a great point, Johnny, and you're right that they get them. There is no question, and, at least in our area, it's that patchiness and it's not always, and so you can move is an option. I hope, one day, we'll be able to drop an ADD in the water and move them outside of that, but we can account for that acoustically.

We can oftentimes tell that that fish was eaten. It exhibits very erratic behavior, and it typically leaves the array really quickly, but that would be counted as -- It would just be part of normal discard mortality, and so it's not directly the effects of barotrauma, but it's an indirect effect, and I sort of think that -- At least our data is showing that they stand a higher chance than floating on the surface, than if you weren't venting or doing something like that, and so it's just that you're going to lose some to depredation, is what we call it. Barracuda, by the way, in our area, are probably, in my opinion, worse than the dolphin.

CHAIRMAN WALKER: Go ahead, Johnny.

MR. GREENE: We are dealing with it, even offshore, a hundred miles offshore, around some of the deep-water rigs, and it's coming. It's coming your way, I'm sure. When you talk about the depth that you captured the fish for the initial study -- In

other words, when the fish were caught in 190 feet of water, there seemed to be a little bit more issue with those fish and the survival situation. When you mention 190 feet, is that the depth of the water from the surface to the bottom or is that where the fish were actually hooked and brought up?

DR. STUNZ: That's a great question. We had to control for that, scientifically. In this study, we fished on the bottom, and so that is bottom depth, but the physics work the same no matter what. Whatever the depth that it's coming from is the relationship of how much compressed gas will be in its body and released, but we got our baits to the bottom with heavy weights as fast as we could, to avoid catching fish in the upper water column.

MR. GREENE: One more follow-up, and then I will hush. In the days since the venting was not required, one of the things that I have asked my mates to do is that, at any point possible, if they can lean over the side and unhook the fish without taking them out of the water any further than they have to -- In other words, most of the time, they can reach over pretty close, to just six or eight inches out of the water, and it has seemed to help, to a degree.

There's something about pulling that fish up over the side of the boat and everything else that goes along. That seems to play into that, and I know you spoke earlier about something about how the fish can come to the top and it doesn't bother them, but it's just something for you to think about in your studies, because something about releasing that fish right at the surface does seem to make a little bit of a difference.

DR. STUNZ: You're exactly right, Johnny. The stress plays a big role in mortality, and any way to minimize the stress is better. The good news is snapper are pretty hearty. I mean, they handle this pretty well, especially if you get them back down quickly, but, in summer months, coming across the -- Imagine that you're jerked from sixty or seventy-degree water up to 100-degree air temperature and ninety-degree water, and that's a drastic difference, and so that's -- To your point, I just wanted to clarify that this has been a big deal.

A lot of charter captains tell us that they love this, because this gives their clients a different interaction than just catching the fish and throwing them in the ice chest. There is a learning experience, but also they feel good about doing this kind of thing, and so there is other advantages just from simply releasing the fish.

CHAIRMAN WALKER: Kevin.

MR. KEVIN ANSON: Thank you, Mr. Chair. I'm not on your committee. Thank you, Greg, for the presentation. I noticed there was a dial there in one of the frames, the camera frames. Is that a pressure depth gauge, basically, that you can determine when the fish was actually released?

DR. STUNZ: That's exactly right. The SeaQualizers, we put them on our dive vests, and they're popping off at forty and thirty. They don't come off exactly at fifty feet or whatever, and so we want to know -- You can't tell, from the video, how deep you are, most of the time, and so that would not -- Normally, you would just have the SeaQualizer and a line and a weight. It would be very simple, but we want to know at what depth it came off.

MR. ANSON: I mean, use of the SeaQualizer itself seems to be a big improvement, but I'm just wondering if that information is passed on to the manufacturer, so maybe they can fine-tune that adjustment, if it's needed? It doesn't appear to be needed, but I was just wondering if there is any communication with the manufacturer for that.

DR. STUNZ: They have been very responsive, and I don't want to plug just SeaQualizer, because there's a lot of stuff out there, but we've used a lot of them, and they work well. In fact, we had them build a bigger one, because, for grouper and big snapper, the normal SeaQualizer that I passed around won't get around their lips, and so they built a bigger one, ones that go deeper, but the fortunate news from our latest NFWF study has shown that, if you just get them past one atmosphere, getting down below just the surface pressure almost, it's beneficial, and so that's good, and so it doesn't really matter, but, from a scientific standpoint, we want to know if we're releasing it at thirty feet or sixty feet, for example.

MR. ANSON: Just one question, but there are kind of two questions wrapped into one, but, relative to outreach and getting more buy-in and such from the anglers, I am wondering, Dr. Porch, if the information that was provided on one of the last slides there, relative to the survival -- I mean, there is a formula, if you will, or some ratio of mortality at a certain depth, I think, in the assessment model.

Do you recall what that is and those numbers that Greg provided? It seemed to be quite different, at least for the deeper depths,

as I recall, the mortality for those fish. I think it was over a hundred feet or 120 feet.

DR. CLAY PORCH: I don't remember what the exact numbers are. They changed with the last assessment. Do you remember, Greg, what they were before?

DR. STUNZ: I don't remember off the top of my head, but Matt Campbell did a really nice meta-analysis study. Now, he didn't incorporate all this new stuff, because it didn't exist at the time, and it's pretty clear. You've got to remember, in some of his meta-analysis, there is temperature -- Now we're discussing temperature, these big seasonal effects, and so this is going to change as we go, because we're getting better information, but I don't recall offhand, Kevin. I think it might actually be in -- If not, I can send you that meta-analysis paper.

CHAIRMAN WALKER: Mr. Gregory.

EXECUTIVE DIRECTOR GREGORY: Our next meeting is going to be in Naples, and Florida Sea Grant has done a lot of work with outreach, at least in the Florida area. We could probably get a presentation from them about their outreach. In fact, we funded a small project with them a couple of years ago to look at the barriers that charter boat captains have toward using these products, and so, if we want to do that, I can bring some of them, or one of the agents, or Kai Lorenzen, who is on our SSC, to come and give a presentation in Naples.

DR. STUNZ: One barrier, Doug, that we really haven't discussed is this is used in rockfish, and they're seeing very positive results at much greater depths, but it's a very different species. In Alaska and other areas, there is discussions about credits to those fisheries using these devices that reduce discard mortality by a certain amount, and that is obviously a way to do that.

Ken Haddad gave a presentation on that summary, I guess, at our last meeting or whenever, and that's what he was leading to from that recreational workgroup. I'm sure you're going to hear it coming from them. If this is used more, you're going to get some credits. That plays right back into the outreach. In other words, what are you getting for using these devices? Now, where we want to go with that is a different story, but that is happening around other councils, as we speak.

CHAIRMAN WALKER: Mr. Boyd.

MR. DOUG BOYD: Thank you, Mr. Chairman. Greg, did you all see any change in the mortality rate for larger, older fish, or did you just study the younger, smaller fish?

DR. STUNZ: Yes, we had size treatments built in. We don't see a big size effect, is the thing, Doug. Now, with venting, we do see a size effect, because you can't always vent those big fishes well, and so there's a lot more to it than what I put up here, but that's one reason we like the SeaQualizer, or these descender devices, the best.

Independent of size, it's getting them back down where they can recompress, but there is some size effect to it. Bigger fish suffer more of the trauma, but we just haven't quite zoned in on what that effect is, but they do survive. The big ones do survive, very well in fact, and so I don't have a good, concrete answer about is there a size effect, is there certain mortality. What overrides everything is depth and season, the temperature of that upper water column.

CHAIRMAN WALKER: Chris.

MR. CHRIS CONKLIN: Thanks. I wish they would have brought the popcorn out a little sooner for the presentation. That's great, and, by the way, it's very good, if you want to try it. Are you aware of the research going on in the South Atlantic by Dr. Jeff Buckel from North Carolina State University? He's been doing some deepwater species, snowy grouper, and he has had success rates that are pretty good, and so we just got a similar presentation, but it was on deepwater species, and are you --

DR. STUNZ: I am very familiar. I know he's done work on black sea bass as well and other things, and so I guess I would generally say that the benefits of descending the fish are showing great promise across all fisheries. Not all fisheries, but many fisheries, to where these are becoming viable management tools.

CHAIRMAN WALKER: Okay. Dr. Stunz, we appreciate that. We enjoyed that very much, and we need to move on now to the Options Paper on ABC Control Rule Revisions and Mr. Atran.

OPTIONS PAPER ON ABC CONTROL RULE REVISIONS

MR. STEVEN ATRAN: Thank you, Mr. Chairman. First of all, let me say that this options paper was supposed to have been reviewed by the SSC at their meeting last week. We ran out of time, and so they didn't get to it. They will review it at

their next SSC meeting. Because we're short on time and because the SSC didn't review it, I am going to try to go through the presentation very quickly.

Just as a reminder as to why we're doing this, our current control rule, ABC control rule, was finalized in 2012 as part of the ACL/AM, the generic amendment for that, and, really, no sooner had we put the current ABC control rule into place, then we found out that it was developing ABCs that were very close to OFLs. In many cases, it's just 2 percent to 4 percent below the OFL, and that was creating a problem.

On the scientific side, the SSC felt that it wasn't adequately accounting for sources of scientific uncertainty. On the management side, it was producing ABCs so close to OFL that they weren't really very useful for keeping the stock from entering an overfishing stage, and so we barely started using it when the council instructed staff and the SSC to start working on some revisions to provide what we felt would be more appropriate levels of ABC.

From 2012 to 2014, the SSC looked at a number of factors. We also had a working group composed of a subset of the SSC members, along with some council and Science Center staff, and they had gone to a point where they were about ready to recommend a couple of possible alternatives to our current ABC control rule. At that point, I tried to put it on the agenda for the council to review. It was a low-priority item, and we started getting caught up on some higher-priority items, and so it ended up being put on the back burner since 2014.

Now, since that time, we have been finding more and more that the SSC has been bypassing the ABC control rule to use some alternative method of setting ABC, usually setting it at the yield when fishing at 75 percent of FMSY, which they're allowed to do. They are allowed to deviate from the ABC control rule, as long as they explain their reasoning. Really, when the control rule becomes the exception rather than the rule, we clearly have a problem.

Then, last January, I believe it was, the council and the SSC both received a presentation on the new National Standard 1 Guidelines, which they didn't so much change things as highlighted some things that we're able to do with the control rule, such as carryover provisions for underharvest and a couple of other items.

We decided to bring the control rule back to see if we can get

started working on it again, and the SSC asked for a review of what we had done so far, and I put this together to try to get things started, and it's basically what they looked at before, plus a couple of additional items, as a result of the new, revised Guidelines.

Now, part of what is in here are some options related to the carryover of underharvested red snapper. That portion is being written by Ryan Rindone, and, after I go through my presentation, he is on the webinar, and he will come up and talk more in-depth about that section, but I'm just going to try to go very quickly through what I have in here. We really don't have time to go into depth on all of these alternatives.

What I did was I divided the ABC control rule into three sections. The first is the risk policy. That is how do we go about setting the P* or some other adjustment to the ABC. Then there is the core of the rule, the actual calculation itself, and then what I'm calling the add-ons, things such as the carryover provision.

I think you already know this, but some basic policies about the ABC control rule, the most important being that ABC cannot exceed OFL. Now, a lot of our ABC control rule, at least Tier 1 and Tier 2, is based upon coming up with a probability of overfishing called P*, and Tier 1, in particular, is rather complex, and I will get into that in a second, but the bottom line is we come up with this number that is supposed to represent the probability of overfishing.

In fact, since it doesn't account for all sources of uncertainty, it's really, at best, an approximation, and it tends to underestimate the probabilities. We also have -- As I said, sometimes we don't use the P*. We use something like the example I said before of the yield at 75 percent of FMSY.

In this case, 75 percent has nothing to do with any particular probability. It's just some qualitative adjustment, and so, for control rules that would do that sort of adjustment, I came up with a -- I just called it a Q*, as the equivalent to a P*, but when you're not doing a probability-based adjustment to ABC. You're doing something that's more qualitative.

I know you can't possibly read this, but this is Tier 1 of our ABC control rule, and each of those colored areas represents either something having to do with our level of knowledge or some aspect of the assessment itself, where there is a certain amount of uncertainty involved.

The SSC would go through the spreadsheet, and you can see the right-hand column has a place where they would put an “X” beside whichever characteristic in each of those areas best represents the assessment they were working on. Those have numbers associated with them. They don’t show up on this particular screen, but the spreadsheet would add up all of those numbers and convert them into a P*.

The two areas circled in red, you can see the area on the left, that defines the range of possible P*, from 0.3 to 0.5. Presumably that is supposed to represent from between a 30 percent and 50 percent probability of the stock undergoing overfishing. That range was set by the council.

The one on the right is the output from the spreadsheet. This particular spreadsheet came up with a P* of 0.41. Now, one of the problems that we have with this spreadsheet is that it produces a very narrow range of P*. Generally, almost everything comes up within a range of 0.38 to 0.42, and so it doesn’t give us a lot of differentiation between the stocks, and that was one of the problems that we have.

Just out of curiosity, I converted this to try to use the Q*, that percentage adjustment, and this is the exact same Tier 1 spreadsheet that’s in the previous slide. The only difference is I changed the range. Where it had been a P* of 0.3 to 0.5, now it’s a percentage adjustment of 50 percent to 100 percent. This exact same spreadsheet came out, in this particular case, with an adjustment of 0.763, about a 76 percent adjustment.

Now, as it turns out, since we’re generally been using 75 percent for most of our percent adjustments, it looks like, if we wanted to, we could just convert this spreadsheet to do percent adjustments instead of a P*, and it would have the advantage of not having to go to the step of producing the probability density function, which I will get into in a second.

However, everything in here is arbitrary, and that would probably the SSC’s main argument against this, but it just seems to work, and so I thought that maybe it would be worth considering.

In our current control rule, Tier 2, everybody agrees needs work done on it. It was originally meant for stocks where we couldn’t do a traditional assessment, but we could get some sort of a PDF function, and so we would select a P*, rather than trying to calculate it from a spreadsheet, and then apply that

to the PDF function.

More recently, the SSC did get a presentation, last week, on the use of data-limited methods for coming up with an ABC, and possibly this tier could be adapted to those data-limited methods, and so the top is what is in the ABC control rule right now. The bottom is just if we wanted to adjust it to use a percent multiplier instead of a P*. As I said, we would do the same thing, except we would select a multiplier. In this case, it would be either 85 percent, 75 percent, or 65 percent.

Tier 3 would be almost unchanged from what's currently in the control rule. Tier 3 has two subsections to it, and this is for when the only thing we have to go on is a series of landings. Under this tier, we would take some representative time period, preferably ten years, but it doesn't have to be, when there is no obvious upward or downward trend in the landings and calculate a mean of the landings and a standard deviation.

For Tier 3a, which is stocks which, in the expert opinion of the SSC, are not overfished and are unlikely to undergo overfishing, then we would set the OFL two standard deviations above that mean, and the ABC would be set somewhere in between. By default, it would be set at on standard deviation, but it could be set higher or lower, depending on how risk-averse you would want to be.

If it's a stock where we felt that the stock may be undergoing overfishing or may be overfished, Tier 3b would come into play. In that case, that mean of the landings would be the upper level instead of the lower level of where we would set the landings, and so the mean of the landings would become the OFL, and the ABC would be something below that.

Right now, in the control rule, the options are to set it at 65 percent of OFL, 75 percent, 85 percent, or 100 percent. The SSC had recommended that we eliminate the 100 percent option, the reason being that, if we think the stock is undergoing overfishing, it doesn't make sense to set the ABC at that level. It makes sense to reduce it from that level, and so they also had a bunch more editorial suggestions.

Some of them had to do with modifying the conditions for use. I didn't put that in here, because it would have been impossible to try to display adequately, but, if we're going to work on revising the existing ABC control rule, we will have to address those eventually.

This is a method for selecting P* that is called a bucket method, or a bin method. We have also called it the Bob Gill method, because it's based upon a system that Bob Gill, who some of you probably know, and he's a former council member and a current SSC member, had come up with, where we set up certain criteria that is associated with the P*. Those species that fit that criteria get that P*.

I just prettied it up and tried to set some characteristics, and so each of those boxes represents certain characteristics. It goes from the most conservative P* to the most liberal, from 0.3 to 0.5. For example, at the top, the most conservative one would be for a stock that is overfished and when not adhering to the rebuilding schedule, or we don't have a rebuilding schedule, or we don't have any schedule at all. We want to be the most conservative with those fish.

Then, if a fish meets that criteria, it falls into that bin. If not, it drops down to the next bin, and there is criteria for that one. If it fits there, that's where it goes. If not, it drops down, and so forth, until, at the bottom, it says "other highly resilient fish", and resiliency would be measured by a process called PSA, which stands for productivity susceptibility analysis. That's a methodology that the Science Center has done in the past and they are capable of doing.

It comes up with a score representing how resistant and resilient the stock is to overfishing, and, if it comes up with a very good score, only the best score would fall into that bottom category, and then, if a fish doesn't fall into any of the criteria at all, the very bottom is a catchall, and that would assign a P* that's right in the middle of the range, and what I've got in there right now are mostly the fish that have never had a stock assessment and we don't know much about, like queen snapper, cubera snapper, and some others.

I put this together in 2014, and so, if we're going to adhere to this, we will need to take a closer look at whether or not the species are in the correct buckets. We will also -- Since this is a generic amendment, we will also have to add the coastal pelagics, red drum, spiny lobster, and the corals to this as well, but this is a fairly transparent method.

It's something that everybody can understand, which makes it kind of desirable, as far as setting the appropriate risk level, and then this is the same thing, except, instead of assigning the P*, it assigns a Q*, a percentage. In this case, it goes in the opposite direction. No, it goes in the same direction, from

the most conservative to the least conservative, depending upon what category the stock is in.

The next one is a method, and this is one of two methods that the SSC, back, in 2014, had recommended as an alternative to our current ABC control rule. It's based on a method that's used by the -- I believe it's the North Pacific Council, based upon a paper by Ralston et al., and what you see is a number of categories that represent levels of information about the stock.

It goes from the most knowledgeable to the least knowledgeable, and, based on that characteristic, a particular P* is pre-assigned, and a CV, which is a coefficient of variation, which is part of what is used to put together the probability density function, is assigned. The larger the CV, the broader the probability function, which means the lower the ABC is at a given P*.

The SSC decided to just use the fixed P* here. The Pacific Council does adjust the P*, as well as the CV. Here, it just adjusts the CV. The coefficient of variation gets larger, in other words more conservative, with less and less knowledge.

Alternative 5, and this is partially part of this, was the recommendation that the SSC had made for another item to replace the current control rule. This will use a fixed value of either the P* or the Q*, and, as an example, we might just decide to take a P* of 0.4 and apply it to all stocks and just be done with it, not try to calculate any other P*, or, if we're using the percentage, the Q*, just select some percent and apply that to all stocks. In this example, it's 75 percent, which is actually what the SSC has been doing in a lot of the recent stock assessments.

The rationale here is that we can't possibly know all of the sources of uncertainty. We can't possibly account for all of them, and so, rather than try to do that, let's just use a single value that we feel is large enough to incorporate all the different sources without being explicit about that. As I said, the 75 percent value has been used by the SSC, and they, in 2014, recommended that as the second of two possible alternatives to our current control rule.

This alternative is based upon a method that's used, I think, by the Pacific Fishery Management Council. They call it the 60/40 rule, I think. It's not the exact same thing as what they use, but it works more or less the same way.

This is using Q*, but it could use P* as well. What this says is that, as long as the stock is healthy, as long as it's above MSST, then we set either our Q* or our P* at some fairly liberal level. In this example, MSST is set at a fixed 80 percent of ABC, but it could be set at whatever you want. If we drop below MSST, rather than having a fixed P* or a fixed Q*, we have one that varies continuously with what the stock status is, as far as the current biomass relative to its biomass at MSY.

As you see, it runs continuously downward. We have matched the current biomass on the X-axis to the appropriate Q* or P* on the Y-axis, and there is a formula there. The way this is currently set up is, if the biomass level dropped to a very low level, in this example 15 percent or lower, then the multiplier would drop to zero, which means you would drop to a zero harvest if your biomass level drops below some critical level, and that critical level you can adjust to whatever you want it to be, but it's a graphical illustration. There is a formula that goes with that graph, so you can find out exactly what the P* or Q* is. As I said, it does follow a method that is used out west.

That was Action 1, which deals with trying to set up your risk policy. Action 2 is the base ABC control rule, which is actually a fairly simple part of the control rule. If you're using a PDF, the probability-based function, then all this consists of, the base control rule, is the PDF to which you apply the P*. If you're using the Q*, then it's the function that you use to determine OFL, such as the yield at F rebuild.

In here, Alternative 1 applies to the P*. Right now, for constructing a PDF function, we leave it up to the Science Center and the SSC to construct it however they feel it should be constructed, and that may be the best way to go. They're the most knowledgeable about these things.

Alternative 1 is no action, let them continue to do that. Alternative 2 would be to provide some guidance on the construction of a PDF. If we had a chance to have the SSC go through this, I'm sure they would have made a lot of modifications here, but these were just some suggestions that I came up with.

If we're going to give them guidance, one idea might be to use a fixed CV. 0.37 has been used by the SSC. I don't know if they've used it for actual ABCs or if they've just used it for looking at some sensitivity runs, but that is the coefficient of variance that is used by the North Pacific Council. They have gone through all of their stock assessments and looked at the

outputs and generated a CV for all of their outputs averaged together, and they came up with 0.37 out west.

We would be assuming that that's a universal number that applies to all stocks if we did this, but we don't know if that's true, and so Option 2b would be to calculate our own universal CV from the Gulf stock assessments. The problem here is that we only have relatively few stock assessments where we can calculate these CVs. I think it's only the ones since we adopted Stock Synthesis 3, and so either we would have very little data from which to put this together or the Science Center would have to go back and redo those older stock assessments, which would be a very expensive and very time-consuming process. They probably could do it, but it would be very difficult.

Option 2c would be to assign a particular CV to each stock, and we would work with the SSC to find out which species gets assigned which value. Then we would have a table of values, and we would use that table until somebody decides it should be changed. Then Option 2d is in there just because we had one of the previous alternatives dealing with what the North Pacific Council uses. You remember they had that table where they varied the coefficient of variance, but not the P*, and so Option 2d would be to use that method, in which case we don't do anything with any other changes to the PDF.

Then, for Tiers 2 and 3, under our current control rule, where we don't use a P* or a PDF, we would just continue to calculate the ABC as it is currently specified.

Then, again, and I think I mentioned this, for Q-based, percentage-based, policies, the base is simply whatever you're using for your base, the yield at FMSY or the yield at F rebuild, and you would multiply that by whatever percentage you're using to get your ABC, and the same thing for Tiers 2 and 3. They would be the same as we currently have.

Then the third part of this what I'm calling add-ons, and, in here, Actions 3.1 and 3.2 deal with carryover of underharvest from one year to the next, and, this section, Ryan Rindone is working on this. I have two more slides that I want to go through, and then I will let him discuss this further.

One of the things we're going to ask you about is, if we continue with this, we could take this carryover section out and continue it as a separate amendment, or we could leave it in with everything else.

Action 3.3 is an action that you can take advantage of if you want. It's part of the revised NS 1 Guidelines. They allow up to a three-year phase-in of changes in ABC. Now, the Guidelines also caution about using this -- Being careful about using this with a stock that's in a rebuilding phase, because it may not be appropriate, but you can have a stock that is not rebuilding that is healthy, but the new stock assessment, because of some change in the biological inputs, the recruitment has changed or there is a different growth rate, that the ABC changes considerably.

Instead of immediately putting in that change in the ABC, you could stretch it out over up to three years, as long as you don't exceed the OFL in any one of those years.

Then Action 3.4, the revised NS 1 Guidelines also state that we can take social and economic concerns into consideration when determining where to set the ABC. We also can do that when we're setting the ACL, but, since we're allowed to do that in the ABC, I put this in as a potential action, and I have no idea how we would do this. I was going to ask the sociologists and the economics people on our SSC for some help in coming up with some ideas, and so I just included this as a potential action. Either don't develop socioeconomic adjustments to ABC or we do develop some socioeconomic adjustments, with the help of the SSC.

These last two actions were not requested by the council. I just put them in because they are items that, when we got our review of the new NS 1 Guidelines, we were told these are things we can do. If you're not interested in these, I would be more than happy to remove them from the paper, but, if you do want to continue them, then we'll continue to try to develop them.

Like I said, I just tried to very quickly go through what we have, where we are right now. We're kind of at an early stage, but we will go through this with the SSC at their next meeting. We ran out of time at the last meeting, and, if you have any questions about what I presented, I will try to answer them. Otherwise, I think Ryan is waiting on the phone to go over the carryover provisions.

CHAIRMAN WALKER: Madam Chair, we're past our time. Do you want to go ahead and let Ryan continue on? I think he's got about ten minutes, and then I don't think the SSC has any comments for this meeting. Then we have Other Business. How would you like to proceed?

MS. BOSARGE: We don't have anything under Other Business scheduled for your committee?

CHAIRMAN WALKER: Not unless someone brings something up.

MS. BOSARGE: All right. If it's ten minutes -- Tell Ryan that I am timing him. Let's do it.

CHAIRMAN WALKER: Are you ready, Ryan?

MR. RYAN RINDONE: Let's go to PDF page 21 on E-5(a). It's Action 3.1, establishment of the carryover provisions, blah, blah, blah. Alternative 2 here would establish a carryover for all of the FMPs. Any quota not harvested upon closure of the fishery because the ACL or ACT was projected to be met would be considered for carryover for the following year, and whatever was going to be carried over would be added to the ACL, up to and equal to the ABC for the next year.

Then, whatever ACL or ACT adjustments need to happen, those will happen. The advantage of this one is that you don't have to do anything as far as necessarily modifying the ABC control rule, but you might not be able to carry over quite as much as you could with Alternative 3, which would modify the control rule to establish the carryover provision for uncaught quota from all of our FMPs, and, again, it's only considering quota that is determined to have not been harvested because the fishery was closed because the ACL or ACT, whatever is used to set the season, was met or projected to be met, and it would be carried over to the following fishing year.

In some cases, we're going to have to use preliminary landings data to pull this off, but, at the last meeting, I think it was Dr. Crabtree that noted that this is something that we've done in the past.

I have some options here, Options 3a through 3c, that set a buffer between the new ABC for the following year, which includes whatever quotas to be carried over, and the OFL, just to ensure that the ABC doesn't creep too close to the OFL, and those are shown there, by 5, 10, and 15 percent buffers.

It's important to note here though that remaining quota could only be carried over to the individual fishing components, either commercial or recreational, or, in the case of red snapper, recreational for-hire and the private recreational components from which the remaining quota originally went unharvested, and this is in keeping with what you guys outlined

as your preferences when we had a little Q&A session the first time that we talked about this a while back. Are there any questions so far on 3.1?

CHAIRMAN WALKER: I see none.

MR. RINDONE: All right. Hearing none, we will go down to 3.2. Here, I've got some adjustments to any carryover provision that you guys might establish in Action 3.1. In Alternative 1, we would just run what we've got in Action 3.1, if you guys choose one of those, and we wouldn't have any adjustments.

However, the updated National Standard 1 Guidelines recommend accounting for annual natural mortality when you're carrying quota over to the following fishing year. If you're not going to account for that, they recommend that you have a really defined reason as to why you're not going to.

Alternative 2 would do just that. It would reduce the amount of quota to be carried over from a previous fishing year to the following fishing year by whatever the mean natural mortality rate of the species that is being considered for carryover used in the most recent accepted quantitative stock assessment.

This, combined with some explanatory language in Action 3.1, does kind of limit the species that could be considered for a carryover to those for which we have an accepted quantitative stock assessment on the books, and so, for most of the species that are typical hot-button species, that includes all of them, and so we're good on that. For species that we have a whole lot more uncertainty about, we might have to think about something different to do for those, if we were to run into this kind of situation.

Alternative 3 gives you guys another reduction available to you. It's just for management uncertainty, and this is extremely arbitrary, but it can be justified based on, for example, the proportional standard error of the landings, which tends to be higher for the recreational fleet than for the commercial fleet, just based on our data collection methods, or it could be for any other reason that you guys decide that the quota might need to be reduced, you know propensity for variation in catch or chronic environmental variation that you think might be affecting the health of the stock, whatever you might justify. You have that available to you in Alternative 3.

Alternative 4 here says that the council's SSC will determine the appropriate adjustment, if any, to the ABC for the following

fishing year, to the carryover for the following fishing year. The council would then set the ACLs and ACTs, as appropriate, for the eligible fishery components.

Now, you can choose multiple alternatives in Action 3.2, and so, for instance, you could choose Alternative 2 by itself or Alternative 2 and one of the options from Alternative 3, but, if you're going to choose Alternative 4, it's probably best just to have that one be selected by itself, if that's your intent, because then the SSC would, by default, follow the guidance of the National Standard 1 Guidelines, and they would be compelled to account for things like natural mortality, any episodic events or anything like that leading up to carryover that quota over to the following fishing year. Any questions on 3.2?

CHAIRMAN WALKER: Seeing none, proceed.

MR. RINDONE: That takes care of the carryover things. The other thing that kind of pairs with this is Action 4, which is on PDF page 29, and so this would modify the framework procedures for the council FMPs, and it would be for the Reef Fish and CMP FMPs, and it would allow the Regional Administrator to adjust the ACL, ACT, and quota for a stock, as outlined in the rest of Action 3, to account for carryover of unused quota, or ACL. The amount of the adjustment would be determined by the ABC control rule.

The change would be to the closed framework procedure under Alternative 2, and it would allow the adjustment of the ACL, ACT, and quota to happen through the closed framework procedure. This is what speeds it up and kind of helps automate the process, which is what you guys had said at the last meeting that you were most interested in.

Alternative 3 would modify the abbreviated framework procedures for all of the FMPs to allow the specification of an ABC recommended by the SSC, based on the results of the new stock assessment and using the ABC control rule. This allows us to use -- If a new assessment comes out, instead of going through the longer process we currently use, this will allow the abbreviated documentation process to be applied.

In Alternative 4, we would revise the procedure for all the FMPs to have consistent terminology and format and to include changes to the standard framework procedure for the FMPs to include accountability measures, and the highlighted sections are what would be added to the Red Drum and Coral FMPs. It allows implementation or changes to in-season and post-season

accountability measures.

I know the framework procedure stuff can be kind of cumbersome to go through, but the point of all of this is to try to automate the process of updating the catch limits after we have a carryover or a stock assessment, for that matter. Are there questions?

CHAIRMAN WALKER: Not seeing any, proceed.

MR. RINDONE: That's what I have, Mr. Chair.

MS. BOSARGE: Good job. You're only slightly over time.

CHAIRMAN WALKER: We have carried over into the next committee. The SSC is not going to be making any comments today with the Tab B, Number 11, and so we're going to move on to Other Business. Is there any other business today? Seeing none, I guess, Madam Chair, the Sustainable Fisheries Committee stands adjourned.

MS. BOSARGE: Before you adjourn, I was just going to say, on the descending devices, and this is up to the council, but, if you all want staff to bring you something back that could be an action item to look at, as far as possibly requiring some of these descending devices to be onboard a vessel, we will probably need to instruct staff. We had a good, robust discussion, but I think we kind of left it open-ended, and so do you all want to pursue something like that and have staff bring it back to you or what is your pleasure?

CHAIRMAN WALKER: Greg.

DR. STUNZ: I would like to see something like that, certainly, but, given my -- I don't know if it's appropriate for me to bring that up or not. Do we need that through a motion or do we need --

MS. BOSARGE: I think let's have it in the form of a motion, and I am not sure if -- They may be able to possibly put it in a document that we have now for us to look at as an action item, or it may have to be a separate document. We will let them kind of flesh that out, but, essentially, we would probably need a motion that says to instruct staff to bring us an action item to evaluate descending device requirements.

DR. STUNZ: So moved.

CHAIRMAN WALKER: You have a motion there, Gregg?

DR. STUNZ: She is still working on it. She's almost got it, I think.

EXECUTIVE DIRECTOR GREGORY: Let me try this with you. To consider staff to develop an action to require either descending devices or venting tools to be onboard a vessel when fishing for reef fish. To instruct staff to develop an action, and not a document, to develop an action to require either descending devices or a venting tool -- Either descending devices or a venting tool onboard a vessel to reduce discard mortality.

Now, the question is, do we want to limit this to reef fish vessels or all fishing vessels? Do we want to specify in federal waters, since that's really what our jurisdiction is? Greg, those are questions I was posing to you. I'm sorry.

DR. STUNZ: I think I would leave it open for now. The one thing you added about venting tools -- I guess that's fine to leave it for now, but we have shown that they work, but also there is a lot of other science out there that shows, if they're not used properly, they are harmful. For now, for discussion, I think we can leave it in there. **I would just say "for vessels fishing for reef fish in federal waters". That's implied though, right? Onboard vessels fishing for reef fish in federal waters.**

CHAIRMAN WALKER: Greg, this is your motion then?

DR. STUNZ: Well, I don't know if Lieutenant Commander was going to make just a recommendation, but that is my motion.

CHAIRMAN WALKER: Do we have a second on the motion? All right. Any questions? Patrick, I think you had a question first.

MR. PATRICK BANKS: Yes, I did, and it's for Dr. Porch. If we were to put something like this in, do we have a good idea on what it could do to our stock assessment and what it could do to our projections, or is that going to be data that would have to take a long time?

DR. CLAY PORCH: No, we could plug those numbers in. The big question is, just because they have on them on boat, will they actually use it? The compliance issue is a big deal. If we knew we had 100 percent compliance, we could use the numbers like Greg showed us, put them straight into the assessment and into the projections that we get the ACL advice from.

CHAIRMAN WALKER: We have Kevin was next.

MR. ANSON: Thank you, Mr. Chair. Doug, we did this three or four or five years ago. Would it be appropriate to just pull up that document, or is that what the intention is? We did this a while ago, and then we rescinded it, and so I'm just -- For time purposes, staff time and such, we might be able to just dust that off.

EXECUTIVE DIRECTOR GREGORY: Right, and, as an action, we'll go back and look at that, and we will have different alternatives and options of descending tools and venting tools, either or, and so we can explore all of that, but bring an action to you with some alternatives, and we'll either embed it into an existing document we're working on or do it separately as a framework action.

CHAIRMAN WALKER: Okay. Leo, did I see you hand up?

LCDR LEO DANAHER: Thank you, Mr. Chair. From an enforceability standpoint, I don't see a tremendous amount of issues. What I would like to add is that, if you look at the required turtle mitigation gear, it's not just about the equipment.

As you're going through the process and developing whether or not you should be required to have the equipment, it's also the protocols, the required placards that have to be onboard so that they know what they're supposed to do when they are having to perform this procedure, because, as Dr. Stunz mentioned, using the needle may not always work, or you may end up puncturing certain organs and damaging the fish even further, and so I would just add that that would be considered as part of the motion for the future. Thank you.

CHAIRMAN WALKER: Dr. Crabtree.

DR. CRABTREE: I would probably, rather than saying "onboard vessels fishing", I would tie it to possession of reef fish. That, to me, is much easier to do. It's hard to say what people are fishing for.

CHAIRMAN WALKER: Dr. Stunz.

DR. STUNZ: I wasn't here when you all put forward, obviously, the venting, and I'm still -- I know this is my motion, but everyone has sort of chipped in here, but this onboard issue versus requiring the use, if I had my way, if this was my

motion, which I'm fine at this point, I guess, leaving it as is, but why aren't we just going and saying you need to use these things?

I know there's times when anglers can look at a fish and it's clear that it doesn't need to be descended or vented or whatever, and so maybe that leaves the wiggle room, but it also means that, well, big deal, and I am just going to throw one of these in my deck box or something and you will never see the light of day. That gets back to Clay's point about is there a reason that we just don't require that, or why we didn't in the past?

CHAIRMAN WALKER: Dr. Crabtree.

DR. CRABTREE: When we did this with venting devices, that was the problem, because there are people out there who may catch a snapper in thirty feet of water, and you probably don't want them to hook it up to one of these devices, because they don't need to, and it becomes very difficult to say when they have to do it or not, and so, at some point, there has to be some angler discretion involved, which I think gets to Leo's comment about the protocols and training and outreach.

I think requiring them to have the gear onboard is one thing, but I don't know that I would go as far as requiring them to use it, because you may be requiring them to do something that does more harm than good.

CHAIRMAN WALKER: Greg.

DR. STUNZ: Right, and that's what I am struggling with, and I suppose we can cross that bridge and have that discussion later as well, but I would just like to see their implementation more.

CHAIRMAN WALKER: Madam Chair.

MS. BOSARGE: I think these are all good discussions, and I think this will probably guide staff as to what different alternatives we would like to see and what choice options or what points we want to pick as we're implementing this, and so hopefully they will bring us back some of these options listed in whatever action or document that they bring us, and so good discussion.

CHAIRMAN WALKER: Johnny.

MR. GREENE: It says "federal waters". You don't want them to

use them in state waters?

CHAIRMAN WALKER: Greg.

DR. STUNZ: I am not opposed to using them in state waters, but is that our purview of this committee?

CHAIRMAN WALKER: Any other questions or comments? Mara.

MS. MARA LEVY: Just a comment. When we're doing these motions, I know that staff is listening and trying to capture what people are saying, but I think it's important, when the motion maker makes a motion, to have it down.

Then people make suggestions, and that's fine. There is a decision to accept them, but I think, as the meeting goes on, it's going to get confusing if we just start typing in what people suggest, and so I think a suggestion is fine. Then, if it's clear that the motion maker and the seconder are okay with it, then we can add it, but I would just caution about trying to type in everything that everyone is suggesting at the time that they're suggesting it.

CHAIRMAN WALKER: Greg, are you good with this motion?

DR. STUNZ: This is my motion for now. I think we can solve a lot of this as our discussions continue.

CHAIRMAN WALKER: Is the seconder still good? Okay. **Is there any objection to the motion? One objection. The motion passes.** Is there any more questions or comments? I guess this would conclude our meeting. We stand adjourned.

(Whereupon, the meeting adjourned on April 3, 2017.)

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