SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

HABITAT ADVISORY PANEL MEETING

Hilton Garden Inn
North Charleston, South Carolina

May 7, 2013

Summary Minutes

Habitat AP:

Pace Wilber, Chair
Dr. Christopher Elkins
Terry Pratt
Carter Watterson
Mark Caldwell
Jenkins Mikel
Anne Deaton
Alice Lawrence
Terry Gibson
Steve Trowell
Dr. Amber Whittle
Priscilla Wendt
Susan Hilfer
Bill Parker
Thomas Jones
Mike Street

Council Members:

Tom Burgess

Council Staff:

Roger Pugliese
Julie O'Dell

Observers/Participants:

Rusty Hudson
Doug Nemeth
Dr. Ken Riley

Additional Attendees Attached

The Habitat and Environmental Protection Advisory Panel of the South Atlantic Fishery Management Council convened in the Hilton Garden Inn, North Charleston, South Carolina, Tuesday morning, May 7, 2013, and was called to order at 8:30 o'clock a.m. by Chairman Pace Wilber.

MR. WILBER: We're going to begin. Good morning to everyone. As usual, the agenda has some administrative matters we have to attend to at the beginning. But before we get around to doing that, we'll do the traditional go around the table and everyone can introduce themselves, say who they work for and if they want to say briefly some comment about the jobs that they do and how it relates to habitat that would be fine.

MR. TROWELL: My name is Steve Trowell. I work for the state of North Carolina Division of Coastal Management out of the Washington Regional Office. I am a field representative involved in permitting and enforcement actions. Mainly I work in the Hyde and Beaufort County, Ocracoke Island area.

MR. CALDWELL: Mark Caldwell, Charleston Ecological Services Office for the Fish and Wildlife Service. I am the Regulatory Team Lead, primarily working with Clean Water Act permits and federal activities that involve impacts to habitat in South Carolina.

MS. WENDT: Pricilla Wendt; South Carolina Department of Natural Resources. I'm in the Office of Environmental Programs. I review and comment on projects in the coastal zone.

MS. LAWRENCE: Alice Lawrence. I'm with the U.S. Fish and Wildlife Service in Athens, Georgia, and I work on aquatic issues in Georgia, mainly for hydropower issues, Corps of Engineers' dam operations and anadromous fish issues.

MS. DEATON: I'm Anne Deaton. I'm with North Carolina Division of Marine Fisheries. I'm in the Habitat Protection Section, the Section Chief. Our section is involved with review of permits as well as habitat planning through the Coastal Habitat Protection Plan. We work with other agencies on regulatory and non-regulatory means to try and enhance habitat conditions.

MR. GIBSON: I'm Terry Gibson. I wear a couple different hats. I'm the owner of Fly & Light Tackle Angler Magazine. I own a charter service in Jensen Beach, Florida, on the Indian River Lagoon and adjacent coastal waters. The habitat underpins my livelihood so I'm here to stick up for it.

MR. PARKER: Bill Parker; Hilton Head Island, South Carolina; fishing nearshore and offshore 28 years.

MR. WILBER: I'm Pace Wilber. I work for the Southeast Region of NOAA Fisheries. I'm specifically in the Habitat Conservation Division here in Charleston and I supervise the Atlantic Branch, which has offices in Beaufort, Charleston, St. Augustine, West Palm Beach, St. Croix and San Juan, Puerto Rico. I have a fairly broad perspective of habitat, but don't get in very deep, unfortunately, very often.

MR. PUGLIESE: Roger Pugliese; South Atlantic Council staff; responsible for all our habitat activities and our move to ecosystem-based management, continued development and refinement

of our fishery ecosystem plan, all our ecosystem coordination efforts with a lot of the regional organizations like SECOORA and South Atlantic Landscape Conservation Cooperative, the Governors Alliance and beyond, SARP, et cetera, and continue our efforts in leading the nation in our habitat activities in the Southeast Region.

DR. WHITTLE: I'm Amber Whittle with the Florida Fish and Wildlife Commission. I'm the Habitat Research Administrator, so I oversee our habitat research groups.

DR. ELKINS: Chris Elkins from North Carolina. I hold a recreational seat here. I'm a retired microbiologist from UNC Chapel Hill, but I live at the coast now. I also sit on the North Carolina Marine Fisheries Commission.

MR. STREET: Mike Street. I am retired from the North Carolina Division of Marine Fisheries. I was Anne's supervisor at one time. One of the things she didn't mention is that our staff prepared and maintains the North Carolina Coastal Habitat Protection Plan, which is cited in a lot of things. Anne and I did a lot of the writing along with others.

I'm here to try and keep the habitat going in some very difficult situations now both natural and manmade. I like to fish. I've been sportfishing myself for over 60 years. I want to keep doing it and have my son do it and my wife and daughter and my grandson. It is personal with me.

MR. MIKEL: No job, no title. That being said; I'm Jenks Mikel from Edisto and I've got a burning desire to leave this world at least the way I found it.

MR. WATTERSON: Carter Watterson. I work for the Navy, fisheries habitat biologist with the Naval Facilities Engineering Command out of Norfolk, Virginia.

MR. JONES: Tom Jones. I live in Atlanta and have a place in St. Simons. I'm an investment guy, but I'm the recreational sports fisherman representative for Georgia.

MR. PRATT: Terry Pratt; commercial fisherman for 50 years, and been on various and sundry environmental committees for 40 years. I was there before Mike Street and Anne and Steve. I have worked with both state agencies and the National Wildlife Federation in lobbying Congress to set environmental policies.

MS. HILFER: Susan Hilfer. I'm a recreational fisherman from Beaufort, South Carolina.

MR. WILBER: Okay, so we'd like the folks in the peanut gallery to come and introduce themselves; and if you could, if you could come up and speak into the microphone.

MR. BURGESS: Tom Burgess; South Atlantic Council.

MR. HUDSON: Rusty Hudson; President of Directed Sustainable Fisheries, representing the East Coast Fisheries Section out of Florida here today, which is a subgroup of the Southeastern Fisheries Association under Bob Jones. I try to appear at every AP meeting there is. Thank you.

MR. RILEY: My name is Ken Riley. I'm an ecologist with the NOAA National Ocean Service. I'm from the Beaufort Lab, and my background and experience is in marine spatial planning and aquaculture development.

MR. NEMETH: I'm Doug Nemeth. I am the Natural Resources Manager for Navy Region Southeast, which goes from Texas to Georgia down to Gitmo.

MR. WILBER: Thank you everyone for introducing themselves. The next item of the agenda is the approval of the agenda itself. If there are any comments on items people would like to see added to the agenda that we would cover either today or tomorrow when we're in a joint session with the Coral Advisory Panel, please speak up.

The one item that I personally will put on the agenda is this fall will end my two-year stint as the Chair of the Advisory Panel, so we need to begin to think about a succession that we can put in place next fall. If anyone has any ideas how to pursue that; maybe if we have some agenda time later today, we'll put that up for discussion.

MR. PUGLIESE: Yes, and that is going to be a pretty critical point, because we are going to be moving, as we finalize these policies into the next AP meeting, setting the stage for the final revision and update of the entire Fishery Ecosystem Plan, as well as refinement of the EFH designations; so there is a lot that is going to happen over this next year and a half that this group is really going to be kind of the group that is going to lead and provide that guidance to the council on where we go.

It's going to be important to keep things moving forward. It is a pretty critical time with a lot of other activities on spatial planning and everything. Fisheries and fish habitat need to have a very strong voice right now or they will get buried in a lot of the noise of all the different types of activities going on right now. It's pretty important roles, especially as we move forward.

MR. WILBER: If there is time later today, we'll throw that up for broader discussion. The next item on the agenda is the approval of the minutes from last November. Has anyone seen any glaring omissions or mistakes in the minutes that should be brought to the attention aside from the misspelling of my name throughout the entire minutes?

MR. GIBSON: I've got one. Kathy is spelled with a K and not a C. She told me not to do that, but I told her I was going to make it legal, anyway.

MR. WILBER: All right, so we will make those notes and hopefully not repeat those errors in the future. Are there any other additions to the minutes or clarifications? You guys all know the drill by now. Somebody needs to make a motion to accept the minutes; second; any opposed? It carries unanimously, thank you. Roger, do you have any opening comments?

MR. PUGLIESE: Yes, just quickly. This meeting is one of the – well, most of them are somewhat informal. This is one of the more informal ones, because I think we're trying to get a little bit more down the road in terms of really getting some of these policy updated, refined and really provided to the appropriate groups that are looking at some of these interactions in the coastal zone and in offshore waters.

More than half of today is going to be in breakout sessions to be able to look again at this. I know there are a number of individuals that have been working in the background on some of the revisions. We have a fairly significantly updated aquaculture policy that we're going to start with this morning, but then go into those breakout sessions to be able to look at.

Everybody was provided both the original policies and then the Word Versions of the other policies so we can start moving forward and look at which ones actually have the ability to get updated. The plan then is to move forward between now and the fall meeting to refine and essentially have all of those in formats that can be approved by the council as updated versions and potentially new versions.

There was a shell added, because there was a lot of discussion last time about an artificial reef policy; where we go in terms of the outline and how to structure that; so that is also in the groupings of what we have. That is going to take up most of our AP meeting this time. In addition, we are just going to touch on where we want to go with the report on the state of the South Atlantic habitat and where we move forward.

A lot has not been done, but there are a lot of other activities that are going to feed into that from other organizations and other information sources. I think we are going to probably have after this meeting more substantive work with the chairs of the AP subpanels and then really get that kicked up and moving forward.

Some other things that also are going to happen is in these discussions, as they relate to the policy, discussions on refinements of EFH; I think that is something that is going to happen, as I mentioned, as we move forward this year. This will kick off the opportunity to have some of those discussions, both the actual information by species, by area, and then some of the spatial information, so we can have some of that discussion as we are in some of the breakout areas .

But that said, that is kind of the context of what we're doing and the directives to the group. Definitely feel free to be as involved as possible. This is by no means the end of the process. It is the beginning of getting these in the most appropriate form and be able to provide the most significant guidance for the council and other regional individuals involved and wanting to know what the impacts are in fish habitat and fisheries.

MR. WILBER: Roger, just a clarification; when you said the goal was to have the package of policy statements ready for approval in the fall; we mean the December meeting in Wilmington and not the Charleston meeting in September, right?

MR. PUGLIESE: Yes; this would be in probably the November or fall AP meeting to have it refined and finalized, and then the council will adjust and finalize in December. Yes, the end of the year essentially, yes, because the timing; we are going to have the AP meeting prior to finalization.

MS. DEATON: I just have a question about the policy. You're saying that the policies are used by the council and different APs. What other applications are these of these policies? Who uses them as guidelines and sticks with it; anybody?

MR. PUGLIESE: The intent was to have rapidly the ability to respond to activities if there are permits or policies being developed for one of these different types of areas; the ability to reference those and be able to in either council responses, which are somewhat limited to council direct responses, the day-to-day activities are through the Regional Office's review.

The intent is to ramp this up in terms of beyond NOAA Fisheries; hopefully, the state agencies, et cetera, ni using them. I think there needs to be more work, and this is an opportunity to get this type of information out beyond what has traditionally been used. Pace will pick up on that. Sometimes they are also referenced in the individual permit and policy reviews, but I think there needs to be more effort to get these into the forums that are being looked at what the impacts on those habitats are and that there are standing council-based policies that have been developed.

MR. WILBER: All right, this is just my personal observation and not the agency's point of view; but when you look at the six or seven policy statements that the South Atlantic Council has, there are a few – maybe one aquaculture that I think really to me is a policy statement. It sets forth the council's view on how it wants to see aquaculture develop within the region and how it relates to traditional fisheries and things of that nature.

The other policy statements like sea grass, in-stream flow, things like that; there is no real what I would consider policy in those. Those really are sort of summaries of the literature and some bold statements without citation sprinkled throughout them. In order for those to be used in my consultation arena – and I'm sure it is not that different in other consultation arenas – it would be really nice if those policy statements were kind of upgraded a little bit to have a much more concise summary of the literature within tech citations.

Essentially those would be the paragraphs that you could block paste out of a council document and into your comment letters with a high degree of confidence that it is an accurate summary of the literature, it is an up-to-date summary of the literature, and it is a very insightful set of comments about how habitat and fisheries are kind of related to each other.

I think that is really what I would like to see personally out of these policy statements, and that is what I think carries the most weight. In my review chain, when I have to deal with a gnarly project that goes up the hill, so in that kind of context my personal thought on how to move forward with these things is in a group like this it is really good to talk about the recommendations part.

The literature to support those recommendations is largely something that would have to be done in between meetings, either by volunteers from this advisory panel or by council staff; but getting everyone's collective wisdom on what the recommendations should be I think is a really valuable thing to have. Then we can kind of fill out the middle and the beginning of the policy statement once we know sort of what the end story is.

DR. ELKINS: While we're on that subject – Mike and Anne know this – North Carolina is moving towards legislatively stripping some of the environmental protections we've had. In fact, there is a bill introduced that would eliminate any rules and regulations that are stronger than the federal rules.

I don't know whether that will pass or not, but that is a trend. I think having the South Atlantic policy a strong one and even rules and regulations that follow that policy can do a lot at least in North Carolina to give us some feet to stand on as we move forward, because we're going to have some sweeping changes coming up.

MR. GIBSON: I just want to second Chris' remark. The same thing is happening in Florida. Most of our environmental regulations are being gutted. To have this as something of a backstop would be very helpful.

MR. PUGLIESE: I think that is going to be a really important message to send to the council, because to some degree a lot of things have been done at the habitat levels. I think some of these types of developing potential problems could really influence how some of these different information gets used; and how important the habitat conservation directives from the council and the collaboration between states and the council and partners in our region; that these policies hopefully will ultimately provide, how important that is.

Sometimes I think you get that idea that we have done a lot on habitat and the council doesn't need to do as much. I think the message needs to be sent back up to the council that these are the types of things that really are going to make a significant difference. Essential fish habitat mandates this, but a lot of people's idea of what they are, are probably some of the things that have provided the foundation to hold the line.

We get to hold the line in terms of not going backwards and really trying to move forward. Here is an opportunity. We're part of a broader system. What happens in the one area is not only impacting that. You've got resources that are using these habitats throughout the region, so you're going to have a potential population impact on gag grouper, on species; mackerels and species that are dependent on those inshore habitats; but they are part of the broader system.

I think it is really important that these messages be brought up and to work on say that was on aquaculture be continued and expanded for our other policies. We do have the opportunity. That is why I was really happy that we were able to have two meeting this year, because we kind of have been in that point where we can only get so far before.

Here we actually have set the stage to I think move forward with the direction that Pace wants to see this, and it addresses exactly the concerns you all are having. I think the council will take that to heart. Tom, while he identified himself as a council member, is also the chairman of the Council's Habitat Committee. Hopefully, the message is clear and he can relay that to the rest of the council and how important these efforts are going to be.

MR. WILBER: Let's move on to the next item, which is the discussion of the aquaculture policy. Chris, which one of you is going to present?

DR. ELKINS: I'll just preface this. At the last meeting somehow I was encouraged to take over this aquaculture thing. Fortunately, I knew a lot of people in aquaculture, because I do go to some of the meetings and I grow oysters myself. I recruited a bunch of my friends, the real experts. Ken is one of them, but there are several other people; James Moore is from NOAA, Ken's boss; and Mark Turano from Sea Grant and others. I can't take much of the credit other than being a good scout and a recruiter, so, Ken, it is all yours.

MR. RILEY: I appreciate Chris coming to us and asking for our input. It's been a lot of fun putting together a team to develop a draft of this policy. I am relatively new to NOAA. I've been with NOAA and the Beaufort Lab for about a year, but I want to point out that this is not a single person operation.

This is our aquaculture environmental effects program staff. We have a staff of about seven or eight full-time staff working in marine aquaculture specifically with regards to spatial planning, habitat protection and a variety of different things. We are located at the Beaufort Lab. We are the second oldest marine lab in the country; established in 1899.

I should say I prepared this presentation with; if you'll indulge me, for about four minutes of who we are and what we're doing and then about ten minutes of policy development stuff, and then we can engage and talk about the policy itself. But please interrupt if you have questions. I work at the Beaufort Lab; and one thing that was interesting to me is reviewing the history of the Beaufort Lab was to see that it was originally established for the culture of marine fishes.

In 1899 there was a foresight that the Beaufort Lab was in a unique place between different biogeographic regions, and it had this unique ability to culture a variety of marine fishes, including some of the first work was on oyster culture. I work for the National Ocean Service, which is part of the National Centers for Coastal Ocean Science.

Specifically I work for the Center for Coastal Fisheries and Habitat Research in Beaufort. We have about 90 employees working at our center in Beaufort. We conduct research that we say is science serving coastal communities. Specifically we conduct research to address four main theme areas.

These areas are science to address harmful algal blooms; we conduct climate research on climate impacts to coastal communities; we work to understand the impacts of coastal pollution; and we conduct science to support coastal and marine spatial planning. It is in the latter two theme areas that we specifically work for marine aquaculture.

In the past four to five years James Morris has developed a marine aquaculture effects research program. Our program vision is that we'll develop decision support tools to support coastal managers, enabling them to safeguard the environment while supporting aquaculture in the coastal zone.

In other words, what we want to do is be able to develop tools that managers can make timely and confident and responsible decisions about citing aquaculture in the coastal zone. Our aquaculture research takes four main research areas. The first is environmental effects of aquaculture. We then work on technology development. An area that I specifically work on is marine spatial planning to inform siting. Then finally we're increasingly asked and taking on climate change effects.

What I will do is just show you some of the highlights of our work. Our research program has really focused on for the last four years marine-caged culture and the environment, and specifically looking at the environmental interactions of how marine-caged culture is going to occur in U.S. federal waters and help support projects in the Gulf of Mexico, Hawaii, Puerto

Rico that are underway; and then the development of projects in other regions as they continue to develop.

The synthesis of this project and the work over the past few years has been a white paper, a NOAA technical memorandum that is coming forth this spring, now this summer; We reviewed over 500 papers and conducted an entire comprehensive summary of environmental impacts of marine aquaculture.

It was reviewed by 30 scientists and managers, both internal and external to NOAA, and encompassing both U.S. scientists and European scientists and some South American scientists as well. It is currently in the final review and approval phase. There are five chapters to this document, a chapter on water quality, benthic chemistry, marine life chemicals and then some management tools.

The area that I specifically work in is development of spatial planning tools for marine aquaculture. We see that these tools have a variety of uses. The first one – and you will see there to your far left – is site screening; so specifically like the creation of data atlases. This would be like GIS maps and layers that can look at how aquaculture integrates into the coastal environment; so not just water quality and will the environment support marine aquaculture, but how does it interact with other users in the coastal environment as well as protected species.

Then we take that a step further to do modeling and simulation studies. We actually run simulations of net pen operations or shellfish culture operations and look at the environmental impacts. The final stage, which we haven't quite fully developed yet, is particularly site selection, getting down to the nitty-gritty of a specific site that will be commercially developed for marine aquaculture.

Over the past year we've been providing support for the Gulf Aquaculture Fishery Management Plan, and specifically we developed the environmental monitoring guidelines for that plan. We've recognized the need to develop standard methods for environmental monitoring. We've worked with Jess Beck, who is the NOAA Fisheries Southeast Regional aquaculture coordinator.

We've also developed best management practices for the Caribbean offshore aquaculture industry as well as coastal managers, and specifically we held a stakeholder workshop. We're in the process of finalizing this document, which are just best management practices for offshore marine aquaculture. Then, finally, we've had a number of international exchanges, people seeing our work that we're doing with the Gulf and in Hawaii and different regions; and sothey have invited us to help with marine aquaculture siting, development of aquaculture development zones in Maraca, Bermuda, the Bahamas, and Mexico.

There are a lot of collaborative opportunities, and specifically there are opportunities to work with coastal managers in those regions. That is a little bit about who we are and what we're doing. Let me tell you a little bit about aquaculture. The World Bank says that aquaculture represents the fastest-growing sector of global food production.

It grows on average about 1 percent per year. If we take a look at global fish production, 1950 to 2011, you can see that just two years ago aquaculture production surpassed world fisheries

harvest; so today aquaculture contributes 54 to 55 percent of our global fish production. Aquaculture is coming in kind of a big way, and we want to be prepared for it, and specifically looking at being prepared for the environmental impact.

If we look at global aquaculture production in terms of a different world view and global map, here you will see the actual real contributors of aquaculture to our global fisheries. You will see that about 60 percent of our aquaculture production is from China with another 30 percent from Asia; so 90 percent of world aquaculture production is coming from Asia. This is pretty big.

The reason why we're concerned is this rise of the middle class. If you take a look at the Asian economy, Asian demographics; what you will see is by the year 2030 there is expected to be a 571 percent growth of the Asian middle class. While we're importing over 90 percent of our seafood, and a lot of that from Asia, we're anticipating that those imports are going to turn around and are going to go the other direction to support this growing middle class in Asian communities.

You can see here the middle class for North America, the light blue there on the left. Our middle class isn't expected to grow very much. It is a very small percentage, a fraction of a percentage. But what we do know in the United States is that baby boomers like fish, and they are going to eat more and more fish as they age. This was a Twitter announcement that I got just stating that with the health benefits and so many benefits of eating fresh fish, the baby boomers are going to eat more fish.

NOAA in 2011, along with the Department of Commerce, developed aquaculture policies to support aquaculture development. NOAA aims to increase aquaculture production by one million metric tons by the year 2025. The target outcomes of these are competitive aquaculture businesses that work with traditional fishing communities and support working waterfront communities.

We want to keep those seafood processing and distributors alive and well in terms of the communities that they work. This aquaculture development also supports healthy aquatic ecosystems. We want to develop a sense for aquaculture that is valued by the public. The public has gotten a lot of misinformation in the media that builds on a long history of negativity towards aquaculture.

We want to turn this around and be able to show that aquaculture is compatible with seafood production, it is compatible with fisheries and it is compatible with the environment. I thank Chris for bringing the policy opportunity to help contribute to the development of the policy for the interactions between essential fish habitats and marine aquaculture.

To tell you where it is at; we kind of consider it is just the first draft is complete. These are the folks that have contributed it, Chris and James Morris Mark Turano from North Carolina Sea Grant, Carol Price from NOAA NOS, myself, Todd Kellison from National Marine Fisheries Service and Jessica Beck from the National Marine Fisheries Service.

We have a whole suite and outlined list of reviewers that have contributed comments since, and we have to incorporate some of those comments. It is still in the track changes phase and it needs additional review and clearance by someone from NOAA. Our goal was to synthesize the

current state of knowledge and provide managers with a better understanding of the environment interactions with marine aquaculture.

We know that we can't in just a few pages provide a comprehensive compendium of all aquaculture knowledge and research, but we wanted to give you at least an introduction. Aquaculture, let me just define it as we did in the policy. We defined it as the propagation and rearing of aquatic organisms for commercial, recreational and pubic purposes.

Aquaculture encompasses a lot of different species and a lot of different types of production. Aquaculture is farming, but it is also fishing. This is based on legal opinion by NOAA General Counsel. General Counsel says that fishing – under Magnuson-Stevens, fishing includes activities and operations related to taking, catching, and harvesting of fish.

I should say that this definition of aquaculture is fishing has been held up in a couple of court opinions, specifically in Hawaii, so it has been challenged. What I want to do is just introduce you to some types of aquaculture. Here we see an example of aquaculture for food production; this would be striped bass production.

Then we have ornamental production. A lot of people think of ornamentals as just having one or two fish in an aquarium; but when you get into aquaculture, this is intensive production, production of thousands and thousands of fish in tanks or ponds or in net pens. This is production of fish for fishing bait.

I tried to pick species that were out of the typical ordinary, so University of Miami right now is working on production of bigeye scad or goggle eye as fishing bait. Myself, I worked at Harbor Branch Oceanographic Institution, and so aquaculture is certainly production of natural products and culture of organisms for pharmaceutical or drug applications.

I should add I didn't include a slide, but it also includes like algae for bio-fuels. Aquaculture is stock enhancement; so replenishment, replacement of stocks; and again I tried to pick species that were kind of out of the ordinary. This is a Florida fighting conch in a stock enhancement project that we worked on a number of years ago in South Florida.

It is also your traditional stock enhancement that people think of in terms of finfish. Here is snook, a stock enhancement from marine lab. I will add that our policy was developed and it does not specifically address habitat issues related to stock enhancement. It would become too comprehensive of a document.

The environmental impacts vary with farm operation, and we developed this document with consideration of all different type of farm operations. One of the things that we should talk about today is should we just talk about the types of operations that would occur in the waters that you have jurisdiction over – that the South Atlantic Fishery Management Council has jurisdiction over or should we include all aquaculture operations within the region; so from pond culture to offshore net pens to land-based tank production systems.

Then the environmental impacts vary with species and trophic level. I had some projects years ago that I worked on sponge development in the Bahamas. That is a pretty low trophic level. It

requires no feed in terms of it is a nice candidate species. Then you have species like grouper and cobia that would be a much higher trophic level and require much more inputs.

The next few slides are just on the environmental impacts assessment of offshore marine aquaculture, and this is what we kind of envisioned as our future of our offshore finfish culture industry in the nation. Impacts to water quality; what we have seen thus far with demonstration projects in the limited industry that has developed is that the water quality impacts are generally specific to within the cage and the neighboring waters adjacent to the cage out to say 30 meters.

Beyond 30 meters, beyond the cage, we see very little impact of decreased water quality around these net pens. Now these net pen operations have to be sited in areas that have good flow, good tidal exchange, good current, and it is really all about proper siting. The case of salmon production in the seventies and eighties; that was just poor siting where they had big pollution effects.

What we see is that the nutrients like nitrogen and phosphorous is assimilated very quickly by the offshore phytoplankton communities. While there have been a few publications on the linkages or connections between utrification and harmful algal blooms, it really hasn't been substantiated.

When we look at the impacts of offshore aquaculture, the place where we really measure it is in the benthic chemistry; and specifically what we're looking at is the total carbon in the sediments. We look at sulfides, hydrogen sulfide production and redox or the oxygen that is in the sediment. Are the sediments still aerobic or are they going anaerobic or without oxygen?

In terms of marine life, what we typically look at for impacts is the diversity of benthic infauna, polychaetes and worms. Is there a great diversity of those polychaetes and worms or in areas that are impacted where it has gone anaerobic, is marine life absent? For offshore net pens and operations, we rarely see effects out beyond 100 meters from the net pen.

The next two areas are fish. What we found really interesting about offshore aquaculture operations is the fact that these actually act as fish-attracting devices. They actually serve as habitat and bring in fish to these net pen operations. In fact, in the Bahamas there is a large net pen operation that now is a tourist attraction, because divers go specifically to the net pen so they can see the fish and the sharks that congregate around the net pen and the cage operations.

Fish consume approximately 27 to 80 percent of the organic waste. The feed that isn't being eaten or any waste that is coming out of the net pen itself is being consumed by the fish that congregate at the bottom, at the base of the cage or around the cage. The cages certainly provide food and shelter. There are definitely issues with protected species, and these are things that have to be discussed and worked out in a regulatory framework; marine mammals, sharks, sea turtles and birds.

In terms of chemicals, there are not a tremendous amount of chemicals that are used in offshore aquaculture, specifically because they are not allowed. The regulations are very strict. I'll give you an example. Increasingly net pens are made out of copper and other metal-based products that are anti-valence, and so there is some concern about buildup in the sediments related to that.

In terms of antibiotics, in the entire United States there are only three approved antibiotics for marine aquaculture, and in the region for the South Atlantic Fishery Management Council's jurisdiction there are no approved antibiotics for the use in marine aquaculture. There is a lot of concern about antibiotics, but the truth is right now they are not allowed. We cannot have concern about things if it is not permitted.

Therapeutics; the only two therapeutics that are available are hydrogen peroxide and formalin. Then, like I said, there is some concern about copper and zinc accumulation in benthic sediments. I just want to show you how good husbandry, change in best management practices can affect aquaculture.

Here you see heavy antibiotic use in the eighties and early nineties for the salmon industry. Since 1995 through today, antibiotics are only used in about 5 percent in the global salmon industry. They have been able to not have to use those antibiotics because of good breeding, good husbandry, good best management practices.

Then one of the last points I wanted to point out was there are a lot of questions about fish meal and proteins and aqua feeds. NOAA and the U.S. Department of Agriculture has spent millions of dollars and had extensive projects to deal with the aqua feeds issue. Specifically this is a broad partnership across federal agencies, NOAA, USDA, FDA, U.S. Fish & Wildlife Service.

The results of this product was a publication in 2011, the future of aqua feeds. They had 20 findings where they studied seven case studies and they looked at what is the future of aqua feeds. What they found is that there is no requirement for any marine fish species to have fish meal or fish products as components in their feeds. We can grow fish on completely alternative protein sources, so there is no requirement for these fish.

AP MEMBER: Such as?

MR. RILEY: Such as soy or corn; a combination of those products. We can also do it on byproducts from poultry and the poultry industry and that type of thing. Tyson right now is investing tremendous amounts of investment capital into aquaculture feeds, because they have products coming out of their poultry processing facilities.

The other thing I should point out is that since 2005, the use of aquaculture fish meal is going down. This is something recently that I came upon and it didn't make it in the first draft of the document. This came out of NOAA's National Marine Fisheries Services Office of Aquaculture. The fact is that this research is now – the results are now making their way into feed plants and feed manufacturing companies; and so recognizing that there are alternative protein sources that can go into these feeds. I should say the soy industry has had a large part in putting soy products into aquaculture feeds.

The question is what happens if you feed carnivorous diets with no animal meals. There are dozens of these papers now that have come out; but what you have to note is look at the dates of publication. They are only within the last three, four, five years that this alternative feeds work has come out.

If you look at some of these species like cobia, Florida pompano, these are high trophic-level species that are able to eat and consume vegetable proteins. Offshore aquaculture really requires cooperation between the research community, coastal communities, farm owners and operators and coastal managers and regulators. That is what I have to share with you. I would love to talk about the policy with you. Thanks.

MR. WILBER: Any questions for Ken?

AP MEMBER: I just have a comment. I read over the policies before I came. In the overview section, you have these different topics in there; and then at the end of each topic there are some pretty specific recommendations kind of. Then there is the separate policy section at the end, but those recommendations are not carried over into the policy section. I just thought it might make it stronger if you pulled that from the text and kind of reiterated it at the end.

MR. RILEY: We'll do that.

AP MEMBER: Because it's some strong statements, so it might be effective to have those in the policy section.

MR. RILEY: Have them online. Yes, absolutely that is great.

MR. CALDWELL: Ken, this is not really a direct policy question, just more on the information. You talked about the increase of the marine aquaculture. How does that compare to freshwater aquaculture; or did you include all those numbers in your data? Is there a separation between – is there a significant difference between mariculture and freshwater aquaculture, the growth?

MR. RILEY: Well, the lines are becoming very gray. That was one of the challenges I had when we were all working to develop this document. We developed in the context of aquaculture within the coastal zone. Maybe for the management council it should be more specific to their areas of jurisdiction, but we considered all types of aquaculture that would affect essential fish habitat within the coastal zone. In Southern Mississippi that includes catfish culture and southern Florida that includes a lot of ornamental fish ponds and things.

MR. STREET: You mentioned as a question early on the scope of the policy. Has that been decided already or is that an issue that we need to take up; that is, whether it is just strictly South Atlantic Council managed species or anything that may affect those species or anything in the South Atlantic coastal and offshore area.

MR. WILBER: I believe the policy should come into the shore. Habitat issues, whether they are in federal waters, state waters, or on land that affect habitat usage and the health of marine fisheries I think is fair game. I see no reason to draw a line.

MR. PUGLIESE: This is building from a pre-existing policy, and I think the intent is that it cover all the array of essential fish habitat for a managed species; so the intent is that it does go into pelagic and benthic habitats as far as they extend through the system. It would include both inshore and offshore and nearshore habitats.

At least that is the way it was originally drafted and this is carrying on. Remember, this is coming out of this group. If there is any concern over that, that is something that needs to be raised, but I think the intent is that it captures the mandates on the conservation of essential fish habitat, which extends throughout all the areas.

MR. STREET: Well, I would agree that it should be a broad policy, but I think that we need to state it then specifically. Also if there are things that should not be included, then we should say that as well. But we need to be specific as to the intent of the policy is insofar as its geographic, biological, environmental scope.

MR. WILBER: Yes, I agree, nothing makes a boundary more clear than to describe the boundary both from the inside and from the outside. Yes, I think that is a great thing to do.

MR. MIKEL: Growth hormones; it is just a matter of time I'm sure before these fish farmers will be using growth hormones to get their product to market quicker. The thing that bothers me right now, you mentioned Tyson, and I know they're using it in their chickens. I don't know whether that chicken poop ends up in the fish meal that we're feeding the whatevers, but we are going to create a super fish around the pens.

MR. RILEY: That is a great comment. All I can say is if we're using bone meal or feather meal, which is the product that they are using in fish meal. That is a great comment. Right now growth hormones are not allowed in any aspect of aquaculture.

MS. DEATON: It might be hidden, like it might look like it doesn't have the growth hormones, but through that trickle-down it could be there, as well as the antibiotics, I was thinking. But my question was where do they have these offshore net pens or any kind of offshore aquaculture in the southeast now? You said somewhere in Florida. Are there any or –

MR. RILEY: In the southeast we currently don't have any offshore aquaculture. Florida has developed the most comprehensive state plan for offshore aquaculture, so the state of Florida has developed an offshore aquaculture development plan, but we don't have any aquaculture here. I guess the most extent of any offshore aquaculture would be oyster culture that is rapidly developing.

MS. DEATON: Do you think that they could do something like that in the Atlantic; or because of the waves, is it too high energy?

MR. RILEY: If you can imagine, for instance, in Australia and New Zealand they are doing these net pens and operations in seas that have 4 to 5 meters of height, so that is 20 foot seas. We can certainly – the engineering and technology is there where we can deploy the operations for that type of thing.

AP MEMBER: Would that be the contingency plan for when hurricanes come through like in 2004? In 2004 we had five hurricanes in Florida's Gulf Coast come in five weeks. That is a contingency that engineering is going to help when you have acres and acres of net pens.

MR. RILEY: Well, it depends on the technology employed. We've had offshore net pens that are submerged, and so they are 20 feet below the surface and below the wave impacts. We've

had direct impacts to demonstration sites, snapper farm in Culebra, Puerto Rico, that has had two or three hurricanes that passed directly overhead – I believe they were Category 2 storms – with no impact to the operation. Those were completely submerged operations. Mussel farms could be equally submerged. It is an application of the correct technology. I was there in 2004 and 2005. I lost all my aquaculture facilities at Harbor Branch, so I can attest to the damage of hurricanes.

MR. MIKEL: Maybe there should be some kind of bonding capacity to help with cleanup if one of these things goes awry; is it in here?

MR. RILEY: Yes sir; in the policy we had a statement that stated that – I'd have to find it exactly. It says permittees must have adequate resources legally committed to ensure proper decommissioning of obsolete or storm-damaged facilities. It is the last page before the references.

MS. DEATON: I just went over it before I got here, and the one comment I have is it is all full of the negatives, the potential impacts, but if the council's position is we support aquaculture if done properly, so that it can offset direct harvest impacts; I think that should be in here, too, something to that effect that we support sustainable, properly managed aquaculture.

MR. WILBER: Yes, some kind of bottom line executive summary abstract kind of thing I think would be a good inclusion. I don't know if we read or remember the original aquaculture policy. My recollection of it is it was pretty dour on aquaculture. I think maybe some of that original tone might still be in the newer one, but certainly if this is not 180 degree turn it is 150 degree turn maybe from the bottom line message of the old one. Chris probably put more time into thinking about that than anybody else.

DR. ELKINS: Yes, I think this way we pretty much threw the old one out and started over.

MR. GIBSON: I apologize to any engineers in here, but I don't think much of them, and I've had a lot of experience. That is not a prejudice. It is just a habit of humans and engineers to figure we can engineer and there is an engineering solution to everything. I live in Jensen Beach; I've been through three incredibly strong hurricanes in the last ten years of so now.

I've watched the storms rip all the algae, the invasive algae, the caulerpa algae off of reefs in 120, 130 feet of water. I watched the last – I watched Sandy take all this dune restoration sand from the beach and move it a mile and a half offshore on top of a reef in 60 feet of water, millions of acres of sediment. I just find it almost impossible to believe that you can engineer a cage to hold fish that can withstand a 25-foot swell at a 20 something second interval that goes on for days. As a point of policy I think that, absolutely, Mike is right; we need a strong bond and there needs to be not just how you're going to get the gear out of there once it's damaged; what are you going to do when you've genetically contaminated the wild populations or whatever else? I think we need to be really rigorous on that. Not to poo-poo aquaculture, because we're going to have to go there, but we don't need to have what happened here what happened in Chili with an earthquake.

MR. STREET: You need to remember that lionfish came from aquaculture.

AP MEMBER: I guess that comes under unintended consequences.

MR. WILBER: I have a couple of questions. You mentioned that it became necessary to get a legal opinion that aquaculture constitutes fishing. Why was that necessary to have a legal opinion?

MR. RILEY: I will say I didn't get the legal opinion for this document. That legal opinion was for an operation of almaco jack being cultured off of Kona, Hawaii. It is an operation that is sited and they have numerous net pens, a very successful operation. Some of the environmental groups have continuously sued and tried to find ways to stop aquaculture development.

That provided an impetus for defining that aquaculture is fishing. I'll also add that aquaculture is defined as fishing in the Gulf of Mexico Fishery Management Plan. That gave them the authorization to manage it within the context of a fishery management plan.

MR. PUGLIESE: I'll make a comment about that. As this discussion has occurred through the council's deliberation over time, the Gulf Council had stepped forward the activity and management directly through the fishery management created a framework aquaculture plan, with the idea that it could be managed through the council efforts in the Gulf of Mexico.

The South Atlantic has fallen back to this policy and really hasn't taken that step to endorse it as integrated into the individual plans; but the council could proceed with that similar type of effort to ensure that it is in the context. If there is a legal opinion that specifically identifies it; that is an option that the council could endorse in the future if they would want to go down that road.

One thing that was stated; there was this uncertainty about the ability to manage that way. The South Atlantic had already had an aquaculture for live rock. There is a federal permitting for an aquaculture program under the council's purview already. The policy is there if the council wants to proceed in the future in a similar method as the Gulf.

At this point, this may provide more contexts about where aquaculture can go in the South Atlantic Region; but I wouldn't go as far as saying the council has wholeheartedly endorsed and saying aquaculture is going to happen definitely. I think we're walking between that. It is intentional, because the directive was conservation of habitat as being a priority in all this process; and then as that unfolds policies and other opportunities for management can arise if the council decides that is the way they want to control it or be able to be involved directly in the process. Right now it is giving the context and doing things like you just discussed on bonding and different things. It was trying to get those in the queue early and discussion. If anything really went more formally in there, of course, that would have to be a lot more significant in terms of really getting that. Then the lawyers really would come out.

MR. STREET: Yes, just a couple of specific questions relative to Ken's presentation. You talked about most of the environmental effects were from feed and water quality and all are dissipated after about 30 meters. We have to remember that 30 meters; if it is a pen, is a volume metric distance. It is not just in a single plane.

If you have a pen that is in one acre; the total affected area is far more than one acre. If you have a cube or a sphere, it is far more than just the size of the cube or sphere. Then my question is are

we willing to accept for the benefits that will be derived the negative impacts on that additional area, which is a buffer zone of some sort?

If you get into then the issues of hormones and things like that and the noted attractiveness of the area outside of the container are important or popular, for want of a better term, feeding areas for wild stocks; those wild stocks go off in various places, and they could well spread predators, hormones, and other things in their reproduction.

Because of the council, are we willing to accept the near distance and potentially longer distance degradation that may result? Again, that is a negative viewpoint, I recognize that, but has this been significantly analyzed, plusses and minuses to be able to say that, yes, it is an acceptable tradeoff because those negative impacts are being addressed, are being reduced compared to the salmon issue from 15 or 20 years ago and things like that?

I saw a film within the last month or so of aquaculture in Turkey. It was in the Mediterranean side, not the Black Sea; but there were pens, raceways; there were onshore ponds, just the whole thing within a fairly small area. It was very positive on it; but I don't know. I'm asking for where do we want to go?

MR. RILEY: I'll just say that in terms of the salmon net pen operations; the zone of influence is generally about 10 meters out form the net pens, and that is about 20 net pens. It is a pretty sizable operation. If you look in the upper right-hand picture there, 20 meters out from that cage operation in terms of a regulatory compliance with Maine Department of Natural Resources, Washington Department of Natural Resources; that is their considered zone of influence, so it is the entire grouping of cages and net pen operations. It is the entire group or set of net pens at that distance out from the operation.

(Question asked off the record)

MR. RILEY: I'm sorry, I'm not sure of the exact area. I was just there in January, so I should know, but I am sorry I don't know. They are actually the ones – Maine Department of Natural Resources is actually giving us guidance on video surveillance, benthic monitoring, water quality monitoring for some of our monitoring guidelines.

DR. ELKINS: I just want to reiterate we have to trust the people that they're going to site these in a proper way. That is the key component that Ken is talking about. The second thing has to do with this continued hysteria about hormones. Let's talk about the relative amount. Let's say that we have 100 of these round spheres in the Gulf Stream.

We're actually going to feed them chicken hormones, which we're not probably; we're going to give them soy; but relative to the amount of hormones that are being flushed down from Raleigh in our estuaries, it is a tiny fraction. In the Gulf Stream we have this dilution effect. I think we have to look at each farm individually, with each of the potential problems and make sure that each hoop is jumped through by each farm for the regulatory people that are doing it. Our job is to give guidance overall to that regulatory group. We can all come up with bad scenarios, but I think our job is to provide an overview and a positive overview, knowing full well that we know all about what might happen. I'll leave it at that.

MR. WILBER: I think that is a good point. We have to kind of remind ourselves of the context within which an aquaculture venture would be permitted. I don't really know the answer to this question, but if someone wanted to do an aquaculture cage farm today in federal waters off the coast of North Carolina, Georgia or South Carolina; whom do they submit their permit application to? I don't know. Does anybody know what the answer is to that?

AP MEMBER: I'd say the U.S. Army Corps of Engineers. That would be the permitting authority over that action.

MR. RILEY: I'll show you the next slide, which I kind of saved it there. These are the permits that are required for offshore aquaculture in the Gulf of Mexico. This is our first attempt to map out the framework for the permits. I should say I work for the National Ocean Service, and NOAA Fisheries, NMFS, is the lead permitting agency for the Gulf of Mexico.

We're trying to figure out where our science contributes to their regulatory authority; but at the top there you see offshore aquaculture permit would be NOAA Fisheries. Army Corps of Engineers would be construction permit, Section 10. Going down to the lower left, anchoring and mooring structure permits, the Army Corps.

I just had a meeting last week with BOEM, who said that they also have a permit if you are going to be anchoring into the sediment. If you are going to co-site in the Gulf of Mexico with offshore aquaculture and energy production – I guess in the South Atlantic that could be wind energy – you are going to need permitting from BOEM and BSEE. Then EPA is going to give you MPDS permits and ocean discharge permits. Then NMFS and U.S. Fish and Wildlife Service are going to certainly be looking at your marine mammal protection and endangered species.

MR. WILBER: This is a great slide. Looking at this slide, if each agency takes a very strict view of what its regulatory authority is; the only two boxes there that would cover impacts to habitat and impacts to critters would be the permit for offshore aquaculture from NOAA, and the marine mammal protection stuff, which would be a mishmash of the Fishery Service and the Fish and Wildlife Service, although I think it would be mostly the Fishery Service given the distance from shore.

The Corps is not going to entertain environmental concerns in a Section 10 permit application. BOEM is really not going to be that concerned about environmental impacts beyond the physical anchoring – I mean if you kind of use what they're doing now and wind energy as an example. How much experience does NOAA have in processing these permit applications?

MR. RILEY: I think they're learning fast. For the Gulf of Mexico, we are anticipating receiving permit applications in late 2014. That is just receiving. I cannot comment on the review process and duration.

MR. WILBER: Okay, so this aquaculture policy from the council would largely serve as a checklist of really important considerations; that we would want all of these boxes, especially NOAA Fisheries, because it is doing both the aquaculture permit and the Marine Mammal Protection and Endangered Species Act consultation; to go through that checklist of really important issues to make sure that they were adequately considered in the processing of that

permit application. We're not really trying to presuppose the outcome of that assessment through the policy. We are just identifying the really important issues the assessment should cover.

DR. WHITTLE: Shouldn't the Coast Guard also be listed on there for navigational issues, like your very first slide? I dove on fish cages in Hawaii, and those were like 80 feet down, but your first slide has it above the surface.

MR. RILEY: Absolutely.

DR. WHITTLE: You may want to add that to your matrix.

AP MEMBER: Kenneth, my apologies; I'm not sure that that is going to work out after the legislative battles on who has turf or territory, because I thought the Corps would have more say than Ken's chart up here does. I don't know; but if we're making decisions relying on this as our – go ahead, Roger.

MR. PUGLIESE: I would make a comment real quick. What this is mapping is connected to activities in the Gulf that are just starting. Really, I think it pretty much under plays is that whole first box, which is the council's management and permitting connected to FMPs. That is a lot more complex I think than what we're doing.

In the South Atlantic, the council has just established this to provide these kinds of scopes. If they wanted to go forward with having full control over that, that decision and the development process would have to be adopted. This is a model for the Gulf of Mexico right now, and I think Pace is right or your comment is right about the Corps having more influence.

I think under the one umbrella the whole EFH and requirements is also embedded under the FMP side that is captured by that permit. It is connected to it there versus a lot of the other coordination that I think are being identified. I think as Pace indicted, though, in this case it would be the management policies that the council is developing. In our case we have kind of packaged those.

Those would be influencing at least hopefully a lot of the other activities that are shown under here. I think there still has – and I was just talking to our council chair of the habitat group, that the South Atlantic Council has not endorsed actually moving forward with full permitting through the council level. They would have to do that for this to kind of really connect in or expand or be functional. Right now the guidance is on looking at what the implications are wherever it's coming from. Then that type of decision could come further. I guess this is going to sort out some of these jurisdictions beyond what the interactions are right now.

MS. DEATON: I was just going to say I think the Corps – I mean, I don't understand why the Corps would not pass on any application they received to NMFS to review and the same with EPA to whatever state water quality agency there is. In North Carolina what is happening is that even on just inshore oyster restoration they are adapting.

When they start to see activities, they will add it into their process. Now even for our culture planning that we've done for decades, we have to get a Corps permit, because they want to make

sure everybody else has to get a Corps permit, because we are getting a lot of nonprofits doing activities. I think as the activities occur, they are going to make sure people review it.

MR. WILBER: The difficulty I think sometimes is each one of those agencies that is listed up there evolves over time with how it views its own set of responsibilities and how it executes them. The Corps in particular, if you look over a large enough time period, you can find them exercising all kinds of authorities that are strictly outside a Section 10 permit inside a Section 10 permitting process.

You can find differences between one Corps district and another as to how willing they are to go outside those strict boundaries. My bias at this moment in time is I am now suffering from the Corps, particularly the Jacksonville district going on a very restrictive approach. They are doing less under Section 10 today than they did a year ago.

They were doing less a year ago than they were doing four years ago on pipelines and transmission lines that go through deepwater corals and things like that. Even to the point where they say if the boat itself is not going to be a hindrance to navigation while it is putting the cable on the ground, they don't need a permit from the Corps to lay a cable through deepwater corals out in federal waters.

Everything is a little kind of squishy here. The other point that Anne mentioned that I think is really good, and Roger mentioned as well, is that this is sort of the federal view of permitting captured in this slide. It doesn't have the state view of permitting. The importance of the state view of the permitting is going to depend on how close it is to that magic line and how credible you can say the impacts are going to move into state waters.

Then the other issue related to that is this is the Gulf of Mexico. Their state waters are at least three times as far offshore, up to four times as far offshore as what we consider to be state waters here on the Atlantic Coast. It is a sort of a different kind of world out there. I think this slide is an excellent springboard to understand the context of the discussion.

AP MEMBER: Just a comment; looking at this thing here; if I'm a private investor and I want to build one of these farms and I take it to the bank, they are going to look at that and want to know what the cost benefit ratio is for this operation; and when are we going to make a profit, when are we going to start? I might be dead and gone by the time my permit gets approved.

Then, when it is up and running, I am just trying to imagine the pounds to finished product you are going to come up with for the money you've got to put into it for a private business. Now I know the government can do it, because cost/benefit ratio is something they don't really have to seemingly bother with.

The other thing has anyone looked at Google Earth lately at the southeast coast of China and seen these pens along the shore; just massive on all of the coast there. They are raising fish. I wonder; you know, you go into any supermarket here; a lot of what you see if from Southeast Asia and China.

I've often wondered how our Food and Drug Administration is keeping up with the content of pathogens and antibiotics in the fish that they raise. I'm not so much worried about what we

might raise or what we're raising. I don't know; it is just probably outside of the scope of what we're doing here, but just a comment. Thank you.

MR. STREET: Relative to a comment that Ken made; in reviewing and looking at one project and another project and another project, yes, each one needs to be reviewed, but you also need to look at direct, indirect and cumulative impacts. If you have one here and ten miles away you have another, you are not going to worry about cumulative impacts.

But if you have one here, one another half mile, one another half mile, one another half mile; then, yes, you are going to have cumulative impacts. This is something that needs to be built into the system at the beginning, because the issue of cumulative impacts is very difficult, but it is also very, very, very real.

MR. WILBER: We need to put a bow on this. I can kind of see two things. We can go through the page that has the policy recommendations and just kind of quickly go through, collect any comments on those – I believe there are nine on that page – pass that off to Chris and he can mull those over in the second draft.

We can do that now or we can take a quick break and then come back and do that after the break. I've heard one voice for a break. All right, so we'll break for 15 minutes and then come back and then go through that list of the policy recommendations. Thank you.

MR. WILBER: Roger is going to put up the page that has the policy statements. It was noted already that there are some other policy statement stuff earlier in the document, so we will eventually move all those into this section as well. I guess we'll just start with Number 1 and go to Number 9.

All right, council strongly supports through public review an effective regulation of marine aquaculture activities in the South Atlantic EEZ. South Atlantic fisheries are dependent upon healthy habitat already impacted from many anthropogenic activities' sources, so marine aquaculture must be ecologically as well as economically sustainable. I guess the key parts of that statement; we strongly support the public review and effective regulation of aquaculture and it must be ecologically as well as economically sustainable. Does that give anybody any gas?

All right, Number 2; permits should be for at least a 10-year duration with annual reporting requirements and a five year comprehensive operational review with the option for revoking at any time in the event there is no prolonged activity or there are documented adverse impacts to marine resources. Apparently there is a comment there about the sentence.

Given the changes underway in coastal ecosystems in response to storm events, rising seas and introduced species, such a cyclical review is essential. Does anyone have any issues with that? Seeing none; wow, you guys are going fast. The council approves use of drugs, biologics and other chemicals approved by the FDA, EPA, USDA or U.S. Fish and Wildlife Service, specifically for the use in offshore open water or net pen aquaculture.

MS. DEATON: Does that exist; like to they have that list now or is it to be developed?

MR. RILEY: It is in the appendices; your list is.

MR. STREET: Do they actually apply any of these chemicals in the pens or in the feed that they give them, or is it when they are in the nursery before they are stocked? Whole garlic; do they rub the fish with the garlic or what? I don't know how this stuff works. That is why I'm asking.

MR. RILEY: In terms of approved; hydrogen peroxide and maybe to a little extent formalin is applied on the vessel, and they will pass animals through a bath on a vessel for offshore.

MR. STREET: Before they stock them?

MR. RILEY: Similarly, or in the middle of production, they will do a harvest, a partial harvest and they will do a bath. It will be a bath treatment. Similarly if you had oysters, and let's say they had some other fouling organism and you wanted to clean your oysters; you might pass your oysters through a brine solution, a really strong salt solution.

That is a typical treatment that you would pass them through a bath that was a ship-based bath. Under the investigational new drug is Slice, which is a feed additive that is approved only for experimental purposes. It is an FDA permit that is held and then assigned by the U.S. Fish and Wildlife Service. Slice is a feed additive for sea lice control. Sea lice is a small crustacean that would infect offshore finfish. But it is technically not an approved drug; it is an investigational new drug.

MR. CALDWELL: Ken, you just mentioned the Service approved the drug for sea lice? Could you say that again, because I can't imagine how involved the Service would be for an approval of a drug for an offshore project unless it had something to do with migratory birds? I think you said Fish and Wildlife Service approved the drug or got approval.

MR. RILEY: For all investigational new drugs, FDA transfers or has permitted U.S. Fish and Wildlife Service to accept experimental protocols and distribute limited use permits for investigational research. The U.S. Fish and Wildlife Service does not permit drugs. The Food and Drug Administration does all of the permitting for drugs. Farmers would operate under the U.S. Fish and Wildlife Service's permit. Does that clarify? I'm sorry; it is a complicated process.

MR. CALDWELL: Well, I was just not familiar with or had not been involved with the Fish and Wildlife Service doing those activities, especially for offshore waters, and that's fine. But I did have one comment on maybe a potential word change. Instead of "or", I would put "and" up there. It has to be approved by all those agencies for use in offshore open water or net pen aquaculture.

MR. WILBER: But what if an agency is silent on the topic?

MR. CALDWELL: That's a good question. I would think that if we were requested for a comment, we would comment on it. We may say we have no comment or have no objection to it, but we would not be silent, per se. We wouldn't just ignore it. Perhaps "and/or"; the way it reads that you can just get one of those approval; you may have another person that – or EPA may approve it but USDA may not approve it, and that gives them the right to use that. But if you put "and" or "and/or".

MR. RILEY: There are no dual regulations of any of these products. This is in the appendices, and maybe it shouldn't be in the appendices; but the U.S. Food and Drug Administration regulates the use of animal drugs and animal feed. The EPA regulates disinfectants, sanitizers and aquatic treatments solely for the control of algae, bacteria slime and pest control.

The USDA Animal and Plant Health Inspection Service regulate veterinary biologics, including vaccines, bacterins, antisera, diagnostic kits and other products of biological origin. Those are your three managing agencies. They have discreetly partitioned all their regulatory authority.

MS. WENDT: Unless the council has their own toxicologists that they consult with, I'm not sure the council should be in the business of approving these drugs and chemicals over which other agencies have jurisdiction. I would suggest that the council just defer to these other agencies rather than say they approve of these drugs unless they have some independent way of reviewing their use themselves in a scientific way.

AP MEMBER: I think we should leave it open a little bit, because sometimes issues come up; not necessarily from our experts, but from other experts who might be on the panel who aren't here that might have an issue with a future ingredient. I think we should leave it at least a little bit open that we can make further comments if the list changes or on this list.

MR. STREET: How about the council accepts use of drugs, biologics and other chemicals as approved by the FDA and/or EPA and/or USDA specifically for use, because Fish and Wildlife Service is not an approving agency nor is NOAA, but those three are the ones that are charged legally with authority.

MR. WILBER: I think that will work. What he is saying is put the "and" before USDA and delete the Fish and Wildlife Service, or "or"?

MR. STREET: Well, approved by the FDA, and/or EPA and/or USDA, because they each have the groups that they have authority over. Then delete the last "and/or" specifically for use in offshore open water or a net pen aquaculture. Now, those are the only two classifications of culture with which the council is going to be specifically concerned in; and that is offshore open water or net pen, because the council's authority is only from three miles out; or are we taking it more broadly. If that is the case, then the open water or net pen culture may not be appropriate if we want to have a more broad context?

MR. WILBER: That is an excellent point. What I would propose then is that we delete everything from offshore to pen.

MR. STREET: If we don't want to restrict it that way, it would end after USDA.

MR. WILBER: That would work, too. Well, it is less words if we just delete everything after USDA. The fact that the statement is inside an aquaculture policy implies that the statement is in fact relevant to aquaculture. That will work.

MR. STREET: Or another one could be added somewhere that provides for state concerns, policies, and plans. What the group has to say on that – that is a new issue really.

MR. PUGLIESE: I think it is clear that the group or at least the intent is to cover all the aspects so that you address all the implications for EFH across both offshore as well as inshore. This was specifically trying to capture the implications of use of these types of drugs, et cetera, in offshore areas; so either a tandem or elimination either avenue would accomplish. What would be more useful to the state partners is to have it very specific or just keep it this, and then it covers it all.

MS. DEATON: I would keep it general, because you don't know what is going to develop in terms of aquaculture in Pamlico Sound, Indian River Lagoon, inside waters. That would be my thought, general.

MS. WENDT: If you read it as you've edited it now, what does it say? The council accepts use of drugs approved by these agencies.

MR. WILBER: Correct.

MS. WENDT: For what? It is sort of a general statement that doesn't go anywhere if you just read it. I mean, we're picking it apart.

MR. WILBER: All right, we can add in aquaculture or for aquaculture to the statement.

MS. WENDT: Yes, now you're saying that the council accepts these drugs. Are we ready to move on to Number 4?

MR. MIKEL: No, I still think it is too broad; growth hormones have been okayed by USDA. This certainly is a loophole for them to start using growth hormones. I just don't think we need to introduce that into our oceans. In the old days we used to dump our garbage and everything else in there, and we've cleaned up a lot of that.

Now all of a sudden we're putting wind farms and fish farms and God knows what else in the ocean, and I think we are going to create a monster. I mean all we've got to do is look at the younger generation there, and they reach puberty at 9 and 10 and not 16 and 17.

MR. WILBER: I'll have to defer to Ken, but the way that is written now; would growth hormones be included?

MR. RILEY: If one of those agencies approved that at some future point, then it probably would.

MR. WILBER: That is because of the word either drugs or biologics?

MR. RILEY: Well, it is a hormone so that is a biologic. I have attached in the appendices the current drugs, and there are not hormones except for hormones for spawning reproduction.

MR. MIKEL: I understand that, but we are doing a policy paper and we're getting ready to say, oh, yes, well, we can do that if USDA approves it.

AP MEMBER: How about if we put in something that the council reserves the right to – some disclaimer that would allow if some new evidence or something came up that we needed to act on to get us out?

MR. PUGLIESE: One of the other tact you could take is specifically identify which ones are allowable now, which is a very short list, and then review of other will be subsequent. You're talking about some very basic types of things from brine to peroxide to simple types of – in the South Atlantic Region, right? Is that correct?

MR. RILEY: That's correct. Do we need to put in a statement there the council accepts the use of currently approved and future drugs, biological and chemicals are subject to review?

MR. WILBER: Well, I think we have some options here. I'm just brainstorming what I think the options are. We can pretty much – we have an appendix that lists what is approved, and we could modify the statement to say accepts the use of drugs, biologics and chemicals as listed in Appendix, blank, and approved by those agencies.

We're only endorsing or accepting at this moment in time the ones that are listed in the appendix. The other option is to let the statement pretty much stand as is and then add some kind of caveat, either about a class of drugs like growth hormones, that we reserve the right to make a decision about those later; or we make a general comment about; well, we're going to continually look for new information.

If new information comes in, we will update the policy. Do we want to be real restrictive and reference the appendix at this point, because that kind of addresses these kind of "what if" concerns that we've been voicing; or do we want to highlight a particular class of drug for exclusion from this statement?

MR. MIKEL: I visualize five, six, seven years from now some lawyer looking at this and saying you haven't outlawed them or told us we couldn't do it, so we're going to do it; and we lose.

MR. WILBER: All right, so we need to make a decision; are we going to go as listed in the appendix? The appendix doesn't list any of the growth hormones, right?

AP MEMBER: I think we should go with your third option, which is still flexible but it doesn't involve us having to look at this every three months.

MR. WILBER: Ken said there is a fourth option; we just delete this whole bullet. Anne.

AP MEMBER: The third option was saying we reserve the right to go back and look at it.

MS. DEATON: I was going to suggest maybe adding a sentence into the policy to the effect that something like the council will work with FDA, EPA, USDA to ensure that any future products – let's see; does not approve products that are found to be endocrine disrupting; to have significant endocrine disrupting effects on aquatic organisms.

Because it is still under research about which chemicals they are, how much is too much, how much will have a negative effect. I think there are a lot of unknowns to be too specific; but just

some kind of a cautionary sentence that you know that is not good and we're going to keep an eye on it.

AP MEMBER: I wouldn't want to limit it to just endocrine. I mean, it could be something else that we don't even know about.

MS. DEATON: Well, endocrine disrupting is pretty broad. That includes the growth hormones.

AP MEMBER: I know but what if it is antibiotics or some other completely different chemical they use. What if it is just something else that is not a growth hormone? I would want to keep it more general.

AP MEMBER: Shouldn't that read not approved products that have endocrine-interrupting characteristics?

AP MEMBER: Well, just in his appendices, Table 3 is investigational new animal drug exemptions for use with permits held by U.S. Fish and Wildlife. Well, there is about four or five hormones right there in that list. These are already under investigation, correct?

MR. RILEY: Yes, Ma'am, they are.

AP MEMBER: You've got everything from pituitaries to testosterone, luteinizing hormones. They are already under investigation, so this probably is an important thing to address right now, right, because they are probably right up on the next list for approval, right?

MR. RILEY: Well, I guess my only question is the lawyer and the jurisdiction.

AP MEMBER: Right, but I mean if –

MR. RILEY: You are correct, and the fact that this INAD program is a method to allow farmers with U.S. Fish and Wildlife Service oversight and veterinary oversight to have access to more, because they are so limited on products that they can use.

MR. WILBER: Trying to get us out of this; you know, we have to kind of be realistic too about what the council's jurisdiction is and what their authorities are. The council really has no option other than to accept the use of drugs, biologics and chemicals that are approved by FDA, EPA, or USDA.

It is not like they have an option to say, no, we don't accept it. The key part really is to voice an appropriate note of concern about things that are under investigation, have not been approved, or haven't even really been thought of. That is kind of what that last added sentence is kind of getting at is that the council will work with the various agencies to ensure future approvals do not include products that have endocrine-interrupting characteristics. Whether we need to now put a comma and put something else besides endocrine-interrupting characteristics, and then finish off that list or not; I don't really know. This is way outside my area of expertise.

MR. TROWELL: Maybe we should say instead of we'll work with say support the continued research, because again the council doesn't have that expertise. As you stated, I think the

council is getting outside – we are going to have to depend on and rely on the expertise in the EPA, USDA, and FDA to ensure that we're not introducing something that is going to be harmful.

MR. STREET: Aren't the purposes of some of these hormones that are in the list; like methyl testosterone, it is intended to have endocrine-interrupting characteristics by converting a population from a theoretical 50/50 to a 90/10. That is an endocrine-interrupting characteristic.

MR. WILBER: Okay, but this caveat in this sentence is for future approvals and not commenting on the wisdom of past approvals by those permitting agencies.

MR. STREET: Okay, endocrine-interrupting characteristics on non-target species.

MR. WILBER: That's good.

MR. PARKER: I think Paragraph 3 is weaving kind of a tangled web for council that they might not be able to use like, or whatever. Can we eliminate 3; can we just bypass it?

MS. LAWRENCE: Is there a public review process with FDA, EPA, or USDA? There is. Okay, it may be important for future products that come out that the council may want to provide comments during those public comment periods; maybe not necessarily support, but review and provide input.

MR. WILBER: All right, it is painful but it's getting better.

MR. GIBSON: I wish we had a lawyer here. What I could envision here is the aquaculture industry gathers a tremendous amount of power, and they do some sort of thank you for smoking type campaign on fish that is poisonous in the end. All of us consumers, we realized we've been poisoned and we file a class action lawsuit. Could the council get dragged into this because of this policy?

MR. WILBER: We have to ask a lawyer.

MR. GIBSON: If so, can we put something in here that protects the council to something like –

MR. WILBER: I think that is something – I mean, once this policy is kind of done and it goes to the council for approval; that will include a review by council, and we can make sure that they are aware of that concern before it ends up at council.

MR. BURGESS: As I'm listening, I do get the idea of the AP that to move forward cautiously in the future about what is accepted and approved. Your message will be – you know, the council will know that. However you want to word it is fine; but as far as moving forward in the future with what is approved; they will know that you have your concerns.

MR. WATTERSON: I was just going to ask Roger real quickly if he could either remove or lighten that watermark.

AP MEMBER: That's what I was going to mention. It is a matter of semantics, but I would just recommend to ensure future approvals, do not include products.

MR. WILBER: All right; are we okay with that?

(Question asked off the record)

MR. WILBER: Yes; or do you want to delete it?

AP MEMBER: Shouldn't it be disrupting as opposed to interrupting?

MR. WILBER: The first sentence is going to have to – I think the simplest thing is to keep the first sentence there, because that introduces the whole drugs, biologics and chemicals kind of notion. It is a topic sentence.

AP MEMBER: We want to limit it to only that? I mean couldn't we say future approvals do not include products that are harmful to X, including endocrine disrupting?

AP MEMBER: Or you could say after endocrine disrupting or otherwise harmful to non-target species.

MR. PRATT: How about if we change the whole sentence and say the council does not approve of the use of drugs, biologics and other chemicals that will have detrimental effects on endemic wild species' populations and people; won't that cover it?

AP MEMBER: You used the word approve at the beginning, which we cut initially.

MR. PRATT: Well, that is what you're doing.

MR. RILEY: You could say endorse.

MR. PRATT: The less words we can put in it, Pace, the more it is going to be accepted and the easier it is going to be to defend.

MR. WILBER: Terry, just repeat it so Roger can catch it. All right, so I guess we have more options than we care to have at this moment. We can replace three with what Terry just provided or I also think we could keep three pretty much as written and add Terry's as the last statement.

AP MEMBER: Just one more; I would say "may have" instead of "will have", because we don't know that.

MS. WENDT: Pace, I would say populations or people so that it doesn't have to affect both. It can affect either one and you would still oppose it.

MR. WILBER: All right, there will be opportunities to comment on this through e-mail and at the next AP meeting.

MR. MIKKEL: That was not my intent, but that is closer and I didn't mean for us to get bogged down.

MR. WILBER: You think we got bogged down on this one; wait until the next one. Okay, moving on, Number 4; the use of non-native species should be prohibited in offshore environments. The use of genetically modified organisms is a highly controversial debate and should be considered as a separate issue pending approval by FDA. Now, this may be one of the cases where we do want to limit the statement to offshore environments as opposed to making it general for all environments; but that is something to consider as well.

MR. STREET: If you just say offshore and there was a non-native there and it got loose, they will be in other places. If there are non-natives nearshore or estuarine that gets loose and they can live in offshore environments, they will get to those environments. There is no way that escape will be limited to the specific location or environment in to which it originally escapes.

AP MEMBER: Such as the lionfish.

MR. STREET: Who knew?

AP MEMBER: I'd recommend just stop the sentence at "prohibited".

MR. RILEY: If you're going to include coastal habitats, South Florida and Florida; their aquaculture industry is dominated by ornamental fish culture. It would contradict with state law or state industry for Florida.

AP MEMBER: But those are in ponds.

MR. RILEY: In ponds and tanks; no, no, they are. I just wanted to clarify to make sure.

AP MEMBER: We're just saying should; we're not saying must. We would encourage not doing it, but we're not saying they shouldn't.

MR. WILBER: My question to find out really how serious of an issue this is inshore. Wouldn't a hybrid mussel or a hybrid clam be considered a non-native species here? There is plenty of aquaculture of hybrid mollusks inshore.

DR. ELKINS: What about hybrid striped bass?

MS. DEATON: I don't know about the mollusks; I don't think they are in North Carolina.

MR. WILBER: Florida, the two hard clams; campechiensis and Mercenaria mercenaria, aren't there hybrid of those that are raised in aquaculture farms?

MR. RILEY: They've also done a lot of work in North Carolina with the Asian oyster where they have put it out in the natural environment.

AP MEMBER: Well, they were considering it, but they're now.

MR. RILEY: No, they have been out there when they were doing their testing, and some of them got released.

AP MEMBER: I don't know; I was going to say what if you changed that to public trust waters, which would exclude the ponds and the tank type things. What you want are no non-natives in public trust waters; and as far as the hybrid thing, maybe – I don't know; that is not really a non-native. It depends on what it is a hybrid with.

MR. WILBER: Well, the problem is the next sentence when it starts talking about genetically modified organisms.

MR. RILEY: I'll just say that the Gulf Council spent extensive time and many, many pages and many, many discussions and meetings on the definition of genetically modified organisms. They went to the length of defining it as insertion of DNA from another species or organism into the culture species so that you could have the opportunity for breeding programs and domestication programs, because you can get a slippery slope in terms of defining what genetic modification is.

MR. PUGLIESE: To that; what was the policy then that they approved for genetic in offshore? What is their position in the Gulf amendment now?

MR. RILEY: It is very specifically defined as no genetically modified organisms. In fact, it is defined very specifically it has to be local stocks. You can't take Atlantic stocks and stock in the Gulf; and if there are separate stocks in particular species, it has to be the same stock where the operation is sited.

MR. PUGLIESE: Some of that has evolved since this original policy position, because this is a spinoff of the original policy to try to get to the point of both non-native and genetically.

MR. RILEY: FDA has specific language that I'm not sure exactly what it is, but I think they use genetically engineered is their terminology. They shy away from saying genetic modification since it can be so broad; but they have a very specific terminology that I could research and communicate that with you if you are interested.

MR. PUGLIESE: I guess that was where I was going with this; that since this has evolved since this last statement about it being an issue under discussion and everything; is this the time to integrate and discuss both non-native and genetically in one point? You stated that the terminology being used right now is genetically engineered would be it.

MR. RILEY: I can't say that is exactly right, but I know that it is not genetically modified. The FDA does not use genetically modified.

MR. STREET: May I suggest that we limit four to just the first sentence; and then because it is something different, and you can call it 4A or renumber from there down. Are we prepared for discussion of GM stuff?

AP MEMBER: My gut thought is that would be a very big restriction on aquaculture; I'm thinking, but I don't know.

AP MEMBER: Can I say something? Let's say the gene in oysters that confers resistance to dermo was identified in a strain in Virginia, and I wanted to develop a line in North Carolina with that resistence gene. I can introduce it using modern genetic techniques into the North Carolina oyster or I could bring that oyster down and through ten years of cross-breeding and so forth, I can introduce that gene along with other genes from Virginia into the North Carolina oyster to get rid of dermo. That is what we're talking about.

The second scenario is what we've done with corn, rice and all the other crops we have. They are genetically modified; but modern molecular biologic techniques were not used. There is more than one way to skin a cat here. It is really fuzzy and I'm not sure that it is something that we need to dwell on. Let other people like the FDA do this.

MR. WILBER: Okay, speaking to that point; we could change this to say the use of genetically engineered organisms is a highly controversial debate and should be considered separately by the council pending approval by FDA. We've raised the flag that it is an issue. We've not really taken a stance as to like what side of the sandbox we're in, and we're going to wait to be more informed by agencies that have the ability to inform the debate. Priscilla.

(Question asked off the record)

MR. WILBER: And not going any farther than that?

MR. PUGLIESE: Just clean it up.

MR. WILBER: Oh, got it. Thank you.

MR. STREET: What I wanted to ask is one of the big issues in the genetically modified seeds is the fact that they are patented and greatly restricting the use by farmers of seeds that they may want to use; and it is not just U.S.; it is a worldwide issue. Is the scenario presented on the modifying a single gene for dermo-resistant versus bringing in a wild stock with its other characteristics.

If it would be a patented gene and somebody were to pay the company and have it on their farm, and then it got loose and was hybridizing with wild stock in North Carolina or Virginia or Florida and South Carolina, Georgia; wherever; could the holder of that patent then say all of the oysters in these states are mine? It is a legal, sticky issue but I am not sure.

I doubt if he would win and the court would say God did it. That is an act of God that they are all out there. I think we need to be very careful and not go too far. The way it is there now probably allows that. What we want to do is say it's an issue; talk about it; don't bury your head in the sand.

MR. PUGLIESE: Just as staff bringing this back up to the council further; given the Gulf Council has taken a position in offshore waters on genetically altered species managed by the council; this is a situation where you may want to keep this, but really have the focus on the inshore relative to the debate, and consider that there has been some precedent about talking about the use of genetically – I mean, does anybody anticipate the use of any genetically altered in offshore waters, truthfully?

I mean, I understand Chris's justification for some of these other activities, but in offshore or managed species where you could potentially have population impact and different things like that; is that anticipated as really something that would happen, especially given the fact that the Gulf Council has already taken a significant position on the use of those? I'm just raising that, because I think that is new on the table versus where we were in this discussion earlier on.

MR. STREET: What are the most likely species that might be involved in offshore pens or enclosure or whatever in the next ten years in the South Atlantic?

MR. PUGLIESE: The ones that have been tested – and right now you may clarify this – in Puerto Rico they are already looking at – they have cobia pen culture; and the state of South Carolina is doing investigation on cobia aquacultures, so that is one I know. There are a lot of other discussions on supplementation in the Gulf of Mexico for some of the reef fish population.

I don't know where that is ultimately going. I've also heard black sea bass is potentially one. Those are at least some. I think truthfully black sea bass is probably going to be mostly inshore, if they do go down those roads. These are just kind of rumblings about what is either being tested or some of the other research that is contributing.

MR. RILEY: The offshore species that are readily developed and could be applicable tomorrow; number one would be cobia, Florida pompano, red drum, striped bass, red porgy, and then possible shellfish species.

MR. WILBER: All right, so are we okay with what's there? Is it okay to move on to the next? Note for the record that I see lots of nodding heads in the affirmative. Number 5; given the critical nature of proper siting, the applicant should provide all needed information to evaluate in full the suitability of potential sites.

If sufficient information is not provided in the application review time allotted by existing processes, the permit should be denied or held in abeyance until required information is available. It's just my personal view that is a pretty standard alternative siting type language.

MR. WATTERSON: How are we defining all needed information?

MR. WILBER: I'm not sure how the council would define that, but from a permitting agency you have criteria that you have to evaluate that you inherit from your authorities. You look at the siting decision with respect to those criteria; and if there is a box missing, you ask for the information needed to fill the box. For example, if I'm an agency that focuses on economics, I ask economics questions. If I'm a fishery agency, I ask fishery questions. If I'm a water quality agency, I ask water quality questions.

MR. WATTERSON: My only question here was is this limited to environmental considerations, or it also limited to, well, they don't want to put an aquaculture site in an area that is heavily fished, which would not be so much environmental as socio-economic.

MR. STREET: That would be under the purview of the agency that is reviewing or permitting. Steve knows how that works in North Carolina.

MS. DEATON: I was just going to add that the permit; there is no permit application for an offshore aquaculture facility right now, so they will develop it and they can put in there whatever they want. I would think navigation concerns, fishing concerns – well, when we review permits, we look at fishing impacts and navigation impacts, but I guess National Marine Fisheries Service does also. They can put that in an application or the review process.

MR. WILBER: Strictly speaking, the Fishery Service would look only at the environmental impacts. If we have to issue a permit, we would get the navigation information from a commenting agency. Carter, is there a word that we can insert here to clarify this, or is this basically okay as is?

MR. WATTERSON: I'm fine with it.

MR. PUGLIESE: I know where you're going, Carter, because with our review, that is, of course, going to be fishing operations, fish habitat, and all those types of aspects being taken into account. We're dealing with something, as Anne has indicated, doesn't have a permitting process right now, so we're trying to front-end load at least as much guidance before we go down the road; because if we go further, I think a lot of this at least from the council perspective and from NOAA Fisheries would have to include some of that type of information, because otherwise the implications for that are going to be more significant. But if you want to be clear about it, as Pace said, we could specifically indicate those components right here.

MR. WILBER: All right, no one has proposed a wording change. Carter said he was okay. .

DR. ELKINS: Would there be any place in here for public comment for an offshore? I know that in North Carolina we sit down any time there is a lease or a pound net set up in a public trust resource and ask if there is opposition to allow the public to have their say. I also know that the council has a history of asking maybe to a fault too much public comment in some of their fishery rules and regulations. Is that an appropriate thing or should we just leave it up to the regulatory agency here?

MR. TROWELL: Through the regulatory process, there should be and will be a public comment period, public hearing and that kind of thing.

MR. WILBER: Moving on to Number 6, which is the new Number 7; monitoring plans should be developed by the applicant/permit holder and approved by NOAA Fisheries with input from the council. Monitoring plans should be reviewed, approved and funded prior to implementation. Any comments?

MS. HILFER: How can you fund a monitoring plan before it is approved?

MR. WILBER: Well, it has to be funded prior to implementation.

MS. HILFER: Funded prior to implementation; to be reviewed, approved and funded prior to implementation, so they have to have money up front.

MR. WILBER: Yes; that is my interpretation of that. For a large controversial project, that is kind of standard stuff from the regulatory.

MS. HILFER: But for how long would they have to – if it is a ten-year project? They have to put it in place is what you really mean, right?

MR. WILBER: I think they have to demonstrate they have the resources to meet the requirements for –

MS. HILFER: To pay for it.

MR. WILBER: Yes, to pay for it, and to conduct any –

MS. HILFER: It's just a little awkward; I don't know

MR. STREET: I think the review and approve is one process; monitoring is another process. We've got confusion here. It should be reviewed or following review and approval, which is what we've been talking along. Well, no, monitoring plans should be reviewed and approved; and then probably a separate sentence following approval, monitoring should be implemented by – the monitoring plan should be implemented upon approval by the permittee; something along that line. I know there have been issues in North Carolina where we recommended monitoring and things like that for permits, and they were never done even though it was a permit condition.

MR. WILBER: Okay, so monitoring plans should be –

MR. STREET: Should be implemented upon implementation or something like that.

(Remarks made off the record)

MR. STREET: Yes, I know. I agree with that, Anne, that is not good English.

MR. WATTERSON: If we went back to what it said before, but put in at the end "funded prior to implementation of the aquaculture operations". I think that would solve it.

MR. WILBER: Yes, I agree.

MR. PUGLIESE: It reads: "Monitoring plans should be reviewed, approved and funded prior to implementation of the aquaculture operation.

MR. STREET: That gets back to the confusion of review and approval, which is a separate step from implementation of the plan. I think it is two separate sentences.

MR. WILBER: The plan has to be reviewed and approved and funded prior to implementation of the aquaculture operation. Then the only question I would add is do we want to throw in the word "construction", you know, like "aquaculture construction and operation"; like they can construct the facility but not be viewed as operating it? Is that a distinction?

MR. PUGLIESE: Construction up at the front end.

MR. WILBER: Excellent. Mike, is that okay?

MR. PUGLIESE: That reads: "Monitoring plans should be reviewed, approved and funded prior to construction and implementation of aquaculture operations.

MR. STREET: One thought – and I'm not quite in there – the monitoring should be an integral part of the aquaculture operation.

MR. WILBER: Okay, so we could get to that end by at the end of the current word "operations", insert "and tie to an adaptive management program". That would be a common buzzword way of dealing with that. I see some heads nodding. Are we okay with this? All right, new Number 8; Permittees must have adequate resources legally committed to ensure proper decommissioning of obsolete or storm-damaged facilities".

MR. MIKEL: Like I said earlier, bond should be in there somewhere, adequate resources can be expended before bankruptcy or whatever and then nobody is left with anything but a mess.

MR. WILBER: The question I would have is legally committed; is bonding just one way they can be legally committed or do we want to tie them to just to a bonding?

MR. STREET: I think they should be tied to something that they can't get out of. I have seen you declare bankruptcy and you walk away. My question is the legal commitment is an issue, because I know for a number of permit projects in North Carolina; we as an agency recommend there be a bond, and that bond was never included in project permit conditions.

I think we were told that we don't have the legal authority to do so. Is there in fact legal authority somewhere in federal permitting primarily is what we're talking about here and not state permitting if it is going to be primarily offshore; but is there such an authority to actually require it? I absolutely want us to make a recommendation like this, and I think bond is probably the best term to use, but can it actually be done?

MR. MIKEL: The highway department.

MR. WILBER: I've seen bonds as permit conditions from like the Coast Guard and FERC and the Army Corps of Engineers. They don't do it cavalierly, but it can be done. I think the more relevant question is does NOAA have that authority in the issuance of an aquaculture permit? We either have that authority or we don't.

If we don't, then it probably would be an Act of Congress to get it. We can put "should have" or something in there to make sure that this is a point that is visited. The other thing I would note, too; and this is more common in the FERC arena than elsewhere, but there are often these sidebar agreements that have legal standing, but are not part of the regulatory process of the issuing agency. Like in a hydro-licensing operation, there is often a settlement agreement where everybody agrees to do X,Y and Z.

FERC looks at it and says but we only have the legal authority to require X in a license for this hydropower facility; so this settlement agreement remains the sidebar kind of thing that has legal standing, but allows everyone to mutually agree to the expansion of the authority of the agencies involved.

(Remark made off the record)

MR. WILBER: Well, I don't think we necessarily have to say that. I'm just recognizing that even if NOAA – first off, going back to the wonderful diagram we had of the legal authorities, a couple of those boxes do have the authority to require a bond; but given what their role would be in the review of an aquaculture facility, I doubt seriously they could be convinced to exercise that authority to require the bond.

The key agency that has to have that authority is NOAA, because we issue the aquaculture permit, and I don't know if we have that. I think the council saying that some kind of financial assurance to deal with a decommissioning or a storm-damage facility is important; the actual mechanism for it I don't' necessarily think we know enough to specify what it should be. I'm just noting with an example from FERC that there have been some creative ways to kind of go outside the boundaries of your sandbox.

MR. STREET: I would suggest adequate resources, then parenthetical; such as a bond.

MR. PUGLIESE: This provides the opportunity to investigate whether live rock aquaculture has the bonding capability already in it; and if the Gulf Council, in their implementation of the most recent action on that, has addressed this issue of how they address or include bonding. We can look at that as this policy moves forward.

MR. MIKEL: The reason I'm so insistent on that; right now I think we're going through a permitting process. We may be through with it down on the Outer Island for an oyster farm. I brought up the idea of a bond, and I don't know whether they went through with it or not. I think they thought they should do it; I don't know whether they did do it.

Then they were trying to put a dollar value on getting the pens out of the water. I think the farmer himself put a dollar value on what it would cost him to get it out. Then the contractor shows up and says, oh, no, it will be three times that much. It can be a serious matter. I don't know what is happening in North Carolina; but the clam farm situation in South Carolina, we've still got clam pens in the water from an operation that went belly up, what, 20 years ago.

MR. PUGLIESE: To that point, I had a quick question because the way this reads, it says "obsolete or storm-damaged facilities". Should we include "abandoned", so that if you have somebody – because I don't think it is covered in the way that is stated. I was thinking after you said that before, if somebody goes bankrupt, that is not really covered under obsolete, maybe a fully operational facility, but if it just gets abandoned.

AP MEMBER: You could also add permit revoked. If Fisheries were to revoke their permit, they would be able to access those resources to remove their operation if they didn't willingly remove it.

MR. WILBER: Looking good! Let's move on to Number 9; the issuing agency should have clear authority to repeal or condition permits in order to prevent environmental damage and exercise its authority to repeal permits if it becomes evident that environmental damage is occurring or if permit conditions are not met.

MR. STREET: Is repeal or revoke the appropriate word?

MR. WATTERMAN: I would just say we might want to say "in order to prevent or minimize"; "clear authority to repeal or condition permits in order to prevent or minimize", right there.

MR. WILBER: Okay; and it's got the word "should", because we can't tell another agency what to do under its authority.

MR. MIKEL: With all due respect, I don't like "minimize". I want it to be back like it was.

MR. WATTERSON: Well, in reality anytime you put something out in the environment, there is going to be some level of environmental damage. As we already talked about, you're going to have nutrification within a certain area around the aquaculture facility. That is environmental damage within that area. I mean, you can't prevent it; it's going to be there. The reality is you have to minimize it to the extent you can.

MR. STREET: In the first line should it be "revoke" instead of "repeal" also?

MR. WILBER: Are there any comments on this one?

MR. CALDWELL: To follow up on what Carter was saying, that last sentence or last part of the sentence, you need to take out that environmental damage is occurring; because just the placement of the structure there, you are going to have environmental damage. I would just say if it becomes evident that permit conditions are not met; revoke the permits if the conditions are not met.

MR. WILBER: Could you say that again, Mark.

MR. CALDWELL: Just eliminate the environmental damage in that last part of the sentence; exercise its authority to revoke permits if it becomes evident that the permit conditions are not met. No, leave "if it becomes evident", leave that in.

MR. WILBER: You're saying that the permit acknowledged that some environmental damage is going to occur and it is authorizing that damage to occur. Then if it goes beyond what was authorized to occur, that is when – okay.

MR. CALDWELL: Correct.

MR. WATTERSON: You need to put that back in, Roger, after "evident".

MR. PUGLIESE: A quick note to address Jenks and other concerns; the thing that we always used "to the maximum extent practicable"; I mean, that whole issue of minimize – I understand exactly what you're saying, because a lot of times actually in our policy statements we push very hard conservation or preservation and really downplay some of the issues of mitigation because of that very specific request to try to be more stringent. The opportunity to maybe even include something like to the maximum extent practicable may at least get it further down the road, if that is the desire, or just go back.

MR. WATTERSON: I agree with that suggestion; put it in after "minimize".

MR. WILBER: Taking my hat as Chair off, I've never liked that phrase "maximum extent practicable", because it introduces the whole notion that someone gets to do an economic balancing test as to whether or not the additional approval is warranted the cost it takes to achieve it.

It is always handled by an agency that tends to be biased towards one side of that equation versus the other. That phrase just always bugs me. Even when I worked for the Corps of Engineers and used it almost every hour, it bothered me.

AP MEMBER: One final thing; I think we need to take "revoke" out of the first part of that sentence because it is addressed in the second part of the sentence. "The issuing agency should have clear authority to condition permits in order to prevent or minimize damage and exercise its authority to revoke it if that becomes evident". Take out "repeal", too, yes, take all that out.

MR. WILBER: Excellent. All right, anything more? I guess operationally I have to look at Chris and Ken here, so you've gotten a bunch of input. We've gotten some track changes here. Are you guys ready to take on Draft 2 or are you looking to council staff to come up with Draft 2, which might be a really difficult thing given how busy they are.

MR. RILEY: We'd be happy to.

MR. WILBER: All right. Well, personally I think you guys did an outstanding job. This was really good. Given all the pain the original aquaculture statement went through, me personally, this is just great. It is really particularly good that, Chris, you were able to get the National Ocean Service and their ties into the NOAA aquaculture program to participate in this. This was really very good. Thanks.

MR. PUGLIESE: I'll work closely with you, because I want to make sure that we also have – I know Todd was involved at the Beaufort Lab and make sure that we have even more of their involvement directly. You're right there.

AP MEMBER: It's right down the hall.

MR. PUGIESE: Yes, I know. I just want to make sure. And if there are any issues that you may for standardization purposes with other policies, you may want to try to address, because this ultimately becomes a policy that is going to be again brought through the AP and then up to the council as a council policy statement.

MR. WILBER: Okay, it is 11:43. It is a little bit earlier than we intended to have our lunch break, but we can't really accomplish the next item on the agenda in any significant way in the next 20 or 30 minutes. I would suggest that we break now for lunch and resume at one o'clock.

The Habitat and Environmental Protection Advisory Panel of the South Atlantic Fishery Management Council reconvened in the Hilton Garden Inn, North Charleston, South Carolina, Tuesday afternoon, May 7, 2013, and was called to order at 1:00 o'clock p.m. by Chairman Pace Wilber.

MR. WILBER: Seeing how the morning went and the value to a group discussion; we are kind of floating the idea of rather than immediately breaking out into breakout groups; that we would take the SAV policy statement, which I think almost everybody in this room has some significant expertise and a significant stake in; and going to the recommendations section of that and going through editing, adding new recommendation, deleting unnecessary ones.

Then the idea is once Amber and the others who are working on the SAV policy statement have kind of absorbed all of that sort of group think; then we'll go back to our respective offices and then fill in the background sections and the scientific summaries and things of that nature that are needed to kind of support those recommendations. Hopefully, we won't come across any recommendations that have no scientific justification or anything like that; but if we come up with some of those, we can do that, too.

That is our recommendation for how to move forward at least initially this afternoon; and then after that is done, then it might be a more appropriate time to break up into two groups with some of the remaining policy statements and do the same thing but in a smaller unit. Does that seem okay with everyone? For the record, note that lots of heads are nodding in the affirmative. Roger is going to put up on the screen the part that talks about the recommendations.

MR. PUGLIESE: Yes, it goes into the planning. I think these entire three paragraphs are tied to the first statement, which is the recommendation of the conservation of existing SAV. I think that is one of the biggest points that it is trying to make here, alluding to some of the problems with restoration. The bottom line with that whole front end is conservation and protection of the existing SAV was the priority in the first paragraphs. Then it moves into planning, monitoring and research.

MR. WILBER: Is there any way you can take that paragraph with some strategically placed carriage returns; sort of break it up into its individual recommendation.

MR. PUGLIESE: I think the first one is the primary recommendation here.

MR. STREET: Are you trying to make policy statement out of that first one, management?

MR. PUGLIESE: I think what Pace wanted to do – this was an earlier form that we used to build these statements, and what he's trying to do is extract the key emphasis to get the crux of what that is in a succinct individual recommendation. The rest of them that are in planning and monitoring kind of get to that, but this one is one big, long and expansive to get to the point of conservation of all existing SAV.

MR. STREET: Okay, go back up to the management.

MR. PUGLIESE: Unless there is a different message that you see.

MR. STREET: The conservation you said is critical. It doesn't say recommends or will or shall or should. We have measures to restore or enhance SAV impacted by human actions or something is not proving successful. Therefore, existing SAV habitat should not be impacted by human activities. That is drawing a line; but because you can't dependably restore it or enhance

it, only Mother Nature does that and she does a pretty good job sometimes, then maybe you just say no.

(Remarks made off the record)

MR. PUGLIESE: Okay, that is essentially getting to – that is where it linked both of them. It is embedded in here so I had to extract that.

MR. GIBSON: I think that's a good move. One question and one comment; is that categorically true that we haven't had any success in the region on seagrass restoration? Second, I think we should add that because restoration efforts are expensive and have not met with success or much success.

DR. WHITTLE: Florida is currently looking at that actually. We pulled all of the permits for impact and restoration in Florida, and we've started a humongous database. Now our second phase is we're going to go out and look to see what has been successful and what hasn't been successful after the five-year success criteria is up.

I don't think I can answer that question. Certainly, we've done some experiments about what works and what doesn't in certain areas. To me this whole first paragraph is very descriptive, and that is something that Anne and I need to work on to update the descriptions. We were hoping just to kind of look at what we want to be our directives; sort of like what aquaculture – their 8 or 9 points were. That is what we wanted to look at.

MR. MIKEL: Would you be kind enough to describe seagrass to me. I don't think we have any in South Carolina. We have Spartina; is that considered seagrass?

MR. STREET: No, that's emergent.

DR. WHITTLE: But that is a good question; if we're looking at SAVs or are we looking at seagrasses? I mean, do we want to include sargassum and things that are important or do we just want to include seagrasses; so this is just going to be seagrasses.

MS. DEATON: Is it just seagrasses? I thought it said SAV. I'm thinking about low salinity grasses, because I think they have a real different response to restoration. I can think of a couple of successful restoration projects with the low salinity grasses.

MR. WILBER: We do have a bit of a terminology difference between the states. In North Carolina, SAV does include the low salinity grasses, which are not taxonomically related to seagrass, per se. Sometimes those low salinity species are excluded from the term "SAV" in Florida and things like that. The question I would ask is would a bunch of policy statements related to SAV in North Carolina have to be couched by salinity zone or would you be able to make those statements in a blanket way across all salinity zones?

MS. DEATON: I think the impacts are the same, so I would say treat them all the same; although they might biologically have different thresholds or criteria, but as far as management it is very similar.

MR. WILBER: I would then suggest that the policy statement be built around the term "SAV" in its first use; you know, there is a footnote that takes you to an appropriate definition of what SAV means for the purpose of this policy statement. It may say something like in North Carolina SAV means, blankety, blankety, blank; in South Carolina it means something different. In Florida it means a third thing; and that for the purpose of this policy statement we feel that they can all be lumped together.

MS. DEATON: I think in North Carolina it is a gradation. You go from your high salinity grasses to this metahaline to the lua and the meso. You have a lot of your federal fishery managed species also use that. That would be my justification.

MR. STREET: Yes, the ecological function is the same across the board in North Carolina from those that are purely freshwater, but in the coastal freshwaters to the high-salinity species.

MR. WILBER: I'm okay with lumping them. I would definitely defer to the North Carolina folks about that issue. My only concern is that if we start making blanket statements about restoration doesn't work and things like that; does the fact that we've lumped too many disparate types of grasses under the term SAV; have we now made it difficult to make those relatively concise blanket statements?

DR. WHITTLE: I don't think I would make that blanket statement.

AP MEMBER: Yes, I agree, because in some of those brackish water environments we've seen a tremendous increase in the SAV. They made a big comeback.

MR. WILBER: We'll have to be careful as we wander into these blanket statements. The only other thing, just to make sure that we're all aware, is that the council's EFH designations actually introduce the term "submersed rooted vegetation, SRV", and define SRV to include those low-salinity seagrass species; and separate that from more polyhaline seagrasses.

There is a little bit of a cleanup in the EFH language that would probably have to be done to bring it in complete sync with this, but I view that as something to put on the "to do" list and not on the urgent list. That can easily be dealt with and it can be dealt with at an appropriate time.

MR. STREET: Yes, the expansion of low-salinity species in North Carolina is not restoration, though; it is natural.

MR. WATTERSON: I was just going to point out, Roger, if you can go to the management section, scroll down. The paragraph that starts with The South Atlantic Council strongly recommends; that is not a complete sentence. You could say that a comprehensive strategy be developed.

(Remarks made off the record)

MR. WILBER: Okay.

MR. PUGLIESE: Just a note, in the appendices you do have the description of mainly the marine for both Florida and North Carolina. The key there is it had the connections with the

species covering it; so what we want to make sure is as we expand and refine that, it captures all the other species, including prey, et cetera. I think that is going to be important.

MR. WILBER: All right, any issues with those first three bullets? To some extent they are the Mom and apple pie kind of bullets.

(Remark made off the record)

MR. WILBER: Okay, there you go. Just to ask a question; I'm not really sure what is meant by regional planning here. Does that mean that one sort of needs to often look well beyond the footprint of a proposed project to understand what is happening to SAV and to make appropriate recommendations for an SAV impact, because one needs to take a regional kind of approach?

AP MEMBER: Two comments on that; we have a lot of restoration work to do, and hopefully we have the technology to do it, or we will soon, but we don't have a lot of money. We need to think about it from a spatial prioritization strategy to where is the most important seagrass and what do we need to do?

For example, Brant Gilmore has done some work in the Indian River Lagoon, and he shows that the seagrass beds close to the inlets are more important for reef fish productivity. If the council is primarily concerned with managing federally managed species, well, shouldn't we be worried about the seagrasses that are the most important recruitment areas for the species that they're managing?

Second, back to the money issue; I've just seen a lot of restoration efforts just go in pell-mell without any organization. This is one of my great hopes for coastal and marine spatial planning was that we could sit down and really take a look at what our resources are and where we should go first, second and third; and where we can learn from our mistakes and set up monitoring programs that inform the entire region.

MR. WILBER: I think you touched upon an important issue; and that is do we want to put something in the SAV statement that indicates some SAV beds are more important than SAV beds?

AP MEMBER: I would defer to my other more expert colleagues on this panel.

MR. STREET: As soon as you start prioritizing habitat types, two through whatever the last one is will be put up for auction.

MR. WILBER: Is that what your point was going to be?

AP MEMBER: Yes; I second what Mike just said.

MR. WILBER: I'll argue the other side just to keep the discussion moving. You can talk about SAV at certain locations being especially important without necessarily having to go down the road of denigrating the importance of SAV at other locations. I can tell you that in our comment letters, we build upon Grant Gilmore's research and the research of others and talk about SAV beds that are in close proximity to inlets as being especially important and needing special

protection because of their position in the landscape being where larval fish might first settle out or where juvenile fish get their last little big hunk of meal before they have to run the gauntlet through the inlet to get out into the coastal ocean or vice versa.

There is an emerging set of scientific studies through landscape ecology that show the positioning of resources is as important as the resources themselves. Are we comfortable enough in that context identifying particular SAV beds as warranting extra special protection?

MS. DEATON: Well, I think prioritization is good for spatial planning, but maybe not appropriate right here as one of the very first recommendations in an SAV policy. Maybe if it is in the context of marine spatial planning so that it is not taken out of context by others; because when it comes to dredging, I am going to recommend against dredging SAV no matter where it is.

It also depends on how much SAV you have and how what other habitats you have around as alternative refuge areas. I wouldn't want a blanket statement prioritizing one area over another. It is going to be different in Florida than it would be in North Carolina in a smaller water body.

MR. TROWELL: Well, I was going to say you might qualify that statement for council-managed species certain seagrasses are more important to council's managed species.

MR. STREET: Don't use the word "important", say "more utilized", possibly.

MR. PRATT: Anne is going to be mad, but particularly in North Carolina and I think in some of the other states, any anadromous fish-spawning stream particularly that are utilized by herring, shad and striped bass; the juvenile of those species might prefer a clean, sandy bottom for their transition out of the upper estuary and to the main part of the Sound.

What this is advocating is that we put grass everywhere, and that is not what I see. Anne doesn't remember when there was no grass in the Western Sound and so on; however, I do. I don't think we can restore it as it spreads by seed, it spreads by rhizome, and it spreads by, for lack of a better terminology, its own notion. It comes up when it wants to and it dies when it wants to. Anything we do, I think we should consider the use of those anadromous fish before we put a structure in their way.

MR. WILBER: This bullet as crafted talks about regional planning, which to me is a toe into landscape position kind of stuff, and it talks about integral part of an ecosystem, which gets to the habitat complex kind of issue that just came up as well. Do we want to go so far as to build upon that or do we just want to leave it as is?

To give another example and the one that we actually have now in Florida; near Peanut Island we've got a lot of seagrass impacts from multiple dredging projects that are proposed not only for the Intercoastal Waterway but for the marinas that are connected to it. Peanut Island is right in the throat of Lake Worth Inlet.

The mitigation that is being proposed back to us is SAV beds that are 10 miles away and 5 miles away from the nearest inlet. I can't remember the name of those islands down there.

AP MEMBER: Snook Islands.

MR. WILBER: Yes, Snook Islands. As a fisheries ecologist, I look at those SAV beds that they are proposing for mitigation and saying they do not perform the same ecological function as the seagrass beds that you are asking me to authorize the impact to. I want some kind of mitigation that speaks to the impact to the ecological function that is being lost. That is what this whole regional planning part of ecosystem kind of thing opens up. Do we want to go down that road?

MR. STREET: In the context of the council, regional generally means throughout the South Atlantic or in a fairly large context, so I think "regional" is the wrong word. I think if you are talking about planning water body planning at the water body scale or watershed scale, something like that may be what is meant, but regional for most of my career in fisheries meant interstate, not intrastate or within a watershed. I think the word "regional" in this place is wrong, because all four states that we're talking about do not have SAV. South Carolina and Georgia do not.

MR. PUGLIESE: I'm trying to think back to how some of this came to be, because it is prior to a lot of deliberation on spatial planning, et cetera, but we did have some connections into say the activity and work being done through Albemarle/Pamlico Sound efforts at that level. I think it is twofold here with that as well as the fact that you have regionally managed resources that depend on say SAV in North Carolina and Florida. Gag grouper, for example, so there are regional aspects of that.

Between those two aspects, I think that is what that was kind of trying to get; how you really tease that out of this or modify it or change it to really address those, because those are two different parts. The one is kind of a subunit, as you said, at a watershed level with the sound level, the ability to manage. Actually we had it tiered one time in a presentation on how you transition from there to the state habitat plan to the council's management of the species, so that kind of bridge between – it seemed more appropriate to address that here.

MR. WILBER: I'm willing to take a shot; so replace the word "regional" with "watershed". After the word "of" put in "habitat complexes integral to a healthy ecological system"; all right, then just get rid of the "an". Does that help?

AP MEMBER: Have we ever had anything like an SAV habitat area of particular concern?

MR. PUGLIESE: The SAVs are habitat areas of particular concern. The entire distribution is considered an HAPC under the present designation.

AP MEMBER: I would take out that first "integral", "treats SAV as a part of habitat complex integral" or "complex as integral".

MR. WILBER: You can tell I just took calculus.

MR. GIBSON: As the token English major here, I would just say that you need some sort of modifier in front of part that punches up that language a little bit; so maybe a vital part of the habitat complex, vital or something that underscores how important a part it is. Let's see;

"Planning which treats SAV as a vital part of a habitat complex, integral to a healthy ecological system."

MR. STREET: I don't remember; does the document define SAV habitat; not SAV, but SAV habitat?

MS. DEATON: We haven't made any edits, so we can do that, but we were going to work on the text later. We've expanded the definition to take into account interannual seasonality; going back, it can include areas that don't actually have SAV present. It just has to be supporting it in the near past.

MR. WILBER: I think it's very valuable if the policy statement makes that point, that it is not just a snapshot; it is some kind of integration. Then I also wonder do you have to have ever demonstrated seagrass at that location or to call it seagrass habitat or can you just look at depth, water clarity and sediment characteristics and claim that? I know in North Carolina you guys get away with that fairly often.

MS. DEATON: Well, the definition requires that SAV has to have been documented there within the past 10 growing seasons, but it is very general in what is documented. It doesn't have to be a mapping. It could be some kind of notes, it can be monitoring data, and it can be professional memory.

MR. WILBER: An example is Bonner Bridge. NC DOT has accepted it for the purpose of calculating the SAV impacts, essentially the drip line of the entire bridge. You can look at that and say certainly seagrass must have grown underneath there, because there are seagrass on both sides of it, but can you actually produce a data or a photograph or someone's memory who says there was seagrass there, and you can't. There is this inference that seems to happen.

DR. WHITTLE: Pace, am I correct, in Florida it is if there is seagrass there at that moment, that they are mapping it? We don't really have the transitional habitat. We don't do a matrix. We just do if it is actually there at that moment when they do it.

MR. WILBER: In Florida the history has been it is subject to case-by-case negotiation. When there have been multiple surveys of an area and it has been accepted in the permitting process, the cumulative SAV map, so you just add them all together and you compute what the new acreage is. Then sometimes in that process, the areas that have multiple overlaps form surveys, sometimes they get weighted a little bit more if you have to parse out the quality of the seagrass. But there have also been some of the marinas in Palm Beach where this cumulative approach is just a little bit too messy to deal with. The applicant in hopes of getting their permit sooner just agreed to call everything seagrass within a box that had negotiated boundaries about it, regardless of whether SAV was found in every square meter.

That is sort of the range of what is going on in Florida. I think that is also true in the St. Johns River. There is going to be a lot of SAV lost because of saltwater intrusion up the St. Johns from the Jacksonville Harbor deepening. The Corps is modeling what that loss is going to be, and they are basically just drawing a big polygon kind of approach. I think that lays the foundation for our broad view of SAV. The other issue came up is do we want to define SAV habitat, and do we want it to be defined in a way that it allows inference of where SAV should be?

MR. STREET: Some of the research was done by Jud Kenworthy in the modeling that they did at the Beaufort Lab, and he was pushing this, was if the depth bottom type were suitable, not necessarily the insulation, but the potential for the insulation if the water is clear would constitute SAV habitat. That was a little more expansive than our commission could handle, but he had good data and a good model. It was just maybe a little too advanced for some people. Wave action was the other issue.

MS. DEATON: I think that it is very hard to not allow somebody to do dredging on piece, because it could be SAV habitat, which is where the concern was in defining it like that, but I think it is worth in this policy to say any shallow water body, any shallow water habitat with appropriate sediment and semi-protected waters has the potential to be SAV habitat and therefore consideration should be made prior to dredging, which is like permanently altering it.

MR. WILBER: Roger is typing these notes, and I'm wondering if we could just turn this into the bullet. I wouldn't get hung up at this point at the numbering or the ordering of these numbers, because that all can be dealt with later by the folks who know how to make this into a good story. We could say SAV habitat includes any shallow water habitat with appropriate sediment.

MS. DEATON: I didn't mean that as a definition.

MR. WILBER: Well, I'm putting words into your mouth; isn't that what a facilitator does?

MR. STREET: Sediment, depth, wind field I think were the three primary considerations in Jud's model.

MR. WILBER: SAV habitat may include any shallow water area with appropriate sediment, depth – and I am trying to avoid wind field, because it is a bit jargony, but the point –

MS. DEATON: Low wave energy?

MR. WILBER: Yes, and wave energy. Well, appropriate sediment, appropriate depth and appropriate wave energy, so I think that would all be fine.

MR. STREET: Terry will tell you that the freshwater grasses in Western Albemarle go to 20 foot depth.

MS. DEATON: The other key thing is its light availability, and depth is the surrogate there, but it is really not the depth but the light.

AP MEMBER: So say light penetration.

MS. DEATON: Yes, light penetration.

MR. PUGLIESE: Replace it or parens?

MR. WILBER: No, just add it.

MR. TROWELL: I think the broader stroke you take when you define the SAV habitat the more you weaken your policy statement. I don't know how to wordsmith this, but adjacent to areas supporting SAVs or has been documented historically to have SAVs present. But again in dealing with permitting and stuff like that; you are capturing a whole bunch here.

I feel like if you can't provide some documentation, okay, it is 200 yards that way and we all know it migrates, or historically five years ago there was a large bed of it here; if you can't show that type of documentation, then most likely you are going to be unsuccessful in preventing a project.

MR. WILBER: Okay, so at the end we add "adjacent to existing SAV or areas that historically supported SAV".

DR. WHITTLE: In Florida we use 1950 aerials as our historical baseline, but there are areas there that can no longer handle SAVs. There is the Intercoastal Waterway, there are dredged areas, there is where the past has moved, so you probably need some qualifier or an "and/or".

MR. WILBER: Does that look okay, Anne?

MS. DEATON: That looks fine. My thoughts had been not just to be defining it, but just saying if it is that condition, it is worth taking a closer look on activities and not adversely impacting – what am I trying to say? It's fine like that.

MR. WILBER: It is a starting point. Okay, other bullets we should be having in an SAV policy statement? We could skip down to the monitoring and research part. We'll leave it up to the seagrass team to determine the fate of those. Do we want to say what a standardized mapping protocol should be?

DR. WHITTLE: I think I can visit that one. I think Florida has a very standardized one that we used for the oil spill; you know, time of day, angle of light, cloud cover and that sort of thing. I think I can introduce that pretty easily in terms of mapping, like aerial mapping.

MS. DEATON: I know it might be different in some areas based on water clarity and color, the size of the grass. We found they took photographs and a lot of it wasn't visible because the patches were so small; I don't know.

DR. WHITTLE: We used it for the Chandeleurs; we used it all over Florida for the oil spill.
MS. DEATON: I just didn't want you to box into one method if that is not going to work in another area.

DR. WHITTLE: No, I thought that it would be something I could introduce and then we could discuss. We've also been working on satellite mapping and remote sensing, too; pretty deep into that.

MR. STREET: Anne, in the aerial photography in North Carolina, the groundtruthing, didn't it show some areas were actually algae rather than SAV? Is groundtruthing part of what you're talking about?

DR. WHITTLE: Yes, our water management districts randomly pick plots to go out and look at. We do monitoring and mapping, but I think that their photo interpreters have gotten to the point where they can actually tell the difference now between – because they do it every two years, they can tell the difference between macro algae and seagrass. I think macro algae is darker and closer together.

MR. WILBER: Amber, you guys do have in your seagrass mapping protocol a statement about the time of year when one can do the mapping. I believe that statement is you can do it any time of the year.

DR. WHITTLE: Yes, we did them both spring and fall for the oil spill so we weren't just doing them during the growing season. For the water management districts, they always do it in January of February.

MS. DEATON: That's a regional difference, because the leaves drop off in North Carolina in the winter so you have to map in the spring/summer for the high-salinity grasses but in the fall for the lower-salinity grasses.

DR. WHITTLE: I think we can put that all in there. For the actual permitting purposes, though, you have to do your actual surveys between April and June in Florida.

MR. WILBER: This is where the Fisheries Service has a disagreement with Florida; where we have done a review and recommend that the SAV mapping in Florida be done between June 1 and September 30.

That is balancing leaf disappearing during the winter and when they're large enough to be reliably detected and the water quality and stuff like that. We are aware that we have these differences, but we've never really got down to kind of resolving them.

DR. WHITTLE: Well, on the west coast you would have a hard time with water clarity, and that is why they do it in the winter because it is the clearest water. I think we have enough data to start. The same thing with the databases; we host all the databases for seagrass mapping and monitoring. I don't know about Number 3.

MR. PUGLIESE: I think we've integrated most all of the mapping components of the SAV into at least the Atlas, because it is running out of FWI right now, and gotten hopefully the most updated stuff in North Carolina integrated, too. That gets to Number 2.

DR. WHITTLE: The periodic surveys of SAV in the region; are you looking at straight aerial surveys?

MR. PRATT: A little bit bigger.

DR. WHITTLE: Which would be quantity. Are you also looking at monitoring, which is much more expensive and you have to go out there, which would be quality? Do we want to say periodic mapping and monitoring of SAV in the region, first bullet, instead of periodic surveys, but periodic mapping and monitoring.

MR. STREET: Do we have some place – have we already said somewhere that there is a goal of net resource gain? I don't remember seeing that in the last few minutes; and also again the use of the word "region".

MR. PUGLIESE: The net resource gain ties back to the base council policy. If you go back to kind of the base core policy, it is not only looking at a no net loss but a net gain of habitat in the long term. That is essentially at least I think where this connects to, I think.

MR. STREET: You know that any place that there is a gain of SAV, there is essentially a loss of unconsolidated bottom, because it goes from one category into the other because there is no more bottom out there. It is what it is.

MR. WATTERSON: Do we have a shortage of unconsolidated bottoms?

MR. STREET: Not that I know of, but it has its own function, provides its own services; and we need to acknowledge that any time you convert it to oyster reefs or something else, there is a loss of that type of bottom with its set of services. I am not saying you shouldn't do it. I'm saying it should at least be acknowledged.

MS. DEATON: Do you want to acknowledge that here?

MR. STREET: I don't know; I'm just saying that –

MS. DEATON: This is the SAV document, and plus you have the historical losses that you know have occurred to those other structured habitats. In fact, I don't know if it was mentioned, but like Florida in the last two years has lost almost 50 percent of their SAV in the Indian River Lagoon System because of algae blooms. Chesapeake Bay, with all their efforts, now they are saying it is the lowest ever acres of SAV despite all their efforts.

MR. STREET: I'm just saying that we as professionals need to keep that in mind if you're changing things just be aware.

DR. WHITTLE: I think under Number 1 where it says standardize mapping; I think it should be mapping and monitoring protocols. We could discuss randomization, fixed stations and that sort of thing.

MS. DEATON: That would be great.

DR. WHITTLE: We do proffer what we think would be the best in that report, so we could discuss that too, of course.

MS. DEATON: Florida is so ahead on that and we're trying to get there, but money has limited monitoring efforts, so that would be a great thing to work together on.

DR. WHITTLE: People don't do it; this is just what we recommend.

MS. DEATON: That's a start.

DR. WHITTLE: We have 34 different agencies doing it and they would rather standardize within their historical data than within the state's.

MR. WILBER: Under the umbrella of standardized mapping and monitoring protocols, do we want to talk about the concept of a minimum mapping unit?

DR. WHITTLE: I think that is covered in our assessment; we can discuss it. I mean we could also discuss using satellites, using remote sensing and trying to keep up with technology, too.

MS. DEATON: My only concern with that is it is better to get something than nothing. If your money will only pay for a certain resolution, you should go for that rather than not doing it. Usually that minimum mapping is related to the cost.

DR. WHITTLE: We also have an issue that I think is very appropriate for here. We can't see as deep as we need to see with aerial imagery. We think that we have more seagrasses out in the depths and out in federal range, but we can't see them and nobody is going out there monitoring. We actually thing we're underreporting the number of seagrass in Florida.

MR. WILBER: The talk, though, has been largely about broad geographic scale mapping and monitoring. Do the standardized mapping and monitoring protocols also deal with project scale activities like a proposed marina or something like that?

DR. WHITTLE: Well, for our permitting purposes at the state, we do have project scale monitoring, and with that goes mapping where people are literally in the water looking at every square inch. Is that what you mean?

MR. WILBER: Yes.

MS. DEATON: But I do think more important is the mapping is standardized somewhat so that you can look at changes that are occurring in this area and are you seeing the same pattern in that area. If you don't have some standardization of methods for that type of assessment, it is going to be hard to draw any conclusions. I can see where it just needs to be site specific for the project.

DR. WHITTLE: I'm also looking at year-to-year variation, which I think is very important when you're talking about the definition of SAV that we just came up with.

MR. WILBER: All right; so if we could maybe go back a little bit to the beginning part of the bullets, up to planning; just sort of thinking about the topics we've touched upon; we've got some statement that talks about the importance of seagrass. We have a statement that talks about seagrasses and its functional role in the ecological system.

We've touched upon SAV habitat not being just where SAV occurs, but where it might have occurred before and conditions are still conducive to it occurring. We have some bullets in here on the need for standardized mapping and monitoring protocols. Are there any other big issues in the management of coastal systems that affects seagrass that we need to make sure this policy statement touches on?

DR. WHITTLE: I think we need to look at – under monitoring and research, looking at effective restoration techniques. I think that would be its own bullet that just says investigate, I don't know, effective restoration techniques for SAV.

MR. STREET: When something is economically acceptable to one person or group is not to another, I would leave the economics out; recognizing that if you throw enough money at it, you may be able to find a way to plow and plant and actually something survived, but a dollar a sprig or ten dollars a sprig may be a little too much; but that depends on who is paying for it and how large an area.

Ten dollars a sprig for an area the size of the inside these tables might be fine for somebody as restoration, but who knows if it works? Researchers need to develop dependable or long-term restoration methods or something. So far from everything I've read over the years, which is virtually nothing in the last three to four years, it works occasionally at best.

DR. WHITTLE: If we're done with that one; I think Number 7 certainly needs some work.

MR. TROWELL: The impacts of shoreline development; is that encompassing shading impacts by piers?

DR. WHITTLE: To me water quality is the most important part of shoreline development. The places where we have had SAV recovery have been almost exclusively water quality driven in terms of point source and now nonpoint source restoration.

MR. TROWELL: What I see in my work area in the immediate threats and things in ongoing development is pier development in SAV habitat. When we had that big economic or real estate boom in the early 2000's, we had a lot of undeveloped land in our upper ends of our river systems and creeks off our river systems and our primary nursery areas in the Eastern Beaufort and Hyde County areas. That's where the development went to these undeveloped lands. They were in primary nursery areas in shallow water habitat and chock-a-block full of SAVs. As a result of that, what I see day-to-day is a lot of pier development in those areas.

MR. STREET: Again, here particularly with piers you've got to look at cumulative impacts, because the construction of a pier is a one-time event. I know the rules were changed to try and look at pier width relative to shading and some things like that. But, the use of the pier by boats coming and going, and particularly if a boat – say, I've only got a 16-foot skiff, and five years later he gets a 25-foot king mackerel boat with a 300 on it or something; you are going to have a different impact.

AP MEMBER: Just to reinforce what Amber said; what I'm seeing a lot of in the Indian River Lagoon System now is people that build docks without permits or are having trouble getting permits for docks and they are becoming more selfishly fixated on their dock versus all the seagrass that we've lost.

They are going my dock is like 10 feet long, and some people are even using see-through materials to do it, and they are saying to DEP and Army Corps why are you picking on me; it is the water quality, stupid? We need to have at least three tiers on this. As the agency folks move forward with enforcement things, I would just caution you to have a prepared statement ready

when you deal with irate dock owners demanding why are you not doing something about the fertilizers.

MS. DEATON: On that point, I wouldn't put water quality degradation in the parentheses with shoreline development. It is almost a separate thing, because it is due to not just the immediate shoreline development but runoff in the entire watershed, so like shoreline development, parentheses, blah, blah, blah, comma, and water quality degradation.

Then there is dredging. That is the other big impact I think, which is kind of I guess part of shoreline development or it could be separate; but this is just research the way it's worded. If we leave it like that, I think we need another one that just says the council encourages the impacts to SAV be avoided by those activities or strive to maintain water quality to a level that would support SAV groves and things like that.

AP MEMBER: Or if there is some sort of like design recommendations for docks that you all know of right now, that is something that could be recommended in here.

MR. WILBER: You touched on a point. For the most part, across the South Atlantic the permitting of docks and piers is done at the state level; that the Corps of Engineers basically sets up these kinds of shell regional general permits; and as long as a state is acting consistently within that shell, there really is no federal permit that is issued for a particular dock or a pier.

Now in Florida there has been a lot of research on dock orientation, dock height, dock width, and dock materials in an effort to minimize the shading to the area below that. All of that research has basically pointed out that surprisingly the criteria that matters the most is the height of the dock relative to mean high water or mean sea level, depending on what you pick. In the South Atlantic, Florida is the only state that has a minimum dock height requirement. You don't have a minimum dock height requirement in North Carolina, South Carolina or Georgia.

(Remark made off the record)

MR. WILBER: Okay, technically you do, but in reality you don't in North Carolina. If you really want to make some change on this, this is a change that really needs to be done at the state level; because the federal permitting agencies have largely not really washed their hands of dock permitting, but have set it up so that the states can handle it. You guys are the state people. What do you need from the council to help carry that message within the states?

MR. STREET: There are strong movements underway in North Carolina and probably in one or two other South Atlantic states by their legislatures to do away with all state rules that are stronger than federal rules. If they do away – if our legislature say those rules passed by the Coastal Resources Commission in North Carolina no longer exist; there does need to be something by the feds or by somebody to take its place.

MR. TROWELL: I echo what Mike has said, and that bill has passed the Senate and is now going to the General Assembly. The Department has a new secretary and assistant secretary, and the assistant secretary is already hammering our division director to liberalize the pier rules. Six months ago staff was working to weaken, I hate to say the word weaken, but to liberalize the pier rules.

We're already working on language to allow more slips and that kind of thing on the general permit that doesn't get circulated, an expedited form of the major permit, one that I issue on the ground and nobody else sees but me. Well, I send a copy to the Corps and the local building inspector, but that movement is underfoot at the state level.

Staff made recommendations. There were some things that could be done to make it easier and allow for certain types of activities to happen that had little or minimum impact, and our director gave that to the assistant secretary and his comment said this is not near enough.

MR. STREET: That kind of a thing will directly affect what the council has in a number of policies, because, for example, you could, with something like that, see a huge increase in piers and heavy boat traffic and some other things like this in primary nursery areas for council-managed species.

MS DEATON: I was going to say that one thing that is needed is more research on the shading in North Carolina, because it seems like it has been said we need site-specific information on what that height is. Because if we don't have that, then we're not going to have any support from the state to require somebody that it's a safety hazard to be that high.

That's what I've heard. Recently there was a pier application and over SAV and somebody wanted it to be denied because of shading, but all the docks around there of the same height had grass under them. Even though there are places where I see there is not grass under the docks. there are some where there is. I don't think we have enough like for the council to put a number in there and for it to hold for us in North Carolina at least.

MR. WILBER: But would it be okay for the council to have a statement that says states are encouraged to design criteria for docks and piers that minimize impacts to SAV and those specifications should include dock height as well as dock width and materials; something like that.

I can just tell you we are under a tremendous amount of pressure in NOAA to get the Habitat Conservation Division out of the dock-commenting business. Even though we don't comment on docks, the fact that we receive 400 applications a year that we then throw into the no staffing pile; that is just viewed as unacceptable. We're trying to find ways to not even have the Corps receive these permit applications. A more stronger push by the states of dock permitting would kind of help us do that. In Florida it is all Monroe County.

DR. WHITTLE: Monroe County wants lots of docks and Monroe County will just permit whatever kind of dock?

MR. WILBER: The programmatic general permit that the Jacksonville District uses to allow the state to exercise its own permitting authority throughout all of Florida for some reason has an exemption and doesn't allow Monroe County to operate.

DR. WHITTLE: Because of the Sanctuary?

MR. WILBER: No, I think it is more because the typical dock in Monroe County is not really something perpendicular to the shoreline. It is something parallel to the shoreline, because of all

the canals and stuff. The result is that we get 400 permit applications a year for docks in Monroe County. We get 30 for the rest of Florida, Georgia, South Carolina and North Carolina added together. That is the kind of disparity that we're talking about. Mark.

MR. CALDWELL: We also want to include some language to try to encourage the number of docks to decrease, like using joint-use docks or community docks. You can get around I guess the minimum width, and you can have a larger dock if 20 people use it. You are still going to have impacts to SAV, but overall the impacts would be less. It would be more localized.

MR. TROWELL: Just to follow up on that, in North Carolina we do have rules in place to encourage that type of development.

MS. DEATON: I was just going to add that and they actually revised their dock rules. They started out being much better. Do you remember if you wanted to be wider, you had to be higher, so that was that incentive and vice versa, but then it all got nixed in the end based on politics. They are better but they lost a lot of their good changes.

MR. WILBER: At the end of eight, we could put down multi-family docks may be wider or something like that – community docks; that is better. Community docks may warrant wider maximum width or something.

DR. WHITTLE: Florida also uses internal storm water ponds with the connection as dock. They've taken up one piece of parcel. They put a big storm water pond in it and put a dock in it, and then have a lift out to the river. It is sort of like a new take on all those dead-end canals.

MR. MIKEL: I tell you when you talk about docks in South Carolina; you're talking about a hot bed of controversy. The word "state" in there bothers me. If you are talking about SPA, let's talk about North Carolina and Florida. Let's leave South Carolina out of that "states" and maybe Georgia.

Case in point is my dock was built in 1948. It is still in use. I rebuilt it. It was built to where the high water mark covered it twice a year, which it still only covers it twice a year. I'm speaking to climate change right now. I'm not a believer because of that.

I need a lawn mower to cut the spartina grass that grows up through the cracks. It is very low to the marsh. How high is the right height? How wide is the right width? Who knows? Nobody here does. I'm a little concerned about us addressing docks.

MS. DEATON: Since there is not SAV in South Carolina; and this is the SAV policy, then this wouldn't even affect you.

MR. MIKEL: I understand.

MS. DEATON: But there are studies that show like how much shading occurs to spartina marsh also form docks, so there is information out there. It doesn't mean that no marsh will grow under a dock; but it might grow less dense, and it is okay on a small scale, it's a cumulative issue.

MR. MIKEL: You know what kills most of it is old marsh that high tides bring up in mats and it ends up on top of the new stuff.

MR. WILBER: To clarify eight to address Jenkins concerns; states are – well, I was going to put it someplace else but –

MR. MIKEL: Might as well.

MR. WILBER: States are encouraged to minimize impacts to SAV by developing design criteria.

AP MEMBER: Do they ever address covers on docks? That has been a big issue around here. That adds additional shade and everything. Is that to be addressed in the minimum/maximum height and width, dock covers?

MR. WILBER: In Florida there is a generic dock; and if you are no larger than the generic dock, you kind of have a streamlined permitting process. That generic dock in Florida does not allow a covered boat lift. There is also a size for the boat lift. Now I don't know if North Carolina speaks about covered boat lifts or not.

MR. TROWELL: It does; you have to have a minimum shoreline length. We're looking at total shaded impact from a boat house and the platform associated with a pier. Really, we don't look at the shading impact when permitting the six foot wide access out to a platform in the boathouse. That is not really accounted for in the shaded impact that is anything wider than six feet. Again, the boathouse itself takes a permit and there are rules that speak to how large and that kind of thing.

MR. WILBER: Let's try to move this along. All right, so we've got some touching stone here about trying to get some design criteria, minimize impacts to SAV. By limiting it to SAV, it means it is really only targeting North Carolina and Florida. Is there any other big point we need to cover?

The only thing that has come up a little bit earlier that I just want to expand upon a little bit is that we had said in here that we're doing some investigation of restoration techniques. That is Number 10. Pending the results of that investigation, the seagrass policy is not going to recommend or pooh-pooh any particular restoration technique.

(Question asked off the record)

DR. WHITTLE: I think we could say something more like cost benefit. There is no one right fix for any area. What we've looked at is high energy, low energy, very different; you know, Gulf/Atlantic very different. I think we would just have to word that as appropriate. By cost benefit, I mean something like when we put in, say, like pea rock tubes; what is the difference in terms of reestablishment of seagrass in blow holes or scars if you plant it versus if you don't plant it. Does the two months difference make up for the cost? That is what I mean by cost benefit. That might not necessarily be economically viable, but it is a cost benefit.

MR. WILBER: Do we want to touch upon ratios or functional assessments or something to determine the amount of restoration needed as a part of the mitigation action?

DR. WHITTLE: Wouldn't we just have to defer to whatever is required by whichever agency is permitting it?

MR. WILBER: Yes; you're going to have to defer, but do you want to suggest something?

DR. WHITTLE: Wow; that is a loaded question. I don't; do you, Anne?

MS. DEATON: I think in the text – well, the text that has to be modified first. It says like restoration isn't preferred rather protected because of the low – so we're going to have to update that because there are some new restoration techniques that work like when you fill the prop scars with the tubes. As far as the ratio, I mean, the text has to be modified, it has got to address restoration, but maybe point out that a restored habitat is not as – the ecosystem services provided by a brand new restored SAV bed is lower and so deserving of a higher than one-on-one ratio.

DR. WHITTLE: Time lag, risk and all that. I know that in Florida those are covered under our mitigation assessment. They are under HEA, so I assume you guys do that, too?

MS. DEATON: We don't allow SAV mitigation unless it is for a public benefit. Like DOT puts in a bridge; they are allowed to do mitigation.

DR. WHITTLE: What does that mean; they can't impact either?

MS. DEATON: Right.

DR. WHITTLE: There is no SAV impact.

DR. ELKINS: Those are the current rules.

MS. DEATON: Right. That's not necessarily completely complied with, because it can be like small amounts. There are instances where small amounts of SAV are allowed to be dredged, for example.

DR. WHITTLE: Then they do mitigation for that or they just do no mitigation?

MR. TROWELL: Is that Marine Fisheries Commission rules you're speaking to about no mitigation? Our mitigation rules don't speak to SAV.

MS. DEATON: No, they just don't allow mitigation, period, unless it is by a public – maybe a state agency for a project that has public benefit.

MR. TROWELL: Yes, and that is speaking mainly to the filling of coastal wetlands marsh is where that comes up quite a bit. Our rules, when it speaks to SAV habitat, it is to avoided altogether, and a lot of times it can be a project killer unless it is like a large DOT project or something with a large public benefit. The only other project that I can think of that has

significant SAV impact that eventually was permitted, a private development type project, was Sandy Point, but that was a debacle altogether.

MR. WILBER: Speaking to Amber's question, having looked at hundreds of projects in North Carolina and hundreds sin Florida; I have never seen anything in North Carolina that is analogous to something like Rybovich Marina wanting to come in and dredge four acres of seagrass bed to create a marina basin. That kind of project would just be unheard of in North Carolina.

DR. WHITTLE: Jacksonville District is, what, 11 or 13 acres that they want to dredge now.

MR. WILBER: Yes; so it is a big difference between the two states. But for Sandy Point, I was wondering if you were going to bring that one up.

(Remarks made off the record)

AP MEMBER: I've fished gillnets in that area and, boy, you want to talk about making a big problem for yourself, if you are not careful when you're fishing in that area, you set your net in the wrong place where they dredged those channels, you're going to spend hours of backbreaking work in clearing them. To the life of me I don't know how our agency and DMF missed that up front through the scoping process. But, anyway, that is water under the bridge now.

MR. WILBER: Okay, I think we've kind of got to the point where diminishing returns on the SAV. Are you ready to take a break and then we'll come back and break out into breakout groups.

MR. PUGLIESE: One last quick point, on the last point with the investigating restoration techniques; Anne, your comments about the review of like the ecosystem functions; should that be kind of part integrated in here, so it gets to that issue of restored versus natural?

MS. DEATON: Sure.

MR. WILBER: Roger will propose some language for consideration by the seagrass team. All right, break, 20 minutes.

MR. WILBER: Okay; let's see if we can wrap up, and we only have three and a half more hours to go today. The last session we are going to break out into groups here, and I am going to float an idea or two about how we go about doing that. I think we're now at the point where the policy statements that are left to talk about are the ones that a few people have a lot of interest in, but not necessarily the whole group.

Breaking out into smaller units, I think would make some sense. I am just going to throw out some ideas here. You guys can feel free to push back. Now the state subpanel leads have kind of led these discussions for the most part in the past. The Georgia Subpanel lead is not here today, so you have got a freebie here with Pat.

Priscilla, I know has worked on the estuarine invasive species or the marine one; which one?

(Answer given off the record)

MR. WILBER: Okay, going back to the last AP meeting, you also had the dredging one. At this point you are more or less prepared to either continue with the estuarine invasive species or to start kind of almost anew with the dredging one. Do you have a preference between those two today?

MS. WENDT: No, I don't; maybe whichever one most people are interested in talking about.

MR. STREET: By dredging; what do you mean? There is not one called dredging.

MR. WILBER: Beach nourishment is the actual content of it, so it would be the beach nourishment one.

MS. WENDT: That was one we did not address at all last time, because we just didn't have time to get around.

MR. WILBER: How many folks here, just raise your hand; that would be interested in a breakout group led by Pricilla focusing on beach nourishment?

MR. MIKEL: What is choice Number 2?

MR. WILBER: Okay; so we'll go through the list, because obviously some things aren't good enough to vote for on their own. The other item is our colleagues from the Fish and Wildlife Service were leading the in-stream flow policy statement. I do believe Alice has enough of what was done last time that she could pick up for the missing Fish and Wildlife Service folks and lead that group today.

MS. LAWRENCE: Yes; in our group last time we had Wilson, John Ellis was leading, and then I think, Tom, you were in there and Mark was recruited into our group as well. We could definitely sit down and try. We were working on the in-stream flows and the energy policy.

MR. PUGLIESE: I was just going to say in-stream flow; you've got whatever revisions you have made so far on yours. The energy had some updates that actually had been discussed in the past in the version that you've gotten that captured some historic things that we were trying to do on relicensing, and on some baseline wind; so it does provide kind of a springboard to take it to the next step.

MS. LAWRENCE: I was going to ask where those came from, the revisions?

MR. WILBER: Okay, so getting to the list, I guess for all the choices; one option is you can hang out with Alice and go through in-stream flows; you can hang out with Priscilla and go through beach nourishment, or you can go – I guess you don't think there is really much reason to go through marine invasive species at this point?

(Answer given off the record)

MR. WILBER: Okay; and the third option then would be to find some group who wants to do energy and would appoint some person within that group to kind of lead that discussion and collect the notes. We've done aquaculture; we've done SAV. The artificial reefs were really Pat's baby, and he is not here today. The marine invasive species seems to not have a whole lot of interest in it, and the estuarine invasive species seems to have progressed pretty far in the last few weeks, anyway, when Priscilla sent it out.

MS. WENDT: I can't recall who was in the breakout group with me except Pat Geer was for at least part of the time, I know, and Bill Kelly was also part of that group. They were the only ones who had any substantive remarks to make. Essentially it was to include lionfish and tiger shrimp in the estuarine invasive species policy statement. They are already in the marine policy statement. Because they are seeing more and more of them in inshore and estuarine environments, they wanted them included in the estuarine as well.

MR. WILBER: Again, I think the leading candidates – we can only really have three groups today, maybe – would be energy, in-stream flows and beach nourishment. Unless there is some other topic area that you have not heard mentioned yet that you think the council should have a habitat-related policy statement on; that could then be a fourth choice, but that would be starting with a completely blank page, because we don't have a policy statement to build on.

MS. WENDT: Well, I wondered about the artificial reef policy. It looked like there was a placeholder for it.

MR. WILBER: Yes, Pat was sort of leading that. I would say we just sort of give Pat a homework assignment or something.

MR. MIKEL: \ On the flow; that is not going to encompass the energy portion of it or it will or it won't?

MS. LAWRENCE: They are currently separate.

MR. WILBER: Maybe Jenk's question is whether you're talking about flows from hydroelectric plants. That would be part of the in-stream flow; whereas, I think the energy policy or at least the intent of that was really more about offshore winds, oil and gas kind of stuff; things that are not really related to riverine flows.

MS. LAWRENCE: The way it is written right now, it does have hydro as part of the energy.

MR. WILBER: Well, we can move it.

MR. PUGLIESE: Actually there was a footnote. I included all the recommended updates on that, but there was a footnote that talked about very specifically that point about in the energy put in context any of the water withdrawals and different things for other plants. It was a footnote, but they aren't specific other than being highlighted as in hydro.

MR. WILBER: Does that answer your question?

MR. MIKEL: It just makes the choice tougher.

MR. WILBER: Well, what would make it easier? Would there be any problem with moving FERC stuff into the in-stream flows at least for the purpose of today, and then having the energy discussion limited to things that happened in estuaries or the ocean that are not part of a FERC licensed hydroelectric project.

That I think makes a relatively conceptual clean-cut. The choices again would be in-stream flows to include FERC hydroelectric projects; energy; i.e. wind, oil and gas drilling offshore; and beach nourishment. Those are the three choices; who wants to do beach nourishment? Okay. good, all right that is roughly a third. In-stream flows, okay. Then I guess everybody else is going to do energy. Who is energy? Okay.

MR. WILBER: Jenks and I could do it the old-fashioned way, right?

MR. MIKEL: Well, I'm going to probably go with Alice, because I think she's going to be talking about it. If she's not, I'm with you.

MR. WILBER: Well, if we're not going to really do the energy one, which is fine. If there is not interest, then I would actually rather go to the beach nourishment one. Then we just have two groups. Does it sound good?

AP MEMBER: We're going to have a chance to revisit all of these topics?

MR. WILBER: No, no absolutely not. (Laughter) We probably will talk some tomorrow, maybe later today about, okay, what is the next step. Hopefully we'll have some volunteer who is going to now take the input received and turn on track changes and really go at it. If you're at the point where you think track changes is just going to make it too messy, you just want to rewrite the whole thing, by all means just go ahead and rewrite the whole thing.

Then if we can kind of set some kind of target for – I'll just throw out a date, say, like the end of July where we could collect the revised or next generation of these policy statements; then we could pass it around for an e-mail type review inside the AP in time to get those comments back in time for a roughly November AP meeting, which I have had a request for not being in Charleston.

Then if we get to the point where we're done with it at that November AP meeting other than minor little cleanup issues, then we will have enough time to get it into the council's briefing package for the December meeting in Wilmington. That is the kind of rough schedule. Now these APs do not have to move together as a group if there are some – I'm sorry, these policy statements don't have to stay together as a group. If some are ready to go, they can go. Others can be tabled back to the group for much more consideration and beefing up. It just depends on how they go individually. I think roughly that is the kind of schedule we're looking at.

MS. DEATON: Where is the next meeting going to be?

MR. WILBER: I don't know; I've heard some people don't want it in Charleston.

MR. PUGLIESE: I have to get with our administrative group and they have to come up with a cost justification to be able to do it outside. I mean, part of it has to do with also the staff

involved in the meeting, et cetera. If we can work out and maybe even a member can help find a location that ends up being reasonable; Habitat has been in Charleston like forever, so there is some justification to look beyond here.

MR. WILBER: I would just guess that if any of you folks outside of Charleston have control over a meeting room that is available at no cost, that would be a significant contribution to tilting the economics one way or the other. Let's break and pick apart the two policy statements we've kind of gone at.

(Whereupon, the AP held breakout group discussions.)

MR. WILBER: All right so just to recap. We're going to basically set a date, the target date of July 31 to get the next iteration of these plans out. The people who have more or less been coerced or volunteered into doing the next iteration; we're still looking for Amber and Anne on the SAV.

I will work with Priscilla on the beach nourishment one and she will also put the last little bow on the invasive species one. I'll talk with Pat Geer to get him to continue on the artificial reef one; the in-stream flows to include FERC hydroelectric stuff will be the Fish and Wildlife Service.

MS. LAWRENCE: I'll send out the changes we made to our group via e-mail and continue conversation.

MR. WILBER: The aquaculture one, Chris and Ken; they volunteered to do that. Which ones have I left out? The energy policy one; no one has done that one. We will see if we can get Jocelyn.

MR. PUGLIESE: Wilson had actually said he was going to be involved and help some.

MR. WILBER: Well, we'll try to recruit someone outside the committee to do the energy one unless there is someone in here who wants to do it. Okay; that's it, right? Now, a couple that came up that we just need to have on the record as something we want to consider doing; we do not have a policy on groins, jetties and seawalls. We think it might be worth developing one if time is available to do one. Was there any other in our group that we talked about besides the groins, jetties, and seawalls? Mike.

(Remark made off the record)

MR. WILBER: Okay, I know up in the northeast, beach nourishment is relatively more common inside estuaries than it is in the southeast. The considerations tend to be a little different.

MR. PUGLIESE: I guess the question I've got is do we address adequately the removal inshore or whatever the certain situations where there has been sediment brought from inshore out. I mean, there may be very unique situations, but if it is adequately covered, then maybe that is fine.

MR. WILBER: The current beach nourishment one is a little bit lean when it comes to discussing the borrow area or the mining area. We'll work on that when we gussy it up for the next round. I guess until we find a lot more examples of beach nourishment occurring in an estuary, we will basically say this applies to oceans and estuaries; but because of the experiences in the southeast, it is basically built upon the experiences in the ocean or something like that.

AP MEMBER: Instead of developing another policy on groins and jetties, since groins are often associated with beach nourishment projects, would you want to combine the two? Now jetties are channel stabilization devices mainly for navigation; but groins, you see those a lot more often then you see jetties, at least applications for groins. It's just a thought.

MS. DEATON: It would help when you're weighing one alternative over another; and in North Carolina where they just permitted some terminal groins, the terminal groin has to be done in conjunction with a beach nourishment project. They are very interrelated.

MR. WILBER: Yes; we talked about that in the group. My feeling in the group was it got too scary to talk about combining it; but maybe it doesn't look quite so scary the way that you guys put it. In our group, we can take a stab at it and see how it looks. If it looks good, we'll keep rolling with it. If it looks too messy or incomplete, then maybe we'll retreat. Combining seems like actually a good thing to do.

AP MEMBER: I don't think you need to include jetties, because again they are a little bit different than groins unless you think that there are a lot more jetties coming down the pike.

(Remark made off the record)

AP MEMBER: I didn't say seawalls, but I was just talking about doing groins and jetties.

MR. WILBER: I think adding groins is a very simple thing to do. When I heard jetties, I had to do an Oregon Inlet letter two weeks ago so I was like still shaken from that. We'll do breakwaters and groins.

(Question asked off the record)

MR. WILBER: Yes, seawalls would have to be someplace else, because sea walls are not part of beach nourishment projects.

(Remark made off the record)

MR. WILBER: Offshore breakwaters in Florida?

AP MEMBER: The Corps is looking at considering that a civil works project. The town of Edisto is really pushing hard to get that included.

MR. WILBER: Why do they tell you guys this stuff?

AP MEMBER: I have an inside man at the Corps. I don't think it is going to go anywhere just because of the cost, but it is out there.

MR. MIKEL: Are they just going to build a big sand dune out there or what?

AP MEMBER: It's a combination of a beach and nourishment project, a groin project, and at the end of each groin just offshore, several hundred feet, a little T structure made up of manmade reef balls to dissipate wave energy.

MR. WILBER: Okay, so I think that is it for the policy statements. We'll put out an e-mail to everybody next week just kind of making all that stuff clear again, but that should be simple. Roger, there was something else you wanted to do before we broke?

MR. PUGLIESE: One of the other items was the progression – and I think Pace has already discussed the progression on building a state of the South Atlantic Fish Habitat Document. I think one of the things that are going to happen after this meeting; we were hoping to have a little bit more progress, have some discussions with the state subpanel chairs in the context of a number of different activities going on and figure out how to progress with getting something like that combined or at least moving forward further for our region and tied to the activities.

Then as we move into the November meeting, we can at least address where this may be and how it can be developed. I mean, unless we've talked about generally what some of the context may be; I think we need to have that subpanel chairs discuss where we can potentially go with this one; weigh some of the other activities. That was one of the things. Any other thoughts, Pace?

Before we break, what I'm going to do is I am just going to e-mail a presentation on the status of the ecosystem coordination; because at this stage with everybody doing this, it is probably going to be a little bit much. What I would like to do is just quickly highlight what is going to be included in it.

Really, what it is touching on is the fact that there are a number of other bigger regional activities going on in our area that can benefit the activities of both the advisory panel and the council, and our state partners and regional partners. One of the first things I have talked to a couple of you about was the activities of the Southeast Coastal Ocean Observing Regional Association, SECOORA, the Ocean Observing Group.

I have briefed a number of members that were involved earlier on, on some of the activities. That effort is continually evolving and projects involve. One of the more recent, there was a recent meeting of some of the subgroups; the technical groups of that last week. They addressed healthy ecosystems, working waterfronts, clean coastal communities, and a fourth component that tries to capture the interactions of the region and ties directly to the Governors Alliance – I've mixed the two. That actually is for the Governors Alliance technical teams. That met last week. The Ocean Observing Association is continuing moving with their projects on building a comprehensive ocean-observing capability for the entire region.

One of the specific things that has unfolded with our activities is the attempt to begin to build connections between the observing information and fish stock and fish information. We have a collaboration between partners under the fishery independent survey, MARMAP with Marcel Reichert and South Carolina DNR, and with the SECOORA group and funded through some work with Razmus and the efforts of Mitch Roffer and ROFFS to combine and to very

specifically look at how we can link, say, the environmental information collected on the fishery-independent surveys with the environmental information collected through the systems; look at variability and actually get some of this type of analysis that provides habitat suitability modeling, so that you can adjust potentially some of the CPUE indices based on environmental variability.

The intent is to bring the oceanographers in discussions of environmental variability and environmental issues to the table in stock assessment. Formally, the effort that is going to unfold this year is going to be tied and have a focus on specifically red porgy, which is due for a stock assessment coming up, so there is a real opportunity to get the oceanographers specifically discussing with the stock assessment scientists some of these tools that may be able to give some more view of how some of the environmental variability adjusts or may influence some of the populations, as well s the surveying going on.

That is one of the more significant efforts on building that connection between ocean observing and fish stocks. I had mentioned the Governors Alliance. The South Atlantic Governors Alliance continues to evolve and move forward. As I mentioned, the technical teams did meet last week. They rolled out a Regional Information Management System that they have been designing.

It will have a lot of cross-sectional information layers for the entire region as a benefit to the individual states, as well as to help provide some inputs for regional comprehensive view and management at the regional and balancing and some of the spatial planning discussions. There are some interactions or connections directly with our South Atlantic Habitat and Ecosystem Atlas; designations of essential fish habitat, all the spatial information on fisheries; so we're still in discussions about how some of these different systems are kind of all unfolding at the same time and providing sometimes similar, if not the same information; so how that goes forward is changing and moving.

One of the other activities is there is a National Habitat Board and plan that was developed through collaboration in the entire country. What it did is it created regional partnerships, one of which is a Southeast Aquatic Resource Partnership, SARP, that I sit on and work with that is directly involved with providing resources for aquatic habitat conservation.

There is actually a habitat plan nationally. There is a southeast plan that they have developed. There are a number of the different partnerships. Another one is the Atlantic Coast Fish Habitat Partnership, but we have been involved to a degree directly with SARP. SARP has connections to the community and had some relevant connections because of discussions we've had to the community based restoration programs. What they are trying to do and throughout all of our partner states have funded efforts to do restoration efforts.

They are now in the process of doing coordination to draw on all those to come up with what may be some of the more accepted practices across all these different programs. It has relevance to some of what we've just discussed about providing some guidance on best practices, et cetera. We may be able to draw directly from some of the work that is being funded directly through that organization.

One of the other newer groups that have been developed is the South Atlantic Landscape Conservation Cooperative. It is one of a number of these that have been developed throughout the country. It is an organization that is trying to look from the highest level of view. It is actually looking at terrestrial freshwater and marine systems; and in our case the southeast covers that entire section and through into the EEZ.

The benefit of this is to try to look at everything from terrestrial interactions, marine river interactions and provide resources that give you better regional distribution of these, and then begin looking at some tools to better understand the impacts of sea level rise or some of these other things that may happen in our region.

The real powerful aspect of the conservation cooperatives; they are tied directly to USGS who has climate science centers. They actually have funded science centers that one of their main clients is the conservation cooperatives. If you make the link all the way up this chain, one of the things I see as a benefit is our participation will maybe provide the ability to get resources down from these science centers to be able to provide us some view and snapshots and connections to down-scaled models to understand what may be some of the change of the essential fish habitat designations regionally may have on managed species, like gag or estuarine- dependent species.

There are some connections that I think are going to be real beneficial to our region in the long run, and that continued collaboration is pretty significant and beneficial. One of the other aspects that connects both SARP and the South Atlantic Landscape Conservation Cooperative is their invested resources in in-stream flow work. I think that is one thing I want to make sure that we get in the discussions for the in-stream policy; because they have invested in the southeast in-stream flow network and the information that provides at least a lot of the research and capabilities and tries to facilitate watershed level in-stream flow analysis and guidance.

Plus, they are providing some research planning on what the best research will be needed to be able to connect species and flow information. There are some real opportunities to build on it. Moving it to the Landscape Conservation Cooperative, again looking from the higher level, they've even taken it a step further to look at, say, distribution maps of surface flow change and come up with areas that are going to be the most significant potential for impacts; so getting that entire area and then being able to look at all the flow information and be able to put it into systems that really target from upstate all the way to the coastal zone, where the hotspots are going to be on as that surface float changes where they are going to be are some products that are already being done as part of the collaboration between the cooperatives and the other partnerships.

Again, things that can really benefit kind of the bigger picture in the impacts on our region or our habitat or species managed. Of course, the tools that we're developing with the Atlas and some of the other ones are going to go further. The ecospecies, species life history detailed online systems, are hopefully going to be connected into a lot of our continued discussion. I think we would like to be able to maybe connect some of that very specifically into the policy statements that have references to where you can find information on species distribution, on habitat, FEP, et cetera.

All of those connect into the broader scope of what is going on in our region and how we can draw on and focus or guide some of these different efforts, especially funded efforts to benefit all of what is being managed or conserved in our region. That is the quick snapshot. As I said, I would send.

I expect in the November meeting we are going to probably get a little more of that really kind of upfront in terms of seeing some of the things such as, say, the products that are connecting fish and oceanographic. I think they are going to be matured enough that they are going to be worthwhile seeing how we can see some of those benefits in the future. That's all I wanted to say.

MR. WILBER: All right, 8:30 tomorrow morning. Be on your best behavior; we're going to be with the "Coral People."

MR. PUGLIESE: Yes, we'll be joint with Coral. The chairs of the Law Enforcement and the Deepwater Shrimp APs will join to hopefully put the last details on what is going to be recommended to the council for public hearing for the extension of the HAPCs; all those other last pieces you received are highlighting that.

(Whereupon, the meeting was adjourned on May 7, 2013.)

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