SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

CORAL ADVISORY PANEL MEETING

Crowne Plaza Hotel
North Charleston, South Carolina

May 7-8, 2014

Summary Minutes

Coral AP:

Stephen Blair, Chair
Dr. Clark Alexander
Dr. Sandra Brooke
Kimberly Puglise
Brad Whipple
Dr. David Gilliam
Dr. Kate Lunz
Dr. Henry Feddern
Dr. Joshua Voss
Mike Merrifield

Council Members:

David Cupka
Doug Haymans

Council Staff:

Robert Mahood
Mike Collins
Kim Iverson
Julie O'Dell
Gregg Waugh
Roger Pugliese
John Carmichael

Observers/Participant:

Jennifer Lee

The Coral Advisory Panel of the South Atlantic Fishery Management Council convened in the Crowne Plaza Hotel, North Charleston, South Carolina, Wednesday afternoon, May 7, 2014, and was called to order at 1:00 o'clock p.m. by Chairman Stephen Blair.

MR. BLAIR: Okay, I think we're going to go ahead and try to get started here, please. We thank everybody for making their way down to the Coral Advisory Panel meeting of the South Atlantic Fisheries Management Council. What I would like to do is start off by going around and have everybody introduce themselves relative to their name and your affiliation and the chair that they hold or seat that they hold on the panel so we get a little bit of idea from everybody of who everybody is and why they're here.

One of the things I will mention is that the meeting is being recorded; so from here on in when you do speak, please state at least your first name so that can be tied into the audio record later on. My name is Steve Blair; I am the present Chair of the Coral Advisory Panel. I am with Miami-Dade County's Department of Environmental Resources Management. Through that venue I do monitoring and assessment of the coastal resources of the county, from the water quality and seagrasses out to the coastal nearshore reef systems.

DR. VOSS: I'm Joshua Voss. I'm a coral reef ecologist at Harbor Branch Oceanographic Institute at Florida Atlantic University. My primary interests are in coral reef ecology and coral health. I am particularly interested in conservation of coral reef habitats in the South Atlantic region.

MS. PUGLISE: Kimberly Puglise. I'm with NOAA's Center for Sponsored Coastal Ocean Research in the National Ocean Service. I manage both the shallow coral and the mesophotic coral program.

MR. WHIPPLE: I'm Brad Whipple. I'm a commercial fisherman from Fort Lauderdale, Florida. I'm here interested in trying to assist the AP in protecting corals while also protecting the golden crab fishery in south Florida.

DR. BROOKE: Sandra Brooke; Florida State University Coastal Marine Lab. I am a coral ecologist, primarily deep sea these days, and I'm interested in coral ecology and conservation.

MR. MERRIFIELD: Mike Merrifield. I'm the Chair of the Deepwater Shrimp AP, and I'm with the Cape Canaveral Ship Company out of Cape Canaveral, Florida. I'm also here representing the interest of fishermen and also preservation of the oculina and deep-water corals.

MR. HAYMANS: I'm Doug Haymans. I'm the Georgia state representative to the council and I chair the Ecosystem-Based Management Committee.

MR. CUPKA: I'm David Cupka. I'm a council member from South Carolina.

DR. FEDDERN: Dr. Henry Feddern; marine life fisherman. I've been forever I guess on the advisory panel, anyway, since it was in the Gulf of Mexico's jurisdiction. Anyway, I am a marine life fisherman. I catch critters for aquariums, and I've been here to keep monitoring on what the government is doing and to make sure that things are fair for everyone involved.

DR. GILLIAM: Dave Gilliam; Nova Southeastern University Oceanographic Center, coral reef ecologist. I manage a number of southeast Florida reef monitoring projects and reef restoration projects. I'm interested in conservation, especially in the southeast Florida region.

MR. WAUGH: Gregg Waugh; South Atlantic Council staff. I'm the Deputy Executive Director. I'm just filling in for Anna Martin, since she decided to leave us and go get married, until we fill that position.

MR. PUGLIESE: I'm Roger Pugliese; senior fishery biologist for the council and working on our habitat ecosystem and have been involved in the coral reef and HAPC and all those spatial activities of the council.

MR. BLAIR: I see that Kate Lunz is on the webinar; we are being webcast at this point. Kate, I'm not sure if you are tuned in or dialed in. We're trying to find out if you have an audio connection. If you do can you say, hello? We'll work on that. Kate, can you try to speak up? The other way that you can do is you can also send a message I believe to the moderator? That way we can at least have your input throughout the meeting as well; I would appreciate it.

DR. LUNZ: Can you all hear me?

MR. BLAIR: There you are. Kate, would you like to go ahead and give your introduction please?

DR. LUNZ: (Inaudible)

MR. BLAIR: Very good. I just want to kind of make note as we did find out and as Gregg made note that Anna is no longer with us. We have kind of a little empty chair to fill, which it is good for her. It obviously changes for what she is looking at. It is a great thing but definitely her support and assistance is something that we have always depended on. I look forward to the next Anna. I guess whoever it is, is going to have to have the name of Anna in quotes somewhere. Also, I would like to acknowledge and thank the council members and the Chair of the Habitat AP for being with us to help us along the way as we go.

A couple orders of business to start off with is with the agenda. We do have a couple changes in the agenda. First, Item Number 5, the update from NOAA Fisheries Habitat Conservation Division; Jocelyn Karazsia is doing her civic responsibilities, serving in jury duty, and will not be able to join us. That item will be removed from the agenda.

Additionally, relative to some time commitments on Roger's part, he has graciously agreed to give his briefing on the background review of management actions for the Oculina Experimental Closed Area, which will be done immediately after we do the approval of the minutes. With those changes in mind, are there any other changes for the agenda? Hearing none; motion to accept the agenda?

AP MEMBER: So moved.

AP MEMBER: Second.

MR. BLAIR: All in favor say aye; opposed. Good. The next item is approval of the May 2013 minutes. It just so happens that our last Coral AP meeting was a year to the day. It was May 7, 2013. This information was distributed with briefing materials that were sent out to most of the AP members or all the AP members. Are there any changes or comments regarding the minutes as they were distributed? Hearing none; can I have a motion to accept the minutes as distributed?

DR. GILLIAM: Motion to accept the minutes.

MR. BLAIR: Thank you, David. Second?

AP MEMBER: Second.

MR. BLAIR: All in favor; opposed. Done. Okay, with those two items out of the way, the purpose of the meeting obviously is to get ourselves up to date on a number of informational points from the outreach issues as well as status of the potential listing of various species of corals, status of our pending Coral Amendment 8.

Also, I think the major intent here is to look at, review, discuss, and come up with recommendations for the present Oculina Evaluation Team work that is ongoing. Again, the report was both distributed by e-mail as well as with your briefing materials that we'll be getting into very shortly. To start it off, though; again, Roger is going to take a portion of that and give kind of give us a review of the background of the management actions for the Oculina Experimental Closed Area, to kind of give us a setting of the stage for the information, the need, the purpose of the report and what types of things we hope to glean from that evaluation.

MR. PUGLIESE: I am going to give you a fairly consolidated presentation and really focus on the fact that the discussion and deliberation really is to address the Oculina Experimental Closed Area and the review that is ongoing, the materials have been distributed to, and highlighting the different components of that.

The Oculina Habitat Area of Particular Concern was originally designated and expanded ultimately in June of 2000 to identify the boundaries that you see, including the satellite HAPC components. Now, of course, it had imbedded in it the original Oculina Bank, which subsequently became the Oculina Experimental Closed Area, which was the first marine protected area and implemented specifically for snapper grouper fishery management. The original Coral FMP is what established the 92 square miles Oculina Bank back in 1984.

Subsequent to that, Snapper Grouper Amendment 6 is what created the Oculina Experimental Closed Area and prohibited anchoring by vessels and fishing for snapper grouper species. It prohibited fishing or retention of those species within the HAPC. The Snapper Grouper Amendment 13A – subsequently in the original snapper grouper amendment, there was a ten-year sunset provision established.

In 2004 the council revisited this in 13A, extended regulations within the Oculina Experimental Closed Area that prohibited fishing for and retention of snapper grouper species for an indefinite period, however, with a ten-year reevaluation by the council. The council also was to review the configuration after that timeframe; and that has occurred subsequent to the final rule.

Basically, the regulations in place have been put in for an indefinite period. However, there is again an update to what is going on with specific activities on outreach, enforcement, and research and monitoring. The purpose of the amendment was to provide continued protection of snapper grouper populations and the associated oculina coral system.

The need was to provide a hedge against a high degree of scientific uncertainty associated with the snapper grouper species, to reduce the possibility that these stocks may fall below sustainable levels, and help rebuild stocks already below sustainable levels. It also was to provide high-level protection to oculina.

In response, the determination was that the species appeared to have begun to recover within the affected area; and if opened at that time, any gains during the previous decade would be lost. Action provides most biological, social, economic benefits while aligning adaptive management. Subsequently an evaluation plan may result in an increased public support and more protection of the snapper grouper species and oculina coral and result in decrease in illegal fishing.

That evaluation plan was to address outreach, enforcement, and research and monitoring. The final evaluation plan for the Oculina Experimental Closed Area was completed in March of 2005. Subsequent to that, an update report was provided – a final Oculina Evaluation Team Report was provided to the council in February 2007.

The original evaluation plan had, as I mentioned, three different components; the outreach plan, which included the council's Information and Education Committee deliberations; a draft proposed was developed in 2003 for the HAPC by research partners and NOAA, and UNC-W, as well as the Southeast Fisheries Science Center.

Formal meetings were held from Fort Pierce and around Port Canaveral back in 2004 and then ultimately provided four primary objectives; to support development of the outreach plan, to focus outreach campaign targeting fishermen, and a broad media campaign as well as an evaluation.

The enforcement plan that was developed; council moved back in March of 2003, stating the Oculina Experimental Closure to be a priority and request that NOAA General Counsel revise the penalty schedule. A special agent was assigned to the specific area and Law Enforcement Committee and Advisory Panel established five enforcement principles. The oculina enforcement meeting held in December of 2004 identified those as VMS, cooperative enforcement, increased presence in the area, enforcement reports, as well as outreach and education. The third component of the evaluation plan highlighted research and monitoring. The 2004 Deepwater Coral Research and Monitoring Workshop was held in Cape Canaveral to provide input and provide refinement of information going into this plan.

It identified seven specific objectives; habitat recovery, the effect of fish distribution and status, a population structure of corals, stressors affecting the Oculina Experimental Closed Area, key trophodynamic groups, physical chemical parameters that define healthy ecosystem in the oculina system as well as research on coral feeding ecology.

That essentially constituted both the evaluation plan and the subsequent report to the council on the review of status that had occurred in 2007. As I mentioned, that was a very concise

presentation. I think the takeaway message is that the idea is we really do want to focus on the oculina evaluation.

The intent of this was to look at those three components as they relate to the experimental closed area, which is a marine protected area, which includes protection of snapper grouper as well as protection of the coral and multiple ecosystems within that system. That is where we stand. The review is now being conducted.

You have been provided the different components of the individual sections. The section review discussions, the presentations that were provided in the team reviews as well as an overall spreadsheet; all of those I think we're going to be touching on and going through to be able to look at what the comments of the Coral Advisory Panel are with regard to the status of the different parts of the activities.

Right now that is going to be worked on and consolidated into a more comprehensive document; because in some cases like the law enforcement reports, most of the details are actually in the presentation and in the Excel versus the section presentation. They are kind of mix and match in terms of level of detail.

We will get into those reviews and then provide opportunity for panel member input into the system. I do apologize for having to run, but I have a related meeting. Given some of the limitation that you will see in terms of long-term research, opportunities where they exist, there is an effort that I've worked with the South Atlantic Landscape Conservation Cooperative to expand some of the characterization of bottom habitat in the region.

Funding has gone to Nature Conservancy and other partners to do that and we have got a conference call to look at that extensive work that is being done. I do need to step out to be involved in that. I do apologize, but at least to set the stage and we will move on from here and complete the activities today. I think we'll probably get into more of the research discussions that I will probably be involved directly in tomorrow. Any questions?

MR. BLAIR: Yes; I think that is a nice summary presentation that we may want to be able to look at and review kind of just the path that brought us to where we are and the components that we need to be evaluating as we get into the discussions on the Oculina Experimental Closed Area assessment. What we're going to do now is have an update on the status of Coral Amendment 8, and Gregg is going to provide that for us.

MR. WAUGH: The council approved this in September at their September 2013 meeting and the document was sent to the Secretary of Commerce for formal review and implementation on November 26, 2013. We're expecting the proposed rule to publish anytime now. There should be a notice of availability on the amendment and then the proposed rule should publish. There will be opportunities for anybody who is interested to comment on that during those publication periods. We would anticipate, if it is approved, regulations some time within the next six months. I would be glad to answer any questions.

MR. BLAIR: Are there any questions on Amendment 8?

DR. FEDDERN: I thought there was or I heard that there was going to be a change to a different amendment. I don't know if that were planned.

MR. WAUGH: No, we had a request from the rock shrimp industry to look at a further change, but that was after the council had already submitted the amendment. The council decided not to make that change at this time.

MR. BLAIR: The package is part of your briefing materials that came out that has the document that has gone forward and the explicit boundaries and so forth for those areas. If you haven't had an opportunity to look through it and you have any questions, obviously you can bring them back; but it is nice to always see that we finally get the final motions going and get the work done and actually approved into the final rules. Next will be a review of the cooperative agreement with the Coral Reef Conservation Program.

MR. WAUGH: You all have a copy of this as Attachment 3. That was submitted. We received some comments on the proposal. We made those revisions to the budget; and that was submitted on April 13, 2014. To those of you familiar with the grant world, that grant document is under a NEPA review right now.

One of the exciting parts of that related to the Oculina Experimental Closed Area; at the end of this next three-year grant cycle, we will have the Oculina Experimental Closed Area fully mapped and the bottom characterized. That will take care of a couple of deliverables in the Oculina Research Plan.

MR. BLAIR: Gregg, knowing that we have those explicit ones ongoing; is there more of a long-term plan? By that I mean is there a multiyear process that is anticipated to be sought through this process that will continue to assist us?

MR. WAUGH: Well, these coral monies have been available I think for the past six years of so, and we anticipate them continuing. This next cycle is for a three fiscal year period; so it will be for fiscal years '14, '15, and '16. We've put in as priorities mapping and characterizing the Oculina Experimental Closed Area and then mapping our existing MPAs.

Those are our highest priorities. It is anticipated that this opportunity will continue in the future, and, of course, we have to wait until we get there to see what happens budget-wise and all that. But, yes, this will be for the next three years. I'm sure Mike will raise this at some point; but the Deepwater Shrimp AP is very interested in participating with researchers. They have asked us to look at whether in the future some of this money can be used to work with them cooperatively that they are interested in working on. We told them we would be glad to look into that.

DR. BROOKE: Gregg, can you tell me a bit more about the mapping and characterization. I understand the mapping will be multibeam. What vehicle are you proposing to use to characterize those areas?

MR. WAUGH: That might be something that Roger could help explain.

DR. VOSS: I could speak to that. As a research agreement between Flower Garden Banks, UNC-W, and Harbor Branch, CIOERT; there is a new Mohawk ROV that is going to be used; so it is the South Atlantic Mohawk A-Team.

MR. BLAIR: Now can you elaborate on the Mohawk?

DR. VOSS: This is a capability that expands on what UNC-W has been able to do previously. The most important aspect of this instrument is that it increases both the depth range – currently the tether will allow it to go to 300 meters; but it is capable of going to 1,000 meters with another tether. More importantly, it can handle stronger currents in this area.

Whereas, the Super Phantom would consistently get overwhelmed by current; this instrument should be able to handle those currents more effectively. It is a mobile platform so it can be used on multiple different ships of opportunity. I believe that the proposed ship for this project is the Pisces, if I am not mistaken.

MR. BLAIR: Okay; and that is being submitted for funding. In other words, it is in the cycle for it?

MR. WAUGH: Yes it has already been submitted and we've gotten in some initial review comments back. We responded and provided them the material, and it is undergoing NEPA review now. We don't anticipate any problem getting it funded.

MR. BLAIR: You probably did say this; what is the anticipated funding date or period of when funds become available?

MR. WAUGH: Fiscal years '14, '15, and '16.

MR. BLAIR: Late this year.

MR. WAUGH: Yes.

MR. BLAIR: Yes, that is right; Fiscal Year '14 ends in September.

MR. WAUGH: Some of that money will be used for research that is supposed to take place this summer. Jennifer Lee, you should be listening in. Do you want to call my cell now and then we'll put you on speaker, Jennie. Can you hear me, Jennifer?

MS. LEE: Yes, I can.

MR. WAUGH: We can hear you; I'll key up your presentation. All right, we're all set.

MS. LEE: As Gregg said, about a year ago you had a meeting and Jennifer Moore provided a detailed presentation on NOAA Fisheries' proposed ESA listing determinations for 82 coral species and the basis for those proposed determinations. The purpose of this presentation is to provide you with an update of that proposal.

I will review what was proposed back in December 2012, but I am not going to repeat all of the information as far as the basis behind the proposal. Instead I'm going to focus on the process and give you an idea of what has been happening. Where are we in that process; well, we've come a long way.

We actually started back in October. On October 20 NOAA Fisheries received a petition to list 83 reef-building corals under the Endangered Species Act from the Center for Biological Diversity. In February 2010 we made our determination as to whether or not the petitioner presented substantial information indicating that the petition's action may be warranted and that a status review was warranted.

We determined that the petitioners had presented substantial information for 82 out of the 83 petitioned species. The one that we did not go forward with the status review on was oculina varicosa. We completed the status review report and draft management report in the summer of 2012 and put them out for public engagement.

That wasn't a formal public comment period, but it was for the purpose to seek information that we may have omitted in preparing the two documents that we were going to base the determination on. We had a 90-day comment period. We also had to host a series of engagement workshops and hopefully you participated in one of those.

All the information received during the extended public engagement period together with the draft management report and status review document formed the basis of our 12-month finding and the proposed rule, which we published on December 7, 2012. We then initiated the 90-day formal public comment period. We later extended that by 30 days; so we had a total of 120 days. The public comment period was closed April 6.

The Pacific Islands, Southeast Regional Office and the Office of Protective Resources held 19 public hearings throughout the regions and Washington D.C. during that comment period on the proposed rule. That takes us up to the most recent actions where in the Endangered Species Act for background, it requires the final determinations on proposed rules be made within one year of the proposal, unless spatial scientific substantial disagreement exists over the sufficiency and accuracy of the available data used in support of the proposed determinations.

We felt that was the case here, so a six-month extension notice was published in the Federal Register on September 20, 2013, resulting in a new deadline for the final rule of June 6, 2014. This just shows you what we did propose. NOAA proposed listing 66 coral species and reclassifying two under the ESA.

Those two are elkhorn and staghorn corals. They were proposed for reclassification from threatened to endangered. As you know, those are listed as threatened corals not here within our region. Of the 66 species, 54 are posed as threatened, 12 are endangered, and 16 of the 82 contained in the original position were found not warranted for listing. This just shows you the breakout of where the corals were.

You can see we had a tremendous amount of corals that were proposed for listing in the America Samoa, a bunch in Guam, and again within our Region 9. Here are the nine coral species in the

southeast that were proposed. All of these species, as you know, do occur within your jurisdiction here in the South Atlantic Fishery Management Council.

The top three don't occur in the Gulf with the exception of the Flower Banks Marine Sanctuary. A lot of information on the background in what was contained within these three documents on the slide here; the status review report was drafted by the Biological Review Team to provide 82 species-specific status reviews, peer-reviewed reports, general threats, life history and ecology and provide species assessments.

We also have a management report that was drafted by the regional offices to provide the basis for determining whether existing laws, conservation efforts and other regulatory mechanisms are adequate to protect the species. Then through the public engagement process, as well as – I'm blanking out on the name of the conference, but there was a huge conference that occurred during that time period that took place in Australia.

That is why we have so many publications there you can see, 405 scientific articles, and, of course, the 14,000 public comments; so we also have a supplemental report. The main point of this slide is just to show you what a large endeavor this has been. It has been a tremendous amount of work for NOAA Fisheries.

We've had the two regional offices that are involved because of the species that are listed. We've had our Science Centers involved and our Office of Protected Resources has been doing a lot of coordination. We've also been coordinating and working with the Office of Habitat Conservation and the Coral Reef Conservation Program.

This is definitely not just a Southeast project. For now I just wanted to share a little bit about some of the major themes we received during the public comment period. We received numerous comments on the proposed listing and the sufficiency or accuracy of the available data used to support the proposed listing determinations.

Particular comments raised questions and provided very often conflicting information regarding the topic listed here; interpretations to data, related extinction risk to proposed species listings, statuses, sufficiency and quality or lack thereof of the species-specific information, the methods used to analyze the information, including our determination tools; the determination tool for a method developed for the proposed rule.

Jen went over that. They used qualitative abundance distribution and vulnerability information about each species and formulas based on the factors that contribute to the extinction risk to determine listing outcomes. The method did provide consistent and transparent approach in the ESA listing determinations, but it was strongly criticized in public comments for being too rigid and not appropriately considering uncertainty.

Again, some more information on themes that came out of our public comments. These are a little more detailed; the lack of analysis of physical complexity of global stress like spatial and temporal variability, ocean warming and acidification. It didn't account for high uncertainty about where and when global threats will occur.

There was new information provided; worsening of global threats, ocean warming hiatus in 2000, spatial variability and global threats, high uncertainty with respect to types of global threats on corals and coral trade, AmeriCulture. There were a lot of comments relating to our use of the year 2100 for the foreseeable future.

That has to do when you are looking at listing a species that is threatened. That is part of the definition is whether that species is likely to go extinct in the foreseeable future. Future proposed listings weren't supported because extinction isn't imminent. I'm sort of only reading half of these because I hate reading slides, but I did want to give you a good understanding of some of the comments that we've got. You can read this at your leisure, I guess, too.

New information; the main purpose of this slide is to just let you know the tremendous amount of information that we have and we continue to get with respect to our coral listing. The science related to global warming and coral health is just rapidly growing. It is really difficult in terms of the stopping point, so to speak.

There is always new information coming out. This gives you an idea of some of the new information. Probably the biggest piece of information that has come out or that received a lot of attention was a report that Charlie Brennan put out. I will note that report really focuses on the specific species, but that doesn't mean that we haven't also gotten a lot of species-specific information on our (inaudible) corals as well.

Note that there are 1,000 new papers related to distribution of abundances and threatened (inaudible) and life histories of the proposed species. We've had general coral biology information, we've had global warming-related information, and then species-specific information that keeps continuing to grow as we work on this listing and move forward for final determination.

I guess this one might be one you have to touch a few times to get the text on it. This is just a quick refresher; what happens if corals are listed and what increased protection from impacts and federal activities that relates to our Section 7 responsibilities. I think you are all familiar with our Section 7 Consultations and how basically any federal activity that may affect listed species have to consult with us if they may be affected.

Restrictions are removal, harm, transport or sale. That is the one you will see there is an asterisk under threatened. It is really the main distinction between endangered and threatened species. When you list a species as endangered, all the prohibitions under Section 9 of the Act are automatic. When you list a species as threatened, you actually have to do a special rule called Section 4D Rule; and in that rule you specify what protections the species needs.

Without the 4D Rule, the prohibitions under Section 9 are not automatic. Other things that are not automatic; just because a lot of times there is confusion as far as what does it mean when a new species is listed; we just want to cover our bases. It does not prohibit recreation around coral reefs. It does not ban fishing around coral reefs or prevent boating near corals reefs, and it doesn't stop research on coral reefs.

Here is just my contact information and then my colleague Jennifer Moore's contact information. She is the ESA Coral Listing Recovery Coordinator and the person who is directly working on

this particular action. But, of course, you can always reach me as your fishery management liaison; and if I can't help you, I can always steer you in the right direction.

There is also our website listed there which has all kinds of background information. The best thing you can do if you are interested in further information is to just browse that website and you will see all the background reports. You can see the EFR notice where we did the extension; that talks a little bit more about the disagreements related to the rule and information that has come out through the public comment period. That concludes my update.

MR. BLAIR: Thank you very much; I really appreciate it. Do we have any questions?

DR. FEDDERN: I am really surprised that there is no exemption for aquaculture for corals, because this would be a very green industry for poor countries rather than collecting stone corals. They could do aquaculture. Also, hobbyists who have them in their aquariums already, they would basically be illegal. Home aquariums are a big reservoir for the species if everything ever happens out of the ocean.

It would be a big incentive to aquaculture them and hobbyists from just breaking them and re-culturing them in. If they could sell them, then you get a profit motive and that is much more incentive. It is a much greater incentive than just not being able to do anything with them at all. I think there should be a provision in there for aquaculture on these things, because that would be a fail-safe if anything ever happened like global warming knocking off the species. It would be then the species in other places.

MS. LEE: This is where the being on a phone is very difficult. I apologize; I wasn't able to hear parts of that; but I think I got the gist at least of what you were asking about with respect to aquaculture. I want to remind as far while a species is listed as endangered, then the ESA prohibits all commercial activity automatically with no provisions for receiving a permit to perform commercial activities. It's just it is in the Act that is how it is.

But with threatened species, again the ESA prohibitions are not automatic and we have flexibility in identifying which activities should be prohibited. This is accomplished through a separate rulemaking, which would be noticed and reviewed publically; and that is where I was referring to the 4D Rule. There is flexibility there.

Right now where we are in the process; we're looking at whether we list the species or not. During that process we are limited to looking at the best available information and the criteria there used to either list or not list a species either as endangered or threatened. Final rules do have a section that looks at potential activities that might be affected and can address questions there. That is really where we are in the process.

DR. FEDDERN: I think if they are threatened; they would be even more important to have other species in other places in the aquariums and being able to be cultured.

MS. LEE: I apologize; if someone could repeat or paraphrase, I can't hear a word. That time I'm afraid I really couldn't hear; but I do recognize that aquaculture has come up a lot. I believe when you were presented to by Jen Moore last year, some of these similar comments came up and were in the discussions following her presentation as well about this issue.

MR. BLAIR: Okay, Henry, did that –

DR. FEDDERN: Yes, I think that culturing the threatened species would be even more important in order to provide more cultured specimens in many places to eliminate the possibility of a species dying off in the natural habitat.

DR. GILLIAM: Jennifer, what happens in July; what happens after next month?

MS. LEE: Once the agency does put out a final rule, it really depends on the outcome of that rule as far as whether species – obviously, if they are not warranted, that is the end. If they are threatened, the agency needs to work towards the 4D Rule; because again if they are listed as threatened, nothing will be automatic; so the agency would be immediately working towards that process. If they are endangered, the prohibitions would be automatic. Also regardless whether it is endangered or threatened, the agency's next sort of statutory step is to work on developing critical habitat. I am sure you are all anxious to see where this goes.

DR. GILLIAM: I guess it still is not clear to me that the final proposed rule is due next month, which I guess you just summarized for us; but for those of us that are actively doing research with a number of these species; does anything change for us in July?

MR. BLAIR: I think we're explicitly talking about the acropora.

MS. LEE: If these species were listed as endangered, it would automatically make that prohibition for commercial activities. I know as far as corals currently in all the nurseries can continue to be held and maintained. If the endangered listing becomes final, they will just need to document that the corals were held prior to endangered listing. If you plan to out-plant that; that activity would require a permit. I think maintenance in asexual propagation of endangered corals in a nursery would not require a permit. Additional activities such as experiments, transfer, out-planting would.

Import/export; they would be authorized under a permit only for research or enhancement purposes. Again, if you have corals that you are currently maintaining, demonstrating those animals were in captivity before the final listing decision is your responsibility. I think if you contact a permit office, they have information on that process. I can provide you with that number.

MR. BLAIR: Okay, because at this point handling, use and so forth of the corals are already regulated. They require permits and so forth.

MS. LEE: With respect to acropora and staghorn, they are listed as threatened now. We are operating under a 4D Rule. If they change to endangered, things would change. If that didn't happen, then things would stay the same. I think if you are familiar with that 4D Rule or if you are not, it might be a good thing to look at to sort of get an idea of what a 4D Rule can look like and where it makes exceptions.

MR. BLAIR: I guess one of the questions is would something along the lines of those coral nursery processes be considered as potential – would it still be permitable or would it be considered through those exceptions? I understand that aquaculture because it is a commercial

venture may be more difficult or not be as permitable. I guess one of the questions is trying to understand, since there is a lot of activity especially in southeast Florida relative to the coral nurseries and acroporids specifically, as to what general impact would be to those facilities through acropora being listed as endangered.

DR. GILLIAM: It is my understanding that the process of getting an ESA permit is already – I mean, we've already provided a lot of information; so I think that is ongoing. It may be my ignorance of the process. I'm just not sure – if the proposed rule gets submitted next month, but it is not finalized at that point, is that correct; they are not listed as endangered starting July 1, 2014, is that correct?

MR. WAUGH: Jennifer, did you hear the question?

MS. LEE: I could hear but, no, I missed the question aspect of that.

MR. WAUGH: The question is once the final rule is published; within that final rule does it state which species are threatened and which are endangered?

MS. LEE: Yes; it definitely does. The final rule would specify what species were listed as threatened and endangered, what species were not listed at all; and then it would go through and describe what activities would likely be affected and what ones wouldn't be affected. It would provide guidance on the outcome of that listing in terms of what we think the impacts would be related to specific activities. Certainly, with all the coordination, like you said, things as far as nurseries and grow-out facilities, those are good things and we want to maintain and have those things happen.

DR. GILLIAM: Just for clarity; next month, June 2014, is finalizing the complete proposed final rule and not the actual final rule.

MS. LEE: The six-month extension made it so that our final rule is due on June 6th. The final rule; if you look at the six-month finding, that is a final rule as opposed to a new proposal.

MR. BLAIR: If that is accepted, what is the date that those rules and regulations go into effect; date of acceptance?

MS. LEE: That's a good question. I am trying to think back to some of our other listings. I don't think there is a big gap between publishing and effective date; but I do recall some recent discussions where they weren't identical. I apologize; I can get back to Gregg and he can forward out information to you as a follow up on that. I think there might be a little flexibility.

MR. WAUGH: There is usually a 30-day cooling-off period for the Administrative Procedures Act, APA. I know on the fish side of it, when they publish a final rule, those regulations become effective 30 days later unless there are certain extenuating circumstances; but in general there is at least a 30-day cooling-off period. Jennifer, the council has a Live Rock Aquaculture Program that allows them to sell live rock with any associated species on it. I would assume that would continue?

MS. LEE: Yes; I'm thinking back to actually Jeff Beck with aquaculture just gave a presentation to the Gulf Council and included information on that; but, yes, that is my understanding as well.

DR. BROOKE: I might be wrong about this, but I was there at the Gulf Council meeting; and my understanding was that if a piece of live rock had one of the endangered species on it, then it could not be harvested. That was my understanding and the caveat that I may be completely wrong.

MS. LEE: Thank you; I appreciate that.

MR. WAUGH: I know our live rock program, you have to demonstrate that that is non-indigenous rock and so this would be different than just collecting some live rock. This is rock that is put out there and soft corals and hard corals are allowed to settle on it. Sandra is saying that is the same thing in the Gulf. If you could double check on that and get back to me, Jenny, that would be appreciated.

MS. LEE: Yes, I will definitely do that. I apologize that I don't have these answers offhand on some of the issues that come up. It is in no way saying that NOAA Fisheries hasn't considered it and has answers for you. It is just representing an issue that I am not working directly on, I apologize that I am not familiar with all of these details. I will definitely follow up.

DR. FEDDERN: If what Gregg says is true; then that is a de facto allowing aquacultured corals under this coral proposal. I think it would be a wise idea and in fact easiest to do is just incorporate Florida's Life Rock Aquaculture Program into this Coral Plan.

MS. LEE: That I definitely couldn't hear.

MR. BLAIR: His statement was that if it were associated or true that the council's live rock program would be able to continue or the basis of that operation would be able to be continued, it would be kind of a de facto means of allowing the culturing of the corals. The question, obviously, Henry is thinking inclusive of any listed species. He also made a comment that he thought it would be relevant or appropriate for inclusion or enveloping the state of Florida's live rock rule into the document or the rule into the ESA document.

DR. FEDDERN: Into the ESA document just as the Florida Keys Sanctuary incorporated the state of Florida's Marine Life Fishery Rule into the Sanctuary regulations; this would be the easiest way of fitting in aquaculture of these species without going through the whole process again.

MR. BLAIR: I would take it that relative to issues such as dredge and fill, that these would greatly extend the amount of information and potentially remove the ability to do certain dredge-and-fill operations. I'm thinking specifically of both ongoing and discussed port expansion projects in southeast Florida where they are going through areas of undredged natural resources, including reef area, which has had acroporids on them that have had to be relocated; but I would imagine that this is going to greatly increase both the coordination and complexity of those environmental requirements. Are there any other questions for Jennifer? Okay, thank you very much, we really appreciate it.

MS. LEE: Thank you. I'll get back with Gregg and if it is possible, I can send him some information before you're out so that you can get that information today.

MR. BLAIR: Okay, we do have a presentation on outreach activities that will be presented by Kim Iverson, but that will be a little bit later on. She will be joining us later to be able to provide that. With that, I think we are at the meat of the meeting at this point.

MR. WAUGH: Do you want to get started or do you want to take a short break before we get into this.

MR. BLAIR: Yes; why don't we take a quick 15-minute break and then we'll come back and start delving into the background and needs for the Oculina Experimental Closed Area Assessments. If we can come back to order, please; this is starting to get into the main reason for our gathering today and tomorrow.

As I said, Kim Iverson will be coming in and will give us an update on the outreach activities; but I kind of wanted to at least set the stage for you as far as what we're planning to do for this Oculina Evaluation Process that we would like significant discussion and input on. What we plan to do is go back a little bit.

It is going to be a little bit of covering ground that Roger did, but setting the stage as to why it is that this evaluation report is being conducted and what the purpose of it and what the mandates for it were and are; give a little bit of a synopsis of what the initial report provided as far as what the status was back in 2007 when that report was generated; look at the information or the matrix of information that is involved in doing this evaluation.

We're being asked to provide input as to what the present – excuse me, we will also review what the initial status of the report is for 2014 as far as where they believe they have made any advances, completions and so forth towards that matrix of items for the assessment. What we're being able to ask is to have input both on the information that is presented in these assessments, if there is other information sources and so forth that are known that have bearing on or could assist in the process, to bring those forward; as well as comments relative to the explicit criteria that are being assessed.

Things have changed a lot since the establishment of the Oculina Experimental Closed Area as well as since 2007. It may be that looking at some of these things we may see information or criteria or components that should be included that aren't. I would say that it is fair game for us to discuss components that we see in there that we may feel don't have as much relevance as they may have in the past.

We really are being asked to do a critical assessment of this from our perspectives. What we do hope to do, after looking at what the basis was for the mandates for this have been, and get a little briefing on where they were in 2005 as far as what they felt the assessment status was and then looking at the matrix of information that is being generated or compiled in order to make this assessment presently; depending on where we are on that, we will also give some general aspects or give a review of the present status of the report and what the initial compilation is.

Obviously, it is open for discussion throughout that period for any particular points; but I think this is something we don't want to try to finish today. It is something that we need to take this information and think about, really review it well, and come back ready to hit it tomorrow. The purpose for the rest of the afternoon is to go through and give the background, give the matrix, give the present status of the 2014 report, and have any discussions we have about appropriateness, completeness and so forth with the information that we'll be discussing.

Tomorrow we'll look at what we can do to provide that input, what resources we have, whether we feel things should be assessed; if we have recommendations for components for assessment or process for assessment as well as some of the prioritization of the needs that are coming out of the assessment reports to date.

With that, Gregg is going to kind of give us some of the background review for this. And as I say, if you have questions or comments – how many individuals have been involved in the conferences for the assessment reports – we will to the greatest extent that we can be able to respond to them, but there may be questions that we take a list on and get responses at a later point.

MR. WAUGH: This is the presentation that Anna put together and gave to the Oculina Evaluation Team webinar on March 12. As we're going through, as Steve said, if you have questions, just holler at us as we're walking through. This covers what was originally the Oculina HAPC.

The 92 square mile area was put in place in 1984; and then that was expanded to cover the Oculina Bank HAPC expanded; and added these satellite areas in 2000. Back in '94 this area was also made the Oculina Experimental Closed Area, which essentially is an MPA. The timeline; the 92 square mile Oculina Bank was designated as a Coral HAPC; the council finished that in 1983, it was effective in 1984.

Snapper Grouper Amendment 6, which was completed in '93 and implemented in '94, prohibited anchoring by vessels fishing for snapper grouper species and prohibited fishing or retention of snapper grouper species within the HAPC. That made it basically an MPA. That had a ten-year sunset on it.

Then Coral Amendment 3 in '95 prohibited all vessels from anchoring in the HAPC. Shrimp Amendment 1 in '96 established an area that trawling for rock shrimp was prohibited. Other amendments; Coral Amendment 4, which was a part of the Comprehensive Essential Fish Habitat Amendment in '98; the Oculina HAPC was expanded to include the rock shrimp closed area.

Shrimp Amendment 5 in 2003 required the use of VMS for the rock shrimp fleet. Coral Amendment 8, which we talked about earlier, was approved by the council in September and submitted to NMFS in November of 2013. It is under their review. We're expecting the proposed rule to be published some time soon.

That extends the northern HAPC, this area in green, and extends the western HAPC to cover this area. Those two together increases the HAPC by 343 square miles. Snapper Grouper

Amendment 13A was prepared to address the sunset of the Oculina Bank Experimental Closed Area.

Part of the council's original intent in putting a sunset on that; given how controversial that was and we prohibited all snapper grouper fishing, it was sort of a way in the council's eyes of strongly encouraging that research be done in that area to demonstrate the utility of an MPA; hence the term experimental closed area.

It was felt if we put in a sunset at the end of ten years' that would encourage the necessary research to be done. Unfortunately, that wasn't the case, and so the council looked at what we do with that in 13A. The purpose of those actions was to provide continued protection of snapper grouper populations and associated oculina coral.

The need was to provide a hedge against the high degree of scientific uncertainty associated with snapper grouper species, reduce the possibility that the stocks may fall below sustainable levels, help rebuild, and provide a high level of protection to oculina. Within 13A we looked at several alternatives.

Alternative 6 was no action; and that would have the regulations within the Oculina Experimental Closed Area would sunset on June 27, 2004. We also looked at extending it for an indefinite period of time for an additional 50 years, 20 years, or under Alternative 2 extend it for another ten years.

What the council did was selected Alternative 1 as their preferred, which extended the regulations within the experimental closed area for an indefinite period but with a ten-year reevaluation by the council. The council committed to review the configuration and size of the Oculina Experimental Closed Area within three years of publication date of the final rule for Amendment 13A.

The reason they did this was the species appeared to have begun to recover within the affected areas from the limited work that was done. If opened, any gains during the previous decade would be lost. Alternative 1 provides the most biological, social, and economic benefits while allowing adaptive management.

Given that the sunset wasn't successful in getting the research done, we developed an evaluation plan that laid out the specific projects that were necessary and estimated cost for each of three components; outreach component, an enforcement component, and a research and monitoring component. The feeling was having this evaluation plan would be more successful in achieving the work that needed to be done.

As Steve indicated, that is the task here is to determine how well we've done on that. We had the evaluation plan; it was completed in March of 2005. That was a requirement of the amendment. The initial three-year review was done in February 2007; and we'll touch on those results in a minute or two here. The 2005 evaluation plan was put together with the help of the council's Information and Education Committee, a draft proposal was developed in 2003. They had informal meetings and they identified four primary objectives.

These are the objectives that you will see in the 2007 evaluation and the current ten-year evaluation. The first was to support development of an outreach plan; second, to focus outreach campaign targeting fishermen; third, broad media campaign; and then fourth, some evaluation in terms of how the outreach component is working.

There was an enforcement plan and the council in March of 2003 approved a motion stating that the Oculina Experimental Closed Area was a priority; and they requested NOAA GC to revise the penalty schedule. They wanted a special agent assigned to the area. The Law Enforcement Committee and AP established five enforcement principles.

These were reflected coming out of the Oculina Bank Enforcement Meeting in December of 2004. One dealt with VMS; another with cooperative enforcement; third, an increased presence; fourth, enforcement reports; and then five, outreach and education. Again, we'll go into more details on those. Then the one you all are most interested in is research and monitoring.

There was a 2004 Deepwater Coral Research and Monitoring Workshop in Cape Canaveral, and it identified seven objectives; one, habitat recovery; two, effects on fish distribution and status; three, population structure of corals; four, stressors affecting the Oculina Experimental Closed Area; key trophodynamic groups; physical and chemical parameters that define a healthy ecosystem; and research on coral feeding and ecology. We'll fold in some of the comments from the Deepwater Shrimp AP as we get into that in more detail. Again, that initial evaluation went into the 2007 report. Are there any questions before we move on from that?

DR. GILLIAM: The word experimental; it is experimentally closed? That is what the word experimental referred to?

MR. WAUGH: That is a carryover from when it was first established. This was to test the use of closed areas for snapper grouper management, basically. The feeling was at the end of that first ten-year period when we extended it; that we just wanted to extend the regulations that were in place.

We kept that name experimental, because we were making it clear the council was going to do this ten-year review and determine whether it should continue or not. Now, in that interim period, through Snapper Grouper Amendment 14 we established eight marine protected areas.

DR. GILLIAM: You basically just answered what my second question was going to be. It was going to be if we already have MPAs and we kind of already extended another ten years; is there any value of keeping the word experimental in it? I would think it adds confusion. It is not really experimental anymore; it is an Oculina Closed Area.

MR. WAUGH: True; but I think the distinction would be that when we set up Snapper Grouper Amendment 14 and designated those MPAs; those basically were created and the council has no set time period to evaluate whether or not they continue. Whereas, with the Oculina Experimental Closed Area, this was done initially to determine whether this concept would work and at that time had a ten-year sunset.

We extended it for ten years with the proviso that the council would look at it after three and review it in ten years; again determine whether or not it needs to be modified, which could

include removing it. It is a subtlety, I guess, but the actual regulations are exactly what is in an MPA; but it is not considered an MPA.

MR. BLAIR: I would say that the issue is that the hard-cast deadline of a sunset of it has gone away; but the assessment need and reevaluation aspect of it to determine its efficacy is still required. Part of that process includes the aspect of modifications based on the information that is generated from it.

I understand where you come from with that; but the fact that it is still something in management; it is mostly a carryover, but the same aspects still apply. We're still trying to understand, gather the information on it, and modify it to make it better or more appropriate each time we do the assessment. If everybody wants to change the name, it would be kind of hard.

DR. VOSS: If that is the logic, we would need the same kind of things in all MPAs; so why aren't all MPAs called experimentally closed areas?

MR. BLAIR: AS Gregg said, most of it is a carryover. Consideration of the panel at some point, if you really feel that that is something that is the hook in the craw; that is something that could be done or at least recommended for consideration. I don't know how that goes as long as there is I'm sure not any other legal ramifications associated with it. That is something to think about.

DR. FEDDERN: This area was set up for snapper grouper or was it for oculina?

MR. BLAIR: I think that is an interesting point. The initial aspect of the designation of the area was through the Coral FMP; but the majority of the fishing restrictions came in through Amendment 6 through the Snapper Grouper Amendment. Part of that – well, excuse me, when I say the majority; all the bottom-tending equipment in fishing came through the Amendment 6 in the Snapper Grouper.

I think that is part of the issue that comes to play here is the initial establishment of the Oculina HAPC was through the Coral Amendment in '84; but the fishing restrictions including the restrictions for any bottom-tending gear came through Snapper Grouper Amendment 6. We're not talking about a single habitat; we're not talking about a single group. We're talking about a complex group and a complex of habitats to support the varied groups that exist there.

We're meeting more than one. It is kind of what the council has been doing for years and years is trying to not be so focused on a single-species aspect and looks at more holistic group. That is one of the considerations I think we need to have. When we are looking at appropriateness, effectiveness and so forth in some of these criteria possibly in the matrix or information needs; that is something that we want to keep in mind as well.

MS. PUGLISE: Just to clarify; the rules are the same whether you are in the experimental area or you're in the other part?

MR. WAUGH: The regulations with respect to bottom-tending gear are the same; but within this cross-hatch area, the experimental closed area, you can't fish for or possess snapper grouper species.

MS. PUGLISE: But you can in the other areas, so you can use hook and line in the other area?

MR. WAUGH: That is correct, but you can't anchor in those other areas. I think to follow up on Henry's point; this cross-hatched area was the original Oculina HAPC back in 1984; this area here. Then when the council extended the Oculina HAPC, then they also in '94 made that area an experimental closed area. Then in 2000 they extended the Oculina HAPC.

Again, part of the idea of experimental is you see how close offshore this is? The feeling was that this would be relatively easily studied versus what we have in our MPAs now are far offshore and more difficult in the council's mind to study and get to.

DR. VOSS: I guess the other thing to consider then is that if we're fairly confident that the council is going to receive funding from the coral program for the proposed work from the cooperative agreement; that is going to specifically target this experimental closed area, correct?

MR. WAUGH: Right. What we've done in this version of that coral grant is we have specified as the highest priority is to complete the mapping and the characterization within that Oculina Experimental Closed Area. The second priority is to finish mapping the Coral HAPC, the Oculina HAPC. Then the next priority is to complete mapping of our other MPAs.

DR. BROOKE: That characterization; does that include a study of the fish, the grouper and snapper populations in there as well?

MR. WAUGH: Yes; in terms of what is observed at the time that sampling is done in those areas. I don't know how they are going to be able to expand that to the entire area.

DR/ VOSS: I'm reading through the proposal right now and that is actually one of the main drivers; and the PI on the proposal was Stacey Harter with Andy David. In this instance, the fish team seems to be the one leading the group rather than the benthic team; so hopefully that will influence priorities as well.

DR. BROOKE: Does it say anything about spawning periods?

MR. WAUGH: That is going to be one of the shortcomings of this, because you are basically using the vessel that is available in the summer. It is not going to be able to target the times of year that it is spawning.

MS. PUGLISE: I spoke with Roger about this just briefly, and he said the problem is we can't get a vessel during – they need late winter for spawning. We talked about other alternatives determining whether or not there are spawning aggregations there such as using acoustic.

MR. HAYMANS: Just to make sure that you are all aware; the council has entertained or at least heard the question from the Deepwater Shrimp Committee about opening the trawl zone right through the middle of the closed area. Specifically, the justification is the lack of work that has been done there since it has been closed so why not reopen? Just to make you aware and making sure that is correct, right, Mike, you have asked for a trawl area up the middle of it?

MR. MERRIFIELD: There was an option or a presentation to the council about an area offshore of the reef in the 110 meters and deeper to open up for trawling, yes, and it didn't go any further than that. But, yes, the question is looking at the amount of research that has been done, nobody is interested in going into the coral areas, but there is a rock shrimp fishery area that could be reopened is the thought in the soft substrate bottom 110 and deeper.

DR. VOSS: Also to clarify that; that would not be within the experimental closed area; that would be beyond the boundaries of the experimental closed area in the Oculina HAPC itself.

MR. MERRIFIELD: About 100 meters and deeper – one-third of the experimental closed area is on the eastern side. One-third of it is 100 meters or deeper.

MR. BLAIR: Some of the information, we can get to along some of the specifics on things. I'm thinking back to the fisheries aspects of this and not just the coral aspects. This is meant to be across fields on it and not simply on the coral populations, but all the habitats that the Oculina HAPC and closed areas are meant to involve and protect.

DR. FEDDERN: Have the transit zones been established yet across the area for vessels transiting?

MR. BLAIR: Transit zones are part of Amendment 8 that is presently going to the council – well, I mean under review. Mike, just to be explicit, do you want to do a real quick recap on what those transit zones are or the transit provisions are.

MR. MERRIFIELD: The transit provision is there are requirements for minimum speed and an increased ping rate that ensures that it is actually just a transit that is taking place, but it would be through the entire length; because with Coral Amendment 8, we will have doubled the length of the closed area from Fort Pierce to near St. Augustine. If you were on the other side of it, there is no way to get across except to transit. The provision is that a minimum speed would be maintained, gear would be out of the water, and the ping rate would be increased.

MR. BLAIR: That is in your briefing aspect; and by minimum speed we're not talking about the slowest possible. We're talking about a speed that would eliminate the ability to be able to do trawling. Is it four, five, six?

MR. MERRIFIELD: Five knots.

MR. BLAIR: Five knots, as well as the increased ping rate to get better resolution whether they are inside or outside the area, but it would be throughout the entire HAPC. Initial considerations were possibly considering a corridor; but considering these aspects, it went forward with these other provisions, the speed rate, gear out of water, increased ping rate; that it would be considered throughout the HAPC.

MR. WAUGH: The other requirement is that gear has to be appropriately stowed, which is defined as doors and nets out of water.

MR. BLAIR: Okay; just to put us where we can get a time stamp on it, I've asked Gregg if he would go through and review the Executive Summary from the 2007 report, just to give us the

status of where they were at that point. Then we will start to look at and review the types of information that was considered then and is being considered in the 2014 report.

MR. WAUGH: This document is available at our website. I've got it here, too, if anybody wants to get the whole document. The team did meet for the first time August 21 through 23, 2006, in Port Canaveral. They addressed the following topics and questions. Basically, these are the same that you all are being tasked with now.

One; what has been accomplished so far on research and monitoring, information and education, and law enforcement strategies and timelines; two; what has been the effectiveness of research monitoring, outreach, law enforcement efforts? How do these need to be improved before the council's deadline to make a decision on whether or not to continue the regulations and the ten-year review, which is where we are now?

Review and evaluate the current size and configuration of the experimental closed area and provide recommendations to the council, which you are charged with doing again; and then provide recommendations to assist the council in their ten-year review. The team report was put together; we had breakout sessions.

When we go through the spreadsheet, we will look at the individual recommendations; but the overall recommendation from the evaluation team regarding the size and configuration was that no changes be made at the time. As you recall, the council affirmed that there would be no changes and extended it for ten years.

But like I said, I do have that report here if anybody is interested in getting a copy of it. Are there any questions on that? Then we can start through the spreadsheet. You have this in your material; this is Attachment 5E. It is quite a big spreadsheet so I will have to shrink it, and I can read some of the parts that are unreadable at least for me off the spreadsheet.

MR. BLAIR: Why don't you magnify it so we can at least see the Column B?

MR. WAUGH: The problem is if I magnify it, then you can't see what the new developments and stuff are. We'll just have to slide around in the spreadsheet. This is broken up by the different components. This is research, monitoring, and assessment. The first item was developing a research, monitoring, and evaluation component.

The first question was will oculina thicket habitat recover throughout the area without human intervention time period? The estimate was this would cost 25 to $50,000 per year if using an ROV, which would be completed by year three. There is an X indicating I guess that was done in 2006/2007.

Notes from 2007; yes, it was completed. Item 1, in terms of developing a research, monitoring and evaluation component was completed. Notes from 2007; it was completed. There is no new developments, nothing new there to report. As far as the objectives; assess spawning aggregations, which was a question earlier; that was incomplete.

The recommendation is nothing has been done in the intervening period since the 2007 review; it should remain a high priority; need to assess year round and during known spawning events. I

might just mention cooperative research with the fishermen is a good way to get this. We are working with a researcher to cover a couple of trips of cooperative research with the fishermen off of South Carolina, trying to get some spawning information this year; but it has got to be done obviously at a different time of year than the vessels are available. Cooperation with fishermen; and you will hear from Mike that the Deepwater Shrimp AP is interested in participating and for any researchers; Snapper Grouper AP as well is interested.

MR. BLAIR: Gregg, I'm looking at this; the aspect for the, for example, Roman Numeral I, develop the research, monitoring and evaluation component; that was completed, but it appears as though it doesn't necessarily mean the subcomponents of that is.

MR. WAUGH: That is correct.

DR. BROOKE: I just wanted to say with the cooperative agreements with the fishermen, I think in principle is an excellent idea. The problem with the deepwater grouper species is that when you bring them up from those depths, unless you get in the water and puncture their swim bladders; it is lethal sampling, which is not necessarily something that we would want to consider for this area; because speckled hind – I don't think Warsaws, but speckled hind has certainly been seen here. Since they are endangered, it is not really something that we want to do. We know when they spawn; we just don't know how many fish there are down there and that really needs to be addressed.

MR. WAUGH: In terms of Objective 2, tracking fish movement; that was incomplete. There has been no activity and no recommendation. Objective 3, identify Oculina Experimental Closed Area fish population demographics; some reef characterization surveys – well, they were 80 percent complete; no work in the intervening period and consider temporal appropriateness of the surveys is a recommendation.

Objective 4, pre-closure distributions; the group consensus at the initial review from the 2007 report was this objective may not be worthwhile; well-established fisheries were once there. Objective could be met through fishermen interviews. No work in the intervening period; and the recommendation is that Ava Lassiter published a report for Gulf and South Atlantic Fisheries Foundation in 2011.

The assessment of the impacts of the Oculina Bank MPA and in-depth ethnographic profile of the Fort Pierce, Florida, fishing community; so there has been some work that is done. One point you may want to comment on; in a number of instances in the research and monitoring report, it sites some work that has been done.

We had questions about that with the Deepwater Shrimp AP, and I'm sure the council will have the same questions is it would be a lot more informative and useful if there was a short statement as to what is in that publication that addressed the topic rather than just giving the reference to the population.

MR. BLAIR: Just as a note, that publication is part of your briefing packet as well.

MR. WAUGH: Objective 5 is determine age distribution, nursery grounds, migratory patterns, and mortality rates for dominant harvested fish stocks. Estimated cost was $50,000 a year.

Nothing was completed in the first review and nothing has been completed in the second. There are no recommendations.

MR. BLAIR: If I may; the idea of for an example of Objective 4, where obviously determining pre-closure distribution is not possible; and considering some of the other issues and so forth and the fact that the group consensus from 2007 was that the objective may be able to be met through other means; part of the idea would be potentially to look for recommendations as how would be another way to get at these or address the same aspect of being able to determine either aspects of the populations that are presently existing to show the effect or lack thereof of the closure areas.

DR. BROOKE: I believe John Reed has historical footage and he analyzed some of that. I think there is a reference in here that analysis of historical footage for distributions may not be cost effective; but I believe he has actually done that. I don't see that publication or that report anywhere in the outcomes; so I might be wrong. I believe that was referring to analysis of historical footage, if my memory serves me correctly.

DR. VOSS: I just have a point of clarification question. On some of these topics that identify that nothing has been completed; does that mean nothing completed by the council or by the members of the advisory panels or nothing completed by the scientific community at large?

MR. BLAIR: Essentially it means that through the group that was there, there was no knowledge relative to actions that were specific to the objective. In other words, it is meant to try to include not just activities by the council or the board but any known information and resources that would address the specific issue. Some of that either could be nothing completed due to funding issues, due to explicit information resources for the area of interest; not that others may not be relevant, but from a different area.

DR. VOSS: If that is the consideration, then I think that for a couple of these objectives it might be worthwhile to expand the scope of people assessing whether or not anything has been conducted relative to those objectives, because I can think of a few studies just off the top of my head that would address Objective 5 in Rimerton World 2.

MR. BLAIR: More inclusion of relevant information even though it may not be explicitly from the area.

MR. WAUGH: That is one of the reasons this AP is looking at that now. When we get in here tomorrow morning, please mention those studies so that can be cranked in. One other comment dealing with this pre-harvest; it mentions getting information interviews from fishermen that were present in that area.

If that is still something that is to be pursued, then tomorrow morning putting some emphasis on that; because those year classes are starting to recruit out of the fishery and out of existence. I mean, that is 20 years ago. If you've got people that were fishing prior to 20 years ago, they are getting a little long in the tooth; so if we're going to talk to them, it needs to be done sooner rather than later. I guess we talked a little bit about five, and it was just mentioned that there are some publications that can be looked at. The next item was three; what is the population structure of coral – that was to be completed by year ten – research population dynamics of

oculina varicosa; and we've got our reference here to Sandra's publication; published a report in 2008. Again, this is where it would be helpful to have in your evaluation some short statement of what from that report.

DR. BROOKE: Right; I don't know where that came from, because there was no report by me published in 2008 that I can think of pertaining to that question. However, there was some work done by Michael Hellberg and Margaret Miller; and that reference I believe is in the other document. They did a little bit of population genetics on oculina. They didn't have samples from the entire HAPC area, so it is limited in scope, but that was actually published.

MR. BLAIR: You said that was Margaret Miller and –

DR. BROOKE: Michael Hellberg; I think it is Hellberg, et al. I don't have it in front of me, but I think that is what it is.

DR. VOSS: There is also another one from Ron Eaton as well. I think that might be the paper that Sandra is talking about.

MR. BLAIR: If we have explicit information resources like that; if we could come up and please cite the full citation or at least enough of the citation for us to gather, that would be great.

MR. WAUGH: Okay, Objective 2; identify cross-shelf relationships; that was incomplete, nothing was done. No recommendations.

MR. BLAIR: Just as a manner of being on the call; a lot of this was trying to be very explicit relative to information for the Oculina Experimental Closed Area; and much of this as we go through and see it is either incomplete or nothing has been completed has been a resource limitation in order to be able to complete that work either through funding and/or appropriate equipment to be able to do it.

Again, it is not so much that there may not be information that is relatable to this; and perhaps that is part of our aspect of being able to understand how we might be able to bring information to this that can help address these objectives. Obviously, information directly from the OECA is what we're looking for; but there is a fair amount of information that can still be relevant that can help us address and understand what is occurring there. Those types of both information resources and modifications or suggested aspects of how to address these objectives are what we're looking for.

MR. WAUGH: Okay, biogeography; nothing done seven year or this current review. Item 4; what are the stressors affecting the Oculina Experimental Closed Area; again, we had some good recommendations from the Deepwater Shrimp AP about nutrients, potential for oil and dispersants coming around from the Gulf.

Objective 1; identify natural and anthropogenic stressors; consider low priority considering other research needs. That was at the seven-year review; nothing done on intervening time period, no recommendations thus far in their evaluation. Objective 2; determine the frequency and severity of sedimentation induced by benthic storms; the same thing, low priority; the same thing for the next objective as well, identify physiological tolerance of the corals to environmental stress.

Five, what are the key trophodynamic functional groups; this is to be completed by year five; northing done and no recommendations. Six, develop index of physical and chemical parameters that characterize a healthy oculina ecosystem:

Objective; one, develop an index of coral health; objective 2, develop an index of community health. One and two are the comments at the previous review was these prohibitively expensive and logistically unfeasible; and the third one was a description of fauna associated with live oculina coral colonies has been studied. Status of current knowledge was published by Reed et al 2005.

Other habitats within the Oculina HAPC – I'm sorry that is in terms of indicator species; but no work in the intervening period and no recommendations. Four; the age of coral substrate and geological formations; some done back in 2002, nothing in the intervening period, no recommendations.

Five, are paleo data associated with past climate and oceanographic conditions; incomplete, still incomplete and no recommendations. Six, are there other paleo data from elsewhere in the world that can give us some perspective; incomplete. That is it for that item. Seven; conduct research on coral feeding ecology; define feeding dynamics. Unpublished study; field sampling and lab experiments are needed to complete this objective.

The recommendation at the interim review is it is a low priority; nothing since. Then in terms of assessment planning projects; what is the effect of management measures in the Oculina Experimental Closed Area on the status of fishery stocks? Nothing was done in the interim review and nothing done since.

Looking at the objectives, Objective 1 was to characterize major fishery species within the Oculina Experimental Closed Area and compare to reference sites; the interim period, reef characterization surveys were 80 percent complete. Stacey Harter pointed out that the Southeast Fisheries Science Center hasn't received funding to study the Oculina Bank HAPC since 2005. Five ROV dives were made in 2011 on deep coral cruise; two of those were in the Oculina Experimental Closed Area. Again, the next three years of our coral grant will address this item.

DR. VOSS: Excuse me, Gregg, is our kind of procedural plan to go back through these tomorrow and evaluate a bit more critically which of these we all agree to be priorities and carry forward, which of these we may have more information on then is captured in this spreadsheet, and to flush this out a bit more; is that where we're going tomorrow with this?

MR. BLAIR: Yes; I think the idea is to kind of familiarize ourselves with it, with the components of it, what has been considered, the information needs and priorities. Yes, we are looking to try to gather whatever information resources we feel would be appropriate to help address these objectives.

Sandra and others; I think that it was pretty much during the phone call that the perspective was very much on the oculina information directly associated with the OECA and these tasks, because that is what they were specifically developed for. I think that we have a little bit of ability to be able to bring other suggestions for other resources to it, as well as becoming knowledgeable and understanding what was conceived as the appropriate priorities and needs of

the time to make sure that those remain the priorities and needs. I would imagine that what we would do; the suggestions and recommendations that we come up with will also go back to that panel for their consideration and input. I don't believe that we are anticipating making the final changes in documents at this point but rather the list of recommendations to take back to them will then go to the council as how to move forward with this.

DR. VOSS: If that's the case, I get the sense that right now we're just kind of running through them without much discussion points on any of them.

MR. BLAIR: The point here is if you have ideas, thoughts and so forth, we can do some open discussion now, food for thought type of an idea; but we were anticipating to get everybody familiar with the components of it and then literally kind of work on it, think about it and come in tomorrow with the intent to get into the nitty-gritty; but discussion is desired at this point to the point that it can help us.

DR. VOSS: I guess what I am saying is I'm fine with doing it tomorrow; and looking around the room, I'm not sure how much we're getting out of reading down this list versus reading it ourselves and having that time to more critically discuss each of these individual tasks and objectives. I would just make a point that we could potentially make better use of our last half an hour or so than reading down a list that we're all planning to read again before tomorrow morning.

MR. BLAIR: Okay, understand. What we may want to do; well, there are two ways to do it. Remember that the research and monitoring and assessment portion is rather lengthy and is pretty well detailed. We also have the enforcement sections and information and education that again are things that are part of the evaluation plan and part of what we want to be looking at, understanding and commenting on as well.

MR. WAUGH: One thing we would like to do this afternoon before you do break is to have Kim run through the outreach presentation. You've got the law enforcement one in there; and then if after going through the outreach you want to break and you can look at the remaining material yourself and start working on your recommendations; that is fine as well.

MR. BLAIR: Okay, sounds like a good transition to education and outreach.

MS. IVERSON: Thank you for this opportunity. I'll go through things fairly quickly, because it is a similar presentation that I gave to the Information & Education Advisory Panel yesterday. We had quite a few new members on the advisory panel; so I kind of went back through the basics and then I gave the same presentation this morning to the Deepwater Shrimp AP.

Sometimes I think it's good to kind of refresh yourself after where we've been and so we know where we are going type of thing. Why do we need outreach and education for the Oculina Bank? Sincerely, when you say the Oculina Bank, most people think it is a bank. There is an Oculina Bank in Fort Pierce; it is a financial institution; it is known as the friendly bank.

We've actually developed a good working relationship with the Oculina Bank and they raise awareness. They have our regulation brochures in their office. I just sent them about 400 regulation brochures a few weeks ago, so they continue to distribute the rack cards, which is way

cool. I don't know if they are doing this anymore; but they used to, when you opened a new account, a dollar would go to research and monitoring efforts for the Oculina Bank. I don't know whether it was an environmental group or something or maybe the Smithsonian Marine Station.

MR. BLAIR: Recommendation to follow that up and make it two bucks.

MS. IVERSON: It is a small community bank, but very, very wonderful people to work with. Of course, this is what we think of now and what we know and love about the Oculina Bank and the oculina varicosa coral that is there. I am not going to go back through this, but you are very familiar, I would think as you are AP members, on the timeline and the sequence on when this area was designated as an HAPC and subsequently became the Oculina Experimental Closed Area.

I am just pointing out that we are going to talk about outreach efforts specific to the OECA, as we love our acronyms. But, it is difficult to talk about one without the other and then it expands into deepwater corals. From an outreach perspective, what we are tasked to do with this document, with this plan, is to focus on that 92 square mile area in which fishing for or possession of snapper grouper species is prohibited.

But, again, it is all interlinked and interconnected, as you well know. Amendment 13A to the Snapper Grouper Fishery Management Plan became effective on April 26, 2004. That amendment included the designation of an evaluation plan. That includes three components; outreach, research and monitoring, and law enforcement.

I am focusing on the outreach portion. In 2007 there was a reevaluation of the size and configuration. There was an Oculina Evaluation Team that was put together to provide a report to the council. Again, we have an evaluation team that has been formed again to do a reevaluation of all the regulations and the things that you are familiar with, with the focus earlier on research and monitoring activities.

I want to go back and just kind of give you an overview. For some of you sitting at this table, you were involved at the very beginning. When this evaluation plan was first initiated, we held constituent meetings. We went into Fort Pierce and Port Canaveral and had meetings with charter captains and commercial fishermen, county commissioners; the mayor of Fort Pierce was at one of the meetings.

We asked them what is your recollection; what has been the impact of this closed area; how did you used to fish; what is your awareness of the area; what do you know; what don't you know; what is the best way to meet other constituents and reach them? Then we went to marinas and bait and tackle stores and boat ramps and talked with the local businesses and asked them what is the best way to get information out to your constituents about the Oculina Bank?

We held planning meetings with partners, knowing that full well that we could not take on this challenge by ourselves. Harbor Branch Oceanographic Institute, NOAA Fisheries Service, the Port Canaveral Space Authority folks are involved, Dr. Grant Gilmore doing his acoustical monitoring work was there, Dr. Brooke was there. I am trying to think of who else was involved in that room.

We had a really dynamic group of folks that were there to kind of discuss what would go in this evaluation plan. The result is an outreach component of this Oculina Experimental Closed Area Plan with a very broad goal; increasing awareness and understanding of the experimental closed area to fishermen, citizens, visitors, people that come to Florida, and the U.S. public.

We had a very, very broad goal with four main objectives' assist in the development of the plan itself, which we completed; develop a campaign targeting fishermen and let them know about the rules and regulations in the area and the need for protecting the area; and a broader media campaign through partnerships; and, of course, evaluation.

I want to go through these objectives very quickly. The outreach objective was completed in 2005 with the final evaluation plan. Just a reminder that it was one of council members, George Geiger, that was pretty adamant about how this evaluation plan should be developed' and that if the area was going to continue to be closed or prohibited for fishing of snapper grouper species, then there should be an evaluation of the area; periodic evaluation and that outreach should be part of that evaluation.

I want to credit George and several other people – well, George from the council and then, of course, Andy Shepherd with NOAA Undersea Research Center; Dr. Brooke – I know I am forgetting someone else; I feel like an academy award speech, because I'm trying to hurry. I know it is late in the afternoon, but I'm sure I'm forgetting the key players.

There were a lot of wonderful people that came to the council's Information and Education Advisory Panel and said we want to be a part of this. John Reed and everybody said we want to work together and we can develop a campaign to increase awareness. It was a really exciting time. I just can't thank those folks enough for all of their input and enthusiasm.

We had council-initiated projects, things that I could do as an information education specialist; regulation brochures, work with fishing chart manufacturers to increase awareness, partner with our state folks at the Florida Fish and Wildlife Conservation Commission, do news releases, get information out.

I developed a PowerPoint presentation and developed an oculina poster and rack cards. Again, these things came out of these informal meetings and then with the direction of the folks that I mentioned previously. Let's start with the regulation brochures. Most of you are familiar with the printed version that the council used to do. We would print 40,000 copies and drop-ship them to all the state and federal agencies.

Everybody on the council's mailing list got hard copies; and we did that starting in 2005. We reprinted in 2007; and the last time we did that was in 2010. Then the regulations began changing so rapidly that they made these wonderful publications obsolete very quickly. They were expensive to print.

They were worthwhile and they were very, very handy, but they became obsolete with the openings and closings and implementation of accountability measures and annual catch limits. The council staff partnered with the South Carolina Sea Grant to develop a Deepwater MPA Brochure. I think most of you have seen this brochure. Within that publication was a full page on the Oculina Experimental Closed Area and HAPCs.

That regulation brochure has continued to be distributed and is still relevant. But, understanding that we couldn't continue to print the regulations and hard copy, working with Amber Von Harten, who is now our outreach specialist, a Smartphone App has been developed. If you haven't downloaded our app, please do so. It is available in Android and Apple platform.

If you search SA Fishing Regs you can download it. Within the app, very similar to the printed publication, you will find a managed area section with all the regulations dealing with the Oculina Bank. Fishing charts; we went to the fishing chart manufacturers – back in 2004 they were primarily printed – and looked at the printed versions. Some of them actually had the Oculina Experimental Closed Area designated as a "fish haven."

Some of the bait and tackle stores said, hey, we get fishermen that come here and they want to know where this fish haven is because they want to go fishing. We were like that could be problematic; so we worked with some of the printing charts, primarily Top Spot because they were really popular.

They reprinted, made modifications, edits, and reprinted their hard-copy versions. We need to follow up now with the electronic chart manufacturers to see what is out there, kind of do an inventory of that, see how it is designated, and then work with them if necessary to make any changes. Of course, NOAA now has done away with the printed versions of their nautical charts.

It is my understanding Jennifer Schull, who is with NOAA Fisheries at the Miami Science Center, has indicated that the NOAA chart folks – she has a direct contact there and we can work with them and see how they are printing those out. They may be doing layers now where they can designate special management zones and things like the Oculina Experimental Closed Area.

We'll definitely be following up with that. Working with FWC, we did a feature article in their regulation publication back in 2007. Again, we're going far back, but about 600,000 copies of these regulation brochures continue to be distributed. We have on the Outreach Team, Rich Abrams is with FWC, and I've been working with he and some other folks on their staff to get a half-page feature in their publication every time it is printed.

We just send a map; we send pictures, and just the basic information; and that is going to be a feature now every time that they print their regulations, which is pretty awesome. News releases and PowerPoint presentations; of course, we have news releases anytime there is a council action or management measures taken.

We also have news releases that were affiliated with media stories of our research and monitoring activities. We'll cover a little bit more of that later. We've done newsletter articles. Stacey Harter with NOAA Fisheries contributed an article on their research and monitoring efforts. Of course, we need to have more releases, more information.

We did a joint release back in this past year with the New England Fishery Management Council and the Mid-Atlantic Council talking about deepwater corals in general. I had a lot more information in there on the Oculina Experimental Closed Area and the fact that this was the first designated Deepwater MPA; but unfortunately the editors kind of took out some of it. But we're trying; and hopefully the funded research and monitoring activities that will be taking place, we

can have more releases and more information out. The PowerPoint presentation was one of those things that back in 2007 the team said, well, it is not such a priority.

This time around the team has said, yes, we think it would be good to have a PowerPoint, because we could develop a standardized PowerPoint presentation, and then other people could take pieces out of it and then utilize it the way that they see fit, including FWC. I think we'll be working on that as well.

Let me back up just a minute. In your briefing book materials you have the Draft Oculina Outreach Report, and I would encourage you to go through – I'm not going to go through it individually with this group this afternoon; but if you can review it maybe later this evening, if you haven't had a chance to look at it; the 2014 recommendations are in there. I am kind of telling you some of the things that have been discussed or taken place since that time.

The rack cards, Project Number 6; 10,000 copies were initially printed and distributed. We've reprinted them twice; so about 30 to 35,000 copies have been distributed. When we went to the bait and tackle manufacturers and the marinas, if you go to a marina and you start to buy bait and when you walk up, there is this much counter space; I mean, literally three feet of counter space.

That counter space is always taken up. They said if you do a brochure, you do a pamphlet, make it like a rack card where we can put a small acrylic holder and we can disseminate the information; so that is what we did and they have been really popular. They have also been distributed. NOAA Fisheries and FWC enforcement officers have them on board when they do boardings.

The Smithsonian Marine Station uses them. Of course, we always distribute them at our council meetings in the area and public hearings. Then they are available on the website for download. Partnership projects are the third objective; a broader media campaign with our partners, as I mentioned earlier, because you can't do it alone.

The website development was something that we recognized the need to have website information about the Oculina Experimental Closed Area as well as the HAPCs and the coral itself. Information was added to the council's old website. If you haven't had an opportunity to browse the new site, please do so. It is relatively new, within the last year.

The information has been carried over. We had some Teacher at Sea Information and some log information that has been archived but can be brought back to the new site. None of the old information that was on the old site is gone, we've archived it, tried to clean some things up and we will be updating it.

The 2014 recommendations from the evaluation team is that the council's website continue to be the primary portal in which information is disseminated with any sort of upcoming research and monitoring activities, Teacher at Sea, log reports, daily logs and that type of thing. We'll continue to work with Amber Von Harten, who is doing our updates on our website now, and provide that information as it becomes available.

Teacher workshops; they have been very, very popular. We did them in 2005, '07, '08, and '09. The majority were held in Fort Pierce. That is John Reed there talking to some educators at the

2008 teacher workshop. Again, partnerships, partnerships, partnerships; I mean, we couldn't do it without the joint effort of everyone involved. The last workshop was done in Raleigh, North Carolina, in conjunction with NOAA Fisheries and the North Carolina Museum of Natural Sciences. The 2008 workshop was led by the council.

We had an intern from College of Charleston that led that effort. It was really a wonderful workshop; they all are. We start out with classroom in the morning at Harbor Branch, and then go over to the Smithsonian Marine Station in the afternoon – lots of good materials, background materials and information.

John Reed and the other instructors all provided information available on DVDs and film clips. It has been very, very popular. Joint project Number 4 was a portable exhibit. The council paid for this exhibit and we developed it in 2009. With the implementation of Coral Amendment 8, if it is implemented through the secretary, then we will need to update this exhibit.

It is used at council meetings. The idea was for other agencies or organizations to check it out, literally take it out of the office and have it available. It has been utilized a few times, but not an awful lot. We have a kiosk that we use with a DVD, Revealing the Deep, which continues to play in a loop whenever this display is set up.

One of the things that has been recommended from the evaluation team for this year – this used to be like a really super duper streamlined portable display back in 2009. Now most of you have seen the fabric displays that are like curtains, you pull them up, push them back down, easily transportable. Rather than spend money for this, I think it has been recommended that we utilize the ones like the council uses them for meetings now and make them extremely transportable and easier to check out and use by others, because, honestly, this is not an easy thing to set up.

For someone to check it out and try to read the instructions, it is not very easy. Media kits and excursions; well, we want to develop media kits. We tried an excursion in 2005 on board the FWC patrol vessel the CT Randall; the weather just did not cooperate. We tried, and we got offshore; and Lieutenant Sidor, who at the time was the captain on the C.T. Randall, made the executive decision to come back. That was a good decision, because it was really, really rough. That picture doesn't do it justice.

We go back and we regroup; and the next opportunity that we had was on board the Seward Johnson and we had perfect weather. The gods were smiling on us and we had a good group of folks that came out. We were fortunate enough with this group to see the deployment of the submersible; and there were information stations on board the ship.

We had media representatives from NBC, and Ludi Lelis from the Orland Sentinel and the Daytona Beach Daily News, our council members, and some of the staff from the Science Center. We had a really good, eclectic group of folks. They did the styrofoam cup thing that you can see from NBC there. It was a lot of fun.

We had the researchers on board the vessel set up stations, talk about the research that was ongoing. Again, I'm not going to name people, because I know I will forget someone, but they were all wonderful. As I said, the deployment of the submersible – and Sandra jump in here,

because I know I'm probably leaving some things out of it. Sandra was on board the vessel as well as some of the other research scientists. It was a full day.

MR. BLAIR: How many participants did you have?

MS. IVERSON: I would, off the top of my head, say maybe we had two vessels that went out, so 18 – 18 to 20 would be a good guess. It resulted in great media stories. Everything from the Charlotte Observer to the Orlando Sentinel, which did a great job of covering, NBC News did a wonderful feature until the very end in which they portrayed a golden crab vessel dragging a crab trap across some illustrated coral and doing great damage; and that was great gnashing of teeth.

We were all so excited and watched the news and then my jaw dropped. We tried to work with NBC – well, we did, we worked with NBC to get that story changed on their website, but unfortunately they just wanted to sensationalize gear damage. It didn't matter really what we said; but they did do a good job on covering the other aspects.

That was an unfortunate thing, but that is what happens when you deal with media. Overall it was a really wonderful experience and good coverage. Back to the evaluation plan; Project Number 7, everybody said, well, why don't you put some buoys out there so they know where the experimental closed area is?

Well, you know it is pretty far offshore. It is not really amenable to putting buoys out there to mark the closed area; but the next best thing is to work with the existing data buoy center and the data buoys that are out there; because when fishermen get ready to deploy their vessels, a lot of them with larger center consoles can run 15 miles offshore fairly quickly.

We have a link – you can't see it there but if you look at it, it is Fort Pierce station and Cape Canaveral. There is a direct link that says going fishing, know the regulations, check out the fishing regulations for the Oculina Bank, and it goes directly to the council's website. Work with the Smithsonian Marine Station; again, this is a small facility with a wonderful group of folks.

They had the first original Oculina Bank interpreted display, which basically were some posters on some block wall, some black-and-white film footage as you see on this small television screen here, and the only living oculina coral exhibit, which was – and it continues as a small black wall where you put a black curtain over your head and walk in there, and you can actually see the oculina coral. It is very, very cool.

We've gone from that to a larger, much better interpretive display that talks about the importance of oculina varicosa and the other deep-water corals and the associated species. We've worked very closely with the personnel at the Smithsonian Marine Institute to help that come along. Laura Diederick who is their education coordinator, is on the evaluation team now for the outreach, and they are getting ready to change all their signage over.

We're going to be working with them to let them know what has been proposed through the management process. I would invite you and encourage you if you have some suggestions on things that you would like to see or maybe during this process – we've been e-mailing literally

today, but during this process if I could offer maybe the advisory panel's input during this process on the interpretive signage that will be displayed.

But it certainly is improved and it is a wonderful facility. If you haven't visited it in Fort Pierce, I would invite you to do so. Objective Number 4, evaluation; this is always the most difficult part at least I think for any outreach effort. How do you evaluate? Back in 2005 we worked with Florida Sea Grant to develop a survey trying to ascertain the level of knowledge from local constituents. Unfortunately, it had very limited distribution and very limited results were available.

We have a need there to maybe perhaps use another survey tool. I think that we can partner with other agencies or use survey tools from the council online. Things like Survey Monkey have been recommended from the evaluation team now to conduct additional surveys and gauge the level of understanding and awareness; just a simple awareness that this area is offshore.

The second project under evaluation was continued community input; understanding that when we started this outreach effort way back when, there are going to be changes in people and constituents and the needs; but continue to work with the Smithsonian Marine Station, with area fishing clubs.

We work very closely with the Cape Canaveral Charter Captains Association, which used to be very large. Unfortunately, it is disbanded. The Charter Captains Association, the membership declined in such a way that it is no longer an organization; but certainly we can work with other fishing organizations and clubs and environmental groups to foster this awareness.

Then other; there is always other, and so we put this out yesterday before the Information and Education Advisory Panel. These are some really good folks with evaluation, and we will hope to get good input back from them. We had very limited time yesterday, half a day, so I think we will probably get some information and input from them; recommendations.

Outreach summary; overall for the experimental closed area, we've had wonderful cooperation with the partners; and that achieved many of the projects that have been identified. There is a spreadsheet also similar to the research and monitoring. I am not going to go through all of that; but we've developed a spreadsheet.

Several of the projects are ongoing; dissemination of information is always a good thing. The rack cards will continue to be printed. These are some of the recommendations from the 2014 team is use of the app, continue updating information on the app and modifying that as management measures change.

Then some of the things like the media excursions and the news releases and that type of thing is just simply going back to some of these same people that we've worked with in the past and saying we've got some new things going on here; and we want you to be a part of this, and understand that there are some really cool things that have happened since 2004 with research and monitoring activities, and capitalize on that.

One of the things that was suggested from the I&E AP yesterday is, low and behold, we're looking at 20 years of management measures in the Oculina Experimental Closed Area; so

capitalize on that actually in June of this year. I am open to creative minds at the table. If you have some other suggestions, by all means let us know. Again, the evaluation plan has been completed in 2005. We had the update in 2007 and recommendations.

If you haven't had a chance to look at the draft outreach component for the evaluation plan, what we did is we just continued to make layers. We started with 2004; then we went up to 2007 and the team recommendations; and then the 2014 draft includes the team recommendations, input from the I&E Advisory Panel and it will be also the Deepwater Shrimp Advisory Panel and the Coral Advisory Panel. I had that presentation for yesterday. If anybody has any questions, I will be glad to help answer them or suggestions or recommendations.

MR. BLAIR: It was good; it is neat to see how much stuff is done. I think the impact is pretty apparent in the region as well. It is something that is definitely a known entity with a known purpose.

DR. BROOKE: Yes, nice presentation, Kim; it takes me back a bit. There is one thing that seems to be a little bit of a gap. Something I used to do when I was living down in Fort Pierce was talking to the Coast Guard, because they don't really get any information about what this big square is they are supposed to be protecting.

They have a very rapid turnover as well; they change out every couple of years. The other thing is FWC, who has the joint enforcement agreement, they don't really get any sort of information about what the Oculina Bank is either. Law enforcement might be a group that you may want to address. They were always very receptive when I spoke to them.

MS. IVERSON: Thank you; and to that point; I failed to mention, because there are so many things in the recommendations from the 2014 team; one of those being for FWC law enforcement training to include a module or at least some sort of component. I'm not that familiar with how their training is structured; but that they would definitely talk about the Oculina Bank and the management measures within that area.

DR. BROOKE: Just a quick follow-up on that; I think that module would be up at FLETC in their general training, which is where they get that kind of information; and the same with the Coast Guard. I've worked with Coast Guard in the Regional Office to try and get some of this information out there. Since it is the guys in Fort Pierce that are going to be enforcing these regulations, maybe a little more of a localized effort may be effective.

MS. IVERSON: Thank you; and we can make a note of that. We do work very closely with the training center here in Charleston out at FLETC for the Coast Guard; and I do like a managers' class out there. There is so much to cover; but I think that is a really good suggestion is making it more specific to that particular area, because they are bombarded with information, as you well know, within a very short period of time.

DR. FEDDERN: Have there been any long-term changes in temperatures over that area at the bottom?

MS. IVERSON: I really don't know. That gets back to the science end of things and the research and monitoring aspect. We are primarily dealing with the outreach and monitoring and

talking with the fishermen; but that would be a good thing to kind of follow up with as far as fishing activity and what has been observed maybe in the area, hopefully, surrounding the OECA and not within it.

DR. FEDDERN: Temperature changes may indicate shifts in the Gulf Stream and actually changes in the habitat, too, and in the populations. One other question; has there been any spot out there that has been looked at over a period of time?

MR. BLAIR: Direct that over to Sandra; I think.

DR. BROOKE: Regarding the temperatures; there is no long-term in situ data temperature database for that area. However, the Oculina Banks are frequently subjected to upwellings. With the meanders of the Gulf Stream, it brings cold, deep water up over the shelf. The temperatures on the banks can vary very rapidly and quite extremely from around ten degrees to 20 something, 27, 28 degrees.

Those animals are already subjected and presumably have adapted to a wide range of temperatures. In regards to your second question; the areas that have been most studied and repeatedly – we sort of went back there when there was money to go back there – was Jeff's Reef and Chapman's Reef, which is to the southern end of the OECA. They are the most well developed, and as far as we know the existing reef that is in the best condition at the moment; again as far as we know.

DR. FEDDERN: I was just wondering if you've noticed any increasing populations of a specific area to see if there is any recruitment or improvement of the areas.

DR. BROOKE: It is hard to tell when you are going back with an ROV that can't necessarily go over exactly the same place. We did see what looked like damage in 2007; fairly recently. We saw some damage to Chapman's Reef, which was a little perturbing. In regards to recruitment; there are some restoration modules close to Jeff's and Chapman's that show sign of coral recruitment on them.

Chris Koenig and myself put out recruitment modules back in 2002; and when we went to assess them in 2007, we couldn't find them, so we don't know the answer to that, sort of further north in the OECA. Certainly, the blocks that were put down close to the reefs at the southern end, Jeff's and Chapman's reefs are showing signs of recruitment now.

DR FEDDERN: I noticed on the blocks that have been put down, there were colonies that were attached to it when they were put down. Apparently those colonies didn't make it. Were they initial colonies from a different area?

DR. BROOKE: No; those colonies were from that area.

DR. FEDDERN: I'm surprised they didn't make it then.

DR. BROOKE: They were attached. I mean, the currents down there are ridiculously strong sometimes. I don't know what happened to them. I see some of them – the remnants of them

you could actually see parts of them; but there is certainly quite a lot of new recruits, which is encouraging.

DR. FEDDERN: Is there any possibility of putting a beacon in a particular area that is saturated by an impulse in order to go to send a ROV down to a particular spot every so often to check on growth and stuff; one that is not powered but responds?

DR. BROOKE: Anything is possible with enough money; that is the problem. We've got the technology; we don't have the funds to do it.

DR. VOSS: I've got a quick question pivoting back towards outreach and education. I know that the plan and a lot of the efforts have been focused on the OECA. Is there any plan to extend outreach and education efforts northward, particularly considering Amendment 8 and the potential expansion of the Coral HAPC?

MS. IVERSON: That was a question that was asked earlier today from the Deepwater AP members. Certainly, backing up as far as Coral Amendment 8 is concerned, it has been publicized. That amendment has been publicized the same as any other amendment to a fishery management plan through the public hearing process, scoping public hearings.

Now granted, this amendment is a little bit more complicated, because the action started out in one amendment and then changed to another. It was in the Comprehensive Ecosystem-Based Amendment 3 and then it was pulled out. Then it was put in as Coral Amendment 8. Follow the bouncing ball, if you will, which makes my job even more difficult.

But, certainly, there has been the standardized means of getting information out, news releases, that type of information to this point. If the amendment is approved by the secretary and the regulations go into place, then that would certainly elevate the need to do additional outreach. The app would be updated; all of the standardized methodologies that we're using now that I described here that would be applicable would be used.

Then hopefully we would be able to utilize some additional things, maybe working with some of our partners to highlight the expansion and the additional protection of those coral areas. But for this purpose, I've had to focus on the Oculina Evaluation Plan. Again, it is all interrelated. You had this tiny area and then you have a bigger area and then you have the expansion and you have this current satellite area; but that is not where it stops. This is an extended coral area.

That is the reason we had the teacher workshop off the coast of North Carolina, because you extended into deep-water corals and want to extend the public awareness of it; but for the fishing activities, where snapper grouper fishing is prohibited, then that goes back to that experimental closed area.

If you go to the website or you want to get with me one on one, any of you, anytime; I am accessible by e-mail; you all know that. You can always e-mail me and say, hey, I found this really cool thing; what is the likelihood that we could do this? We doubled our capacity to do these things because we now have a second person, Amber Von Harten, who has extensive fisheries background information as an extension agent here in South Carolina for Sea Grant is now part of the team. She is an outreach specialist.

We took a science communication workshop for the last two days, so we come out of there pumped and ready to go with our new skills and Adobe Illustrator and End Design and communication skills. There is a lot to do. It is similar to the research and monitoring, it is similar to the enforcement; all these things that need to be done.

There is a limited amount of personnel, a limited amount of money, but using things like social media, having the ability to have an app, getting that electronic information disseminated out there, and then having new research and monitoring activity; you notice that there is this kind of break.

We had a great time from 2004 to 2009 with utilizing – and this was bare bones – I have to say this was bare bones. Being able to capitalize on the research and monitoring activities that were done, very last minute sometimes; so hopefully we will be able to capitalize on that and increase that awareness. I hope that answered your question in a roundabout way.

MR. WHIPPLE: Kim, this video that runs on the loop with that portable presentation; what is on that video, how long is it?

MS. IVERSON: It is a DVD that was done – the council initiated I believe and paid for with partnerships – and forgive me, Brad, but I can't remember everyone that was involved; but I can certainly send you that information. It is called Revealing the Deep, and it goes into primarily research and monitoring efforts that were done off the coast of North Carolina; but it is applicable up and down the whole region of deep-water corals.

MR. WHIPPLE: Okay, I've got you. I was thinking if sometime – I see a lot of the outreach is based on print. I don't know if there is a way to utilize some digital video, a YouTube video or something, or maybe there already is; I don't know.

MS. IVERSON: In the draft outreach evaluation plan there are some links to some videos that are currently posted online. My personal opinion is that they are kind of piecemeal; there is not a common way of getting those videos together. They are not accessible from a single website. That is where I think that the council's website could be utilized and have those incorporated.

Again, these are good, wonderful things to do. This is something that could fairly easily be done as long as we have permission to do those things. The Revealing the Deep Video includes some management things that need to be updated a wee bit. I will give you a copy if you haven't seen it. I have it in high-definition as well.

Certainly, I'll be able to bring it and have copies for everyone that would like a copy tomorrow; but if you haven't seen it, the film footage is incredible. Art Howard; it was an Art Howard production; it is starting to come back to me now. It has been a little while ago. But certainly that is one of the recommendations is for the council perhaps to have a YouTube Channel and then direct people to that and have that as part of our teacher workshop and expand on that.

DR. BROOKE: That sounds like a good idea. It seems like an obvious location for these things is to be through the council website. Whether there are any legal ramifications for that is beyond my pay grade, but it seems like an obvious place to put it. That Revealing the Deep is actually on YouTube, but it looks a lot better in high-def, obviously. Kim, you mentioned working with

NOAA to get the electronic charts updated; does this mean that the HAPCs are not on the NOAA electronic charts?

MS. IVERSON: It is my understanding that they are, but that they are working with developing layers where you could click on and get more specific information about the restrictions. I think they would be designated – well, I believe they are designated. I haven't seen the latest version of the electronic chart. I know on the old ones they are.

But I think what Jennifer Schull from the Science Center in Miami was indicating is once you go to the electronic mapping – and you guys know; you can do all sorts of really cool "gee whiz" things. I think NOAA is looking at utilizing those layers and expanding that wealth of knowledge that would be available. I don't know exactly what would be involved.

MR. BLAIR: Okay, any other questions for Kim? Thank you very much. I think we're pretty much kind of at the end of the day considering what we've discussed. We do have homework. Just to remind you, you do have both the report from the research and monitoring group as far as the detailed narrative, which definitely needs to be looked at when you are looking at the spreadsheet, because it does give more of the narrative rather than the one or two incomplete or low priority/high priority. It gives more information on it.

It will help you better understand again what the objective is and so forth. I will just make mention that the outlook report is on the table, which was not in your package but it is available for you to look at as well. Obviously, I think research monitoring and assessment is part of where our major focus is; but we're being tasked to look at it as well.

Just as providing Kim with some feedback on those things; we should be trying to do the same for the enforcement aspect as well as we see. We will look to be able to get into this. We will probably – I would suggest we may want to be looking more through the report aspects of it tomorrow and the printed aspects of the objectives to get a better understanding of what their true status is and how we feel they do or should be modified or updated and augmented to be able to give the best picture possible for what the status of the Oculina Experimental Closed Area is.

MR. WAUGH: One thing when you look at that written report, not all the objectives are in there. I just noticed that today. We need to look at the spreadsheet. The spreadsheet has all the objectives.

MR. BLAIR: One of the other things that I think I did mention or hope I mentioned; one of the things we would like to do is get our input or the input of the panel as to what is deemed the priorities within that plan and think of it in two ways. We know that there are big-ticket items that we're going to have to do that are going to require vessels and ROVs and/or submersibles of some sort; but there are some things that may be e closer to the low-hanging fruit, things that may be a little bit more opportunistic, that can be high opportunistic opportunities that we might be able to garner information for being able to get some level of information that is not attainable at this point. Be thinking of it in both of those; what are our major priorities, what are our true needs, what are our information needs for it, but what are those things that we should be looking for opportunities for that can provide us incremental information that will help us better understand the picture as well? Are there any other questions, comments?

AP MEMBER: What time do you want to start in the morning?

MR. BLAIR: We are scheduled for 9:00. Are there any objections to that? Okay, so we'll be adjourned until 9:00 o'clock tomorrow morning. Thank you.

(Whereupon, the meeting was recessed on May 7, 2014.)

The Coral Advisory Panel of the South Atlantic Fishery Management Council reconvened in the Crowne Plaza Hotel, North Charleston, South Carolina, Thursday morning, May 8, 2014, and was called to order at 9::00 o'clock a.m. by Chairman Stephen Blair.

MR. BLAIR: Welcome back; I hope everybody had a restful night. Today we're looking to go through and review the status report on the research and monitoring plan for the Oculina Experimental Closed Areas. Additionally, I think we're going to have some updates or follow up from some of the questions that were proposed to Jennifer yesterday afternoon during her presentation. Hopefully, we'll have those together by the time we complete our tasks today. What we're going to do first off, I would like to welcome Clark to the table. Clark, would you like to, for the record, please introduce yourself?

DR. ALEXANDER: I'm Clark Alexander from Skidaway Institute of Oceanography, which is now part of the University of Georgia; for anyone who might care. I am also Director of Georgia Southern's Applied Coastal Research Lab. I'm a sedimentary geologist by training and have been working in the southeast for the past 25 years.

MR. BLAIR: Thanks, Clark. What we wanted to do is to start off today, really yesterday – was your meeting, Mike, a day, day and a half, half day?

MR. MERRIFIELD: Two half days.

MR. BLAIR: The Deepwater Shrimp AP met prior to our meeting yesterday morning and Tuesday afternoon and went through a number of discussions and had some recommendations that they were going to forward to the council. Mike is going to kind of review those for us so that we can have a good understanding of what their perspectives and recommendations to the council may be.

MR. WAUGH: I can run through them on the screen and then Mike can handle any questions and further follow-up if that works.

MR. MERRIFIELD: Yes; I think that's great. This was in response to the Deepwater Shrimp. I was asked to, as a member of the Evaluation Team for the OECA, to present the option that we brought up probably two years ago for trawling in greater than 110 meters off the eastern side. In response to that; a lot of these are in response to is that presentation.

MR. WAUGH: I'll go through this quickly – we will send this out to you as well, e-mail it to everybody – but in terms of research and monitoring report comments; there is a discussion in there about reef balls. If a shrimp trawl interacted with them, then the net would still be on the bottom. There have been scallop trawls in the area in the past and they don't have VMS. This is in response. There is a statement in the document that when they went back out and looked for

the reef balls that were placed there, they were moved and there is a statement in there saying that natural events and recreational or hook-and-line fishing aren't likely sources.

The Deepwater Shrimp AP felt the implication was that it was trawling. They just felt that they haven't been in there. There have been shrimp trawls in the area in the past, scallop trawls; they don't have VMS, but the rock shrimp industry does. There is obviously sensitivity to this and they are clarifying that they weren't in that area. They question where is the research documenting what is happening with the corals, for instance, the die-off?

MR. BLAIR: Sandra, do you have a question?

DR. BROOKE: I don't know; do you want to go through this because I would like to address that; but it doesn't have to be now if it is not appropriate.

MR. WAUGH: I think it is best just to deal questions and issues as we go through.

DR. BROOKE: That comment I think came from my co-PI. What happened when we were out there was that we put all these reef balls out; and we also put these small pavers with a little piece of PVC and a coral fragment on top of it. The thing is we couldn't find them. We couldn't find most of the reef balls; and that could very well have been because of the technology we were using.

I am not sure that statement should actually be in the report, to be honest, but we couldn't find the reef balls. We put 205 of them out, so they are out there somewhere. I understand what they are saying. If we had seen a reef ball with a net around it, then, yes, that would have been evidence. The thing is we didn't see them at all. They weren't where they were supposed to be for whatever reason.

What we did see with some of the smaller ones was that they were broken and tumbled; the pavers were smashed, which indicates that some sort of physical disturbance; again not casting dispersions or laying blame, but they had been damaged. That is kind of the facts of this without any sort of interpretation.

DR. FEDDERN: I heard that one of the ships that were sunk for artificial reefs off the coast up there off West Palm was broken in half by a hurricane. I wonder how deep the storm surges on hurricanes would go, if they would disturb or tumble reef balls into the soft sand between the coral areas and make them disappear.

DR. BROOKE: It is possible that they may have slid down. The areas that we placed them out up there by Sebastian Pinnacles, a lot of them were, it is not sand. it is coral rubble; but, yes, it is quite steep in places. They could have slid down with a strong storm surge or something; it is possible. They may be all lying in the bottom of a trough piled up on each other, for all we know. We just couldn't see; we didn't find them again.

MR. BLAIR: A little personal experience from Miami-Dade's Artificial Reef Program. During Hurricane Andrew we had ships as well that were torn in half at 350 feet by the wave effects of the hurricane. However, artificial reef modules that were in shallower waters, because of their size, density, and so forth had much less movement and remained intact and in place. Some of it

comes into play with the size of it. The smaller reef balls being a little bit lighter might have; but at that depth I don't imagine – I would find it difficult to think that they would be significantly moved around by the conditions of the storm at that depth due to their size and density.

MR. ALEXANDER: I was curious if you could tell me water depths and sizes of the reef balls.

DR. BROOKE: Yes; the reef balls were about a meter in diameter and just under a meter tall and they were made of concrete. I'm sure everybody knows what a reef ball looks like with the holes in it. I think they weighed a couple hundred pounds, somewhere in there I think, if my memory serves me. They were deployed at about 100 meters, give or take ten meters or so. They were deployed form the Sebastian Pinnacles Area, sort of down just north of Jeff's and Chapman's in clusters.

MR. ALEXANDER: How were they deployed?

DR. BROOKE: They were put over the side of the boat in clusters. The biggest clusters were 20, and there were replicate clusters of 20, replicate clusters of 10, and replicate clusters of 5 at each site.

MR. ALEXANDER: Were they tossed over the side or were they placed; because that would be an easy way to break balls?

DR. BROOKE: The ones that we saw were not broken; it was the little pavers that were tossed over the side. Those were broken. The reef balls we saw were not broken; they just weren't where they were supposed to be; that was the problem.

MR. ALEXANDER: Well, I could certainly see if you put something heavy down on top of coral rubble that typically a reef ball in shallow water in sandy sediments will tend to settle under storm influence; but if you have any kind of forcing on something sitting on top of something like rubble, it will tend to move a lot more easily across that bottom, kind of like being on ball bearings in a sense.

DR. BROOKE: Yes; it is possible that they slid down the slopes. We were using technical divers; and they have a bottom time of 20 minutes. They weren't thrown off; they were released down to a certain depth and then let go. We had the GPS coordinates where the boat was; but it is a big ocean and they are small things. The tech divers were dealing with currents. I think there are a lot of reasons why we didn't find them; but we should have found more than we did. I think we found three the whole trip or something like that.

MR. MERRIFIELD: Were those amidst coral outcroppings at all or was it just rubble bottom?

DR. BROOKE: Well, that whole area has not been surveyed; but when the tech divers went down to look – so we went out there two years in a row. We deployed the reef balls. We were fairly sure that the area was just flat rubble bottom. When the tech divers went down, that is all they saw was flat rubble bottom. There were no coral outcroppings.

MR. MERRIFIELD: Because 100 meters is pretty far to the eastern edge of that hard bottom, I guess.

DR. BROOKE: Yes; we deployed them in the sort of historical coral bioherm zone. It is very rugged topography, too, so it is quite steep in places. If there was any kind of wind or storm surge, then that would encourage them to slide. They weren't all in on steep habitat. They were all on coral rubble, as far as we know.

MR. MERRIFIELD: What year was that?

DR. BROOKE: It was 2001, 2002, I think. It is a bit of a mystery; but given the tools that we were using, you know, the tech divers – what I would like to do is take an AUV out there with high-resolution multibeam and see if we can see where they are.

MR. WAUGH: Okay, so continuing on that; they are asking where is the research documenting what is happening with the coral? You've got die-offs of corals, you've got temperature issues, and you've got outflows that are causing problems. The industry wants to maintain coral as habitat for rock shrimp. They are sensitive to them being pointed out as having impacts versus getting some answers to these basic questions and pointing out the problem of die-offs can't be solved by closing more bottom to trawling.

DR. BROOKE: Just a point of clarification; the coral is not intact coral. It is not dead intact coral; it is rubble. For whatever reason, it has deteriorated into small pieces. If it were standing intact, then, yes, we would be looking for other reasons why. Again, those areas were trawled in the past. We're not saying that they are trawled now. We're just saying that there are a lot of flattened coral out there. It didn't die in place; it wasn't hit by anything that left it intact.

MR. WAUGH: They had some discussions about where the rock shrimp are occurring now. Virtually all of the production over the last two to three years has come from an area that the northern extension of the oculina area would close the area where they are getting their rock shrimp.

You have worked with them; we've come to a compromise; but over the last couple of years that is where all the rock shrimp have been coming out. They are concerned that you've got effluent discharge that is impacting that area and that is moving the rock shrimp around. They point out that they are seeing a thick, brown, leafy seaweed. This was caught last year, never seen before.

It is clogging the nets, and they feel it is fueled by nutrient overloads in the ocean similar to internal waters. They have noticed that the invertebrates have been killed and are not present in the rubble like they have been in the past and wondering if some of this could be due to chemical dispersants from the Gulf Oil Spill.

In terms of the Oculina Experimental Closed Area, it was established to protect snapper grouper. They point out the research is not being done. Factors affecting corals not being looked at; all efforts focused on enforcement and not enough on research. They pointed out instances where trawl gear has been implicated; but it was a cargo net and not shrimp trawl gear, and there is lots of monofilament versus current gear being used; monofilament net.

MR. BLAIR: Just to point to some of the other stuff; I think we'll have some conversations after this regarding some of the things that may be associated with some of the water quality or at least potential aspects of it. Obviously, with the update of the research and monitoring plan, that

information can get back to the Deepwater AP as far as both the reason why there is the apparent lack of information over the recent period of time, but also what the actual activities are planned to be able to address some of those valid questions and valid statements.

DR. FEDDERN: Is the algae that is being trawled up alive or it dead, because that is awfully deep water for algae?

MR. MERRIFIELD: Alive.

DR. FEDDERN: Is it growing there or has it drifted in from elsewhere?

MR. MERRIFIELD: I don't know the answer to that; but I think that it is growing there. It is basically down in an area pretty far south of the oculina at this point, off of Lake Jupiter, 310 feet of water.

DR. FEDDERN: Are there still effluent discharges off southern Florida?

MR. BLAIR: Yes, all three counties. There are a few things that may come into play with this. One of the things I would very much like to see photos or even we can arrange for samples of what you are finding there, because it is an extremely deep area for finding macro-benthic algal species, especially up that far.

Usually we don't see anything growing in that depth unless it is much further south and in the areas where you would get a lot better water clarity in the deeper waters that are like off Palm Beach through Miami and in the Keys. I would generally suspect, especially considering the habitat and depth out there, that this is probably drift. However, the fact that it may be something that has initiated through other circumstances and is being deposited there is still points of interest and concern, I can imagine.

DR. FEDDERN: It might be a good idea to do some experimental trawls upstream to see if they can find the source of the algae if it is drifting. There have been a few instances of algae clogging the bottom off the east coast of Florida from effluent from the Indian River and the canals there.

MR. MERRIFIELD: There has been a lot of releases out of the Okeechobee all along from Jupiter, St. Lucie.

MR. BLAIR: Especially over last year's very wet year, very high discharges; I'm sure we're all aware of what is occurring in the Indian River and the impacts to the Indian River associated with that. Palm Beach as well also has the same levels of effects from discharges; and those obviously are going out and having some level of effect on the nearshore waters that may be contributing to this. It is always a maybe. We aren't going to be able to know for sure; but definitely having macro algae down at that depth is an extremely unusual thing to occur.

DR. VOSS: Despite the extreme discharges that we've been monitoring out of St. Lucie Inlet, there have been obvious changes to water quality, obvious changes that have been quantifiable with regard to coral health, but no benthic macro algal blooms in the area of St. Lucie Inlet.

MR. BLAIR: Going back and just one of the things we probably aren't – I don't know how much of a handle we have on is – as Henry pointed out, there have been a number of deep-water algal blooms that are off in the deeper areas, brown algae.

If it is some of the stuff that I'm thinking it might be; it is known to be one of the deeper growing macro benthic algae that could have a possibility of developing something being torn loose and being in drift. Hopefully, what you will find is – well, let me ask you this; is this something that you have just seen over the past couple of years or last year or is this something that has been persistent for multiple years?

MR. MERRIFIELD: No, this is recent, so in the last year. What we have seen in the last couple years is that the area south of the oculina box is typically a very productive rock shrimp area is not and is pretty devoid of what we did see normally as bycatch.

MR. WAUGH: Mike mentioned this earlier; to get at the soft bottom area on the offshore side of the original oculina area, and the same applies to the offshore side of the northern extension, asking where is the science; they want a specific response on what information and science justifies this area be closed?

We'll pull that out of the amendment and provide that to them; but as you all do your evaluation, if there is additional information you feel that could be added, please do that. They've made very clear they want to work together with scientists to address these questions and be productive versus pointing fingers back and forth.

The habitat is very important to the industry. We spent time talking about cooperative research. They are very interested in working with any scientist to do work. They can provide the vessels. We spent a lot of time talking about how they could get plugged in to cooperative research. If anybody is interested in working with them, Mike would be the first point of contact.

The evaluation of natural stressors on oculina need to be elevated in priority because of the environmental impacts of water and wastewater discharge. The limited funds should be focused within the Oculina Experimental Closed Area and not extend funds outside the area. You need to complete the mapping, habitat characterization and fish population size work.

Elevate coral deaths, looking into the reasons for that from a low to a high priority; pollution and nutrient effects should be a high priority. As I said, they are willing to provide observations to researchers. They requested that the Coral AP provide specific ways that the shrimp industry can provide their observations; and that is what we're talking about now. They are willing to take pictures of what they see, carry people on board, very interested in working together.

In terms of the outreach component, they pointed out the need for extensive outreach. This relates to Coral Amendment 8. Then under other business, they pointed out that since the Deepwater Horizon Incident, the rock shrimp fishery in the eastern Gulf of Mexico that usually occurs has not.

They feel this could be the result of the oil spill and dispersants. There haven't been any rock shrimp in that area since the summer of 2010. Landings in the Gulf and South Atlantic have been very unproductive. They recommend the council request NMFS to research this issue and

not go out necessarily and conduct research, but pull together what information is available and provide the council and Deepwater Shrimp AP a presentation on impacts; also a report on this slime algae that has been found in the Gulf and has recently been found by the Atlantic rock shrimp fishermen in the southern rock shrimp grounds on the Atlantic side.

The other observation is that there has been large increase in octopi in the eastern Gulf of Mexico and that has had an impact on the stone crab fishery. This could be another impact of the oil spill. That is it; but they are very interested in participating as sampling platforms if anyone has access to funds and is willing to work with them. I'm sure if you have any additional questions, Mike would be glad to talk with you.

DR. VOSS: Could you just describe the slime algae that has been reported on the eastern side?

MR. MERRIFIELD: Well, from what I have been told it is just dense. When I have been diving down there before and experienced that green slime that comes up, it is probably that, but it is thick enough that it does collect in the nets. It is a pretty sizeable layer on the bottom.

DR. VOSS: Green or brown?

MR. MERRIFIELD: Green.

DR. FEDDERN: Here is an opportunity for developing an octopus fishery like they have in the Mediterranean.

DR. BROOKE: I am curious about the lack of landings in the Gulf. As you know, there is a lot of research being done through the BP, Gulf of Mexico Research Institute funding system. I don't know of anybody that is working on rock shrimp. Can you expand a little bit more? Have you spoken to the fishermen that have worked in the Gulf? Have they tried and not found any? I mean, why is this; what is going on?

MR. MERRIFIELD: The thing is there is not a lot of research about where rock shrimp come from. There is a lot of speculation and there has been a lot of historical information that a lot of the juveniles are actually down around off of Honduras. They are riding currents up around the Gulf on the loop and actually that is how they get to the oculina.

There are a lot of theories that that is how they get to oculina east coast here. Then they will live in that oculina coral; that is why it is so important. It is important for two reasons, that it is habitat and it is also the resistence that causes the swirling that actually drops the shrimp into that soft substrate.

But as far as the eastern Gulf is concerned, typically off of Apalachicola and around through Tarpon Springs and that area is a pretty good rock shrimp fishery, and it usually starts in the May timeframe. It is an earlier fishery than on the east coast. There was a little bit caught in 2010; and then there has been a little bit caught but not near the normal amounts caught in subsequent years. I don't know this year; so far there has not been anything reported this year. It is unknown – and actually Mexico last year as well has had poor years, too.

AP MEMBER: Wouldn't that suggest that it is not the Deepwater Horizon causing it if upstream areas have had low productivity as well?

MR. MERRIFIELD: It is unknown. We're just looking for answers as to what has happened to the fishery, because it has definitely been down in the last few years.

MR. CUPKA: I was going to ask Mike – I know Laurilee talked about that a good bit during the Deepwater Shrimp meeting – but was that based on observations from boats that normally fish in the Atlantic and go into the eastern Gulf since it is earlier in the season? Are those boats that normally fish in the Atlantic that went around there or were they Gulf boats; do you know?

MR. MERRIFIELD: It is both. Actually there have been several boats now that have gone around to the Gulf and have not come back because fisheries on the east coast haven't come back. There is more production in the Gulf so they are just staying in the Gulf, but it is both boats that have always traditionally been in the Gulf and these other boats that have gone around. But it is not a new fishery to the ones that have gone around; they have fished both coasts, so they know where to look and where it has traditionally been.

MR. BLAIR: Mike, relative to the aspects of being able to be available or try to tie in for potential cooperation and research and so forth; the observations are one thing, but perhaps we may want to give Mike a little bit of information as to what is actually needed for the types of platforms that may be necessary to do the type of work that is being done out there just to understand the feasibility of or the opportunities that may or are restricted because of that.

MR. MERRIFIELD: I've been involved in some of the other fisheries as well, so this one is kind of the same. We offer up this opportunity across many fisheries. The response is that we get – and we know it is not just as simple as jumping on a boat and going out and collecting data. It has got to be a very well-designed scientific program, which we're not good at.

For someone to suggest to the industry go do some research, it is not going to happen, number one. It is not going to be valid, number two. We know we have to depend on the scientific community and the grant program, whatever the grant process is, in order to get there. I mean, the industry is even willing to put up money. There were several offers in our meetings for we'll put up the money; but it is just not that simple.

DR. BROOKE: The kind of work that needs to be done out there, the obvious funding stream would be NOAA, a couple of the programs under there. NOAA, fortunately, unfortunately; it is the way it is; those programs tend to focus on finfish. I think there are opportunities within that if we could make a good case.

Yes, I suppose the short answer is, yes, we can look at a cooperative funding to do some of the research that needs to be done. This doesn't sound like a simple fix. If you've got declines that are throughout the range of the animal or at least as Clark said upstream; it may not be a local thing that we can pin down and identify. I don't know much about rock shrimp. I don't know if they go through cycles, whether is something that happened in the Caribbean, their spawning grounds was affecting it. This could be a big question; but obviously we don't know very much about them and we need to start somewhere.

MR. CUPKA: Mike, I'm not trying to put words in your mouth, but there was a lot of discussion during the Deepwater Shrimp AP meeting on cooperative research. In fact, we had some people from the Southeast Regional Office that reviewed all the research programs available. I think what the shrimpers were saying was we don't need the money from that. We're willing to put up the money.

What we need is the scientific cooperation or the partner to work with us to develop the scientific research that is needed to be done, because you don't have the expertise for that. It wasn't so much looking for a source of money as it was looking for someone in the scientific community that you could partner with that could produce some valid scientific information. Is that a correct assumption of kind of where you all were on some of this yesterday?

MR. MERRIFIELD: Yes; it is. From talking with Sandra and things, it is pretty complicated, because you are talking about deploying assets and thing like that. We have large vessels and vessels that could probably do that; but that is probably not going to happen. But if there is anything that can be done like I know the Navy has used some of our vessels before and attached monitoring devices to the bottom; and so everywhere they are going they are collecting data on the bottom.

If there is anything we can collect that way, if there I anything you can put onto the bottoms of the rigs that are sitting on the bottom that are collecting information that way; there are just a lot of different things, but, yes, they are willing to put up money or to participate in any way they can in the process. It is trying to look for a way to coexist here. Everybody would get the coral healthy and protected, but we leave a fishery here as well. It is kind of just looking for ways to coexist.

MR. BLAIR: Okay, thank you. I think at this point we are ready to get into the final review of the research and monitoring status for the Oculina Experimental Closed Area. Hopefully, we all had an opportunity to kind of go through – obviously, the narrative that was associated with the reports is a little bit more explicit than some of the spreadsheet information.

I think what we would like to do – and I'm open to other suggestions – but kind of go through it; and as I said if we know of other information that may be appropriate or have opinion as to whether issues may be addressed through other paths, other means to be able to provide information for it; then those are the types of comments that we're looking for as well as we understand or see ways that things can be accomplished so that they may be able to move forward; it would be helpful.

Obviously, we all understand the constraints associated with the granting agencies and funding availability, which has been the biggest restriction towards progress for many of these points. We see that throughout the report itself. Hopefully, we can come up with a few ideas that might be able to come with a different path to be able to achieve the same goal or at least work towards the goal even if it is not to complete the goal.

MR. PUGLIESE: As indicated, you've got both the actual summary section, the research summary section that was providing, research and monitoring as well as the smaller components that are included in the Excel spreadsheet. I guess what we can do is just walk through what is

highlighted in the section itself and add specific comments from the advisory panel that can be provided directly to the council.

The introduction section of this is really kind of summarizing the basics of where key portions of research over time have been conducted to get us where we are today. The introduction opens up with the identification of the visual surveys and the tech diver surveys that really focused on some of the key areas in Jeff's and Chapman's from March/April 2008, which identified pretty much undamaged areas within the area, some of the more key information.

The follow up surveys that have been already discussed; the visual surveys, ROV in 2011 confirmed the integrity of those systems, but also were able to identify some of the reef blocks as identified but not all. The entire discussion we had was really getting to that whole issue. The survey did provide updated information on the high-relief bioherms; 15 to 20 meters covered coral; sparse isolated coral thickets, low-relief coral areas and extensive moderate 1 to 3 meter areas; relief live-bottom ridges extending north to North Florida Deepwater MPA, as well as the overall.

Some of this information in the front covers outside the bounds of the experimental closed area. I think a lot of that actually is going to end up being an appendix component of it. The focus is specifically on the experimental closed area response. This whole section here does talk about that development and the opportunity to integrate that directly into Amendment 8 that is dealing with both the northern and western extensions of the Oculina Bank.

Again, this is the discussion with regard to the reef balls; and we've gone pretty far into that whole deliberation. A key issue on that though is ultimately being able to do enough information – and hopefully there is a possibility with the work that is going to be done and some of the mapping in the oculina area, that they may be able to find those with some of the ROV work that is going to be accomplished in the next three years. I think that is going to be a key opportunity to follow up on what actually happened; and also the whole issue of if you are seeing recruitment on those, too.

DR. BROOKE: I would be happy to give you the coordinates of where we put them. We would really like to find those things again.

MR. BLAIR: I think it is kind of one of the best things that we have been hearing about is the grant and the large steps that hopefully is going to take towards making headway along a number of these points. It has been very positive.

MR. PUGLIESE: Yes; and I think as you go through this again, as well as the summary; it points back to, hopefully, that is what we are going to be able to be seeing on the mapping, on some of the characterization, on some of these species utilization, open the door on some of the trophic discussions, and at least start getting further along in the areas that we wanted to see previously. What it did identify is that since that time, since the original evaluation plan document, there have been 11 publications regarding oculina.

The recent surveys have also identified increasing numbers of black sea bass in the Oculina Experimental Closed Areas compared to the evaluation report. I'll bring a little bit into that. We had some discussions recently on climate issues relative to the entire Atlantic coast; and that was

one thing that came up is the expanding range of black sea bass south in Florida, which is a differing thing, which is also extending into the Oculina Experimental Closed Area.

That is a population, and some of that is thought to may be with regard temperature, not increasing temperature but decreasing in temperature. Increasing upwelling events may be driving some of this in the southeast. That is just a connected point, which is documented with some of the recent finds within the experimental closed area.

Visual surveys continue to show evidence of some fishing line longline materials. It does have some of the other nets. As people have indicated, all that is probably connected to at least some of the previous activity that may have occurred within the region. The consensus of the evaluation team on the proposal – the discussion on the proposal was the Shrimp Advisory Panel provided to open areas of trawling in the Oculina HAPC and specifically the experimental closed area would be extremely counterproductive.

It would put the few remaining dense stands of oculina varicosa at risk. Many objectives following – now this is the actual objectives. I'll walk through the individual objectives that are identified within the research and monitoring section and the responses. The first one is will oculina thicket recover through Oculina Experimental Closed Area without human intervention and what type of timeframe is needed for significant recovery?

Under that point, identify fish recruitment pathways and compare settlement, growth, survival rates, and artificial substrate relative to settlement, growth, survival rates to unconsolidated coral rubble. This gets to the whole point – and we've had a pretty extensive discussion about the ability to do that.

We hope to be able to get more information by being able to document the change over time on the reef ball settlements. Again, this points to the fact that maybe we actually will be able to pin those down with some of the upcoming mapping efforts and then follow-up dives or follow-up ability to see the condition and the actual recruitment.

I guess one of the things that will be interesting to see is if that continued small sample had new recruitment versus the survival; if that is also the case with structure in those areas. I think that has always been discussed about when you get in those rubble zones you've lost all the vertical structure; to what degree, if you have a significant amount, that you can do it?

That will bring us a lot further down the road to maybe look at it in more expanded regeneration effort. There is a lot of interest in seeing if that is successful, if actually we do see some recruitment of those; and that may be something to follow up on. The second was to model biophysical, chemical, and physiological characteristics.

The previous study is showing that the benthic environment is very dynamic, widely fluctuating during upwelling events, and meandering the forward currents. I indicated that there has been a lot of discussion about the significant increase of the upwelling events in the area. One thing that is going to be really good is that there are newly hired researchers from FAU, Florida Atlantic University. There are active so many grant proposals to model the characteristics of the Oculina Bank.

We will probably – I'm going to highlight this; we have an Ocean Observing Association meeting coming up next week actually. I was going to highlight and try to reconnect on what their efforts are as also some of the other members in terms of being able to get maybe more of the focus.

We have actually integrated these types of things into a ten-year build-out plan with the Ocean Observing Association; characterization, physical characterization of the Oculina Bank; and really I had integrated almost all of our protected areas of the HAPCs the MPAs, et cetera; but here is another opportunity to emphasize what actually is there.

Then these individuals can maybe focus and come up with something that really does not only characterize the individual area, but then characterize some of these increased episodic events with the upwelling occurrence and how that may be changing the nature of some of the systems we have.

MR. BLAIR: I'm trying to think of what we actually have or what is ongoing for consistent data-gathering information on some of the basic physical temperatures for any connectivity type ideas in that area that can help. I know we have point in time and maybe short-term information that we're using to be able to characterize these things. Is there long-term continuous type of data gathering that has gone on or is available for either the OECA or other areas of the HAPC or is it more from like remote sensing and that process; in other words, any direct measurements ongoing or available?

MR. PUGLIESE: I think there are a number of buoy sites within those locations that do have an array of different types of monitors. What you do have is ongoing developed current, temperature, a number of different models that are covering either region or sub-regional areas from which you can – and this is something that I also have been encouraged is the opportunity to get that characterization based on parsing out of those models to look at over time what the variability in the areas are so that you have those.

There is some work that may be not within kind of the overall monitoring that is done through some of the university inshore of the Oculina Bank that I had talked to one of the board members at the last meeting about. I've been trying to see – I think there is partial; not as much as we ultimately would like to have coverage because originally in the discussion we wanted to have buoys throughout the area, lander potential, all these types of things that I think would really give us the type of information we want.

But I think we need to get that next step and get everything that is available and characterizing the physical dynamics over time within the area, so the combination. The answer I think is, yes, we just want to pursue and see if we can get very much a directed effort to kind of compile that information.

There was a tool that developed that we have never really had that chance that specifically did that for locational areas where we can capture it and then look at over time some of the model outputs in the box. I think that is going to be something that maybe we want to test or be able to capture it for any of these protected types of areas, including the experimental closed area in the HAPC, to be able to look at that and begin to build that.

That may be part of what I'm trying to push as kind of a state of the South Atlantic Ocean System that was done when we did the first ecosystem plan. They had done it through the collaboration of all the universities in kind of the state of the South Atlantic. It was really done before SECOORA; it was a SECOOS product.

It was actually a component of the existing fishery ecosystem plan, but getting something that does that for the region but then for specific individual areas I think is going to be really useful. Long answer to a short question, yes, I think there are observations. Yes, I think there are also characterization capabilities for model outputs, for major parameters, and, of course, there definitely is the capability of very close contact and work with Mitch Roffer and ROFFS, who is engaging directly in trying to do some work on stock assessment connections. But with all his background on the remote sensing capabilities, we can tap in on kind of the broad spectrum of everything from the sensing capabilities to model outputs.

MR. BLAIR: Two real quick follow-ups; the data collection is water column or surface?

MR. PUGLIESE: In some cases in that area I think you actually do have surface to bottom in some of the buoys. Of course, that has been the biggest thing, because one of the outputs would be great to have something that would be able to capture the upwelling events and characterize them and then be able to predict their movements, et cetera, like that. I think that is something that I am continuing to put on the table, but nobody has actually gotten to that point yet.

MR. BLAIR: If I may just as a follow up; I see the note in the spreadsheet here – and not that we're going through both, and we don't have to, but it is regarding the two physical oceanographers that have been brought in or hired at Florida Atlantic. The tool development you just spoke of; is that something that we might be able to look to dovetail or work with them to see if they can assist in that finalization and development?

MR. PUGLIESE: Yes; that is something that again I am going to probably raise at this upcoming meeting, because Florida Atlantic has representation directly not only in SECOORA but on the board. We have a board meeting and the regular meeting and a PI meeting; so all that is happening all at one time.

There are a couple different times to maybe raise that and see if we can maybe focus some of their effort toward taking some of those to get these types of information given the critical nature of some of what we're doing. I think it would be really good within the timeframe of our three-year project that we're doing with all the other aspects is to get the physical characterization. I think one of the hooks in it is the need to understand spawning in this area.

Well, if we get further in terms of maybe engaging the industry or whoever doing that; I sure would like to be able to get the oceanographic characterization that is also giving you what that constitutes, so you understand the oceanographic features that are driving why these areas are valuable for spawning within the oculina and other areas and tapping in on some of that expertise to kind of connect these different things. I think it is going to be really an opportunity.

Beyond FAU, I think I've talked also with Shirley Pomponi with Harbor Branch – connections to FAU already – and that is making another link directly back into those same researchers. I think

we've set the stage. We've got a representative right here that probably knows even more details than I do.

DR. BROOKE: This is a couple pieces of information – and this is preaching to the choir; I know you guys already know this – but one of the big indicators of upwelling over the Banks is the bloom chlorophyll; because as soon as that cold nutrient rich water hits the Banks; I mean, you dive down there and it goes black. It is a big plankton bloom.

There was some work done by Ned Smith back in the eighties. He put temperature and I think currents as well; but he certainly had temperature recorders down there; and I've got years' worth of data on the sea floor. Once the model is developed, maybe there is an opportunity for hind- casting, to go back and look at what the remote sensing was telling us from those time periods and then correlate that or use the data that we have from the seafloor to parameterize that model maybe. That information is available if anybody wants it.

MR. PUGLIESE: Yes; just as a follow-up, definitely; and I think some of the work we're doing with looking at the characterization of the surfaces, characterization being integrated into assessment discussions; we've got some of the expertise that could be able to tap in on that and maybe work with some of the modeled work that is being done with Harbor Branch to maybe combine the remote sensing, the actual data and be able to see it.

That is exactly what we had talked about in the past. It has been on the table for a while; but if you've got some other historic data that could do it, then maybe that will even take it a step further, because I think we were going to look at rougher type of information versus more detailed surface-to-bottom temperature.

DR. VOSS: All the people that we're talking about all work on the same campus. A few modelers, Laurent and Mick Schunter are in contact with Ned and have that data. I think kind of the most critical aspect of this is that parameterizing a model for the OECA box is going to be most informative in the long term if it is put within the context of SECOORA and the IO system over all.

I think without those connections, the validity of these models for long-term forecasting of what foreseeing these oceanographic parameters and what is foreseeing the environmental parameters within that area are going to be rather limited. Those meetings with SECOORA I think are kind of the most important aspect of getting this off the ground in a way that is going to be most effective.

MR. PUGLIESE: Moving on; a lot of opportunity I think there that is encouraging; determine and monitor the effect of the Oculina Experimental Closed Area on fish distribution and status. This kind of connects back to some of the discussion I had just raised. Assess the spawning aggregation of fisheries species; the spawning aggregations of the reef fish have not been observed in the evaluation period. The seasonality and lack of funding for research; I know there has been a level of frustration that has happened in this, because people like Chris Koenig has sent in multiple proposals over the years to look at grouper and a number of different things.

For some reason we just have not gotten high in the rating to get those types of research done. The bottom line is then the more recent research that has been done in the area, because of the

scheduling and capabilities of cruise activities, just do not align with the spawning periods. The bottom line is we have not really had the opportunity to be there.

If anybody is making statements that we have not documented spawning within the area is not coming from a complete aspect, because we haven't been in the area during the spawning periods. I think it is going to be critical. This issue is going to be a critical need within this area as we continue on.

It is something that we had raised as vessels of opportunity; and I think it was raised they would be able to do that with the shrimp fleet or others. There was discussion about expanding some of the fishery-independent surveys to actually establish some fixed points within these systems. I think a couple of those may be the best way to get to some of these.

This is going to be really critical to show that there is re-aggregation. I know there have been some of the cruises, while not in the timeframe, have shown things such as juvenile speckled hind. We've seen the back end of some of these. We're seeing black sea bass, but we're not seeing sort of the core time where you could see spawning of gag and other species. Moving on, the bottom line is there hasn't been as much done.

DR. FEDDERN: One question; it seems to me that these are all in the Gulf Stream; and if they spawn out there in the Gulf Stream, the eggs and larvae are going to sweep north. They are not going to get back to that area unless the spawning aggregations are closer inshore in the counter current. There may not be aggregations out there, the aggregations may be closer inshore in order for a counter current to bring the larvae back to those areas.

MR. PUGLIESE: I think the key is this historically has had significant spawning aggregations. The documented footage from years past has shown pretty massive spawning of gag and other species within this area. The idea is you have the species like gag that is actually spawning, the larvae is getting entrained into the currents brought up into the Charleston Gyre, dispersed along the shelf, and actually dispersed north and south all the way down to north Florida.

That is very variable depending on temperature, depending on a lot of different things. I think then you're having the species return back to those areas. You are having some significant spawning within those areas. I think that is probably where Sandra was going to go; sorry.

DR. VOSS: Another thing I would offer there is that because we don't know much about local larval retention, those models we were just talking about relative to Objective 1; well, most of those models are developed in the context of larval dispersion as well. The possibilities for local retention of larvae can be determined more based on some of those modeling developments.

MR. PUGLIESE: Yes; and I think some of the preliminary work had been highlighted on use of drifters to document some of what I characterize as moving up into the shelf and dispersing; so some of that has been done in the past. But the effort to really get in and get further I still think needs to be pursued; and specifically diving on the area and having documented video footage and samples showing the gravid individuals is going to be critical in the long term in the Oculina Bank.

DR. BROOKE: Yes; it is just a point, really. Models are useful tools, but they are only as good as the data that goes into them. This does not obviate the need for doing real on-the-ground research; just a point.

MR. BLAIRS: Models are useful and some are correct.

MR. HAYMANS: I'll share real quickly my boss' analogy; it is running a dragster on lawnmower gas. We get some real sophisticated models, but we are definitely lacking in the data to run them.

MR. PUGLIESE: Moving on; tracking fish movement; there has not been progress done on this. Now, I will connect actually something that connects back to the one before is opportunities to begin to look at use of gliders and AUVs with acoustic capabilities. There are so many new arrays being developed all over the place in different aspects.

The opportunity that I've highlighted a number of times is just the connection of a number of these different arrays and building something that really understands what type of coverage we already have in the Atlantic; and then adding to that to connect the dots and connect the array systems and then having active systems.

More recently; the FAU glider that was collaborated through one of the National Marine Fisheries Service investments on the Atlantic side was a glider that was supposed to be looking at winter spawning gag grouper or listening to winter spawning groupers in our area. There is a first step at moving toward that.

That would also potentially get to this issue of being able to track fish. If you again got to the point of that ten-year buildout, what was originally proposed was a glider system for the Atlantic that actually had routine deployments off of each state so that you could have acoustic. The push I made on that was to not only just do that for the current modeling, which is what that was kind of directed toward is to refine the current modeling; but also put acoustics on all these things so you would have a listening post for the entire.

A lot of these things are on the table that really if they get funded could get spawning, get tracking fish a lot further down the road; but to date there has not been anything specifically done in the Oculina Bank. It would be nice to deploy some of the types of work that Chris did in the Gulf of Mexico with acoustics on grouper where they actually dove down, placed them on the fish so you had maximum survival, and then had the ability to track those. There are some real opportunities in terms of technologies and capabilities, but we just need to get the funding.

Identify Oculina Experimental Closed Area fish population demographics; this kind of is really highlighting what we're looking at doing in the next couple years to be able to really document with ROV, not only map but then also document utilization patterns in the area. Determine pre-closure distribution of dominant harvest species; there was a discussion about looking back to historic information and the opportunities that you could kind of connect back; and the evaluation team determined that kind of really looking to that information you would probably spend a lot of information trying to recreate something versus spending more information on really what the condition is and where we need to go with this is.

Determine age distribution, nursery grounds, migratory patterns, mortality rates; and just lack of funding has not provided the ability to accomplish any of those. What is the population structure of corals, research population genetics; it was identified that the publication identified here, Nuclear Sequences for Imperiled Deepwater Coral Populations, was published in molecular ecology. It did get into the oculina varicosa that was sampled throughout the South Atlantic Region. I was going to point to Sandra and ask if there was anything beyond that in terms of –

DR. VOSS: I can comment on that. The most important outcome of that study was that the Oculina Banks themselves look to be a relatively closed population. Given that, we would not expect to rely on other oculina populations from the general region to be strongly repopulating the Oculina Banks based on the genetic isolation of that population itself. That means that if you want to have the Oculina Banks, you have to protect them and not just what is upstream of them.

MS. PUGLISE: So you are saying it is a self-seeding population?

DR. VOSS: It is either self-seeding or it has been relatively asexual for a very long time and isolated, either of those could be possibilities, or it could be sexual but all of its recruits are going north; they are not self-seeding.

MR. BLAIR: Josh, since Sandra is not here right now, what was the sample distribution for those studies? In other words, we haven't noted that more information is needed, which it is always good to have that.

DR. VOSS: To my recollection, it was ten different sites from essentially just south of Fort Pierce up to North Carolina. The relative number of samples within each of those locations was relatively low, which precludes some of the analyses that allow you to differentiate those populations. But despite that low sample size, the oculina varicosa population on the Banks was still separate, which indicates that given it was done with a very low number of samples, it suggests that they are strongly isolated.

MR. BLAIR: Just out of curiosity; for gathering additional information and we're looking at being able to get the samples to analyze and the actual analysis and so forth; what are we looking at in a dollar amount for that type of information?

DR. VOSS: Micro-satellite development has become much, much cheaper. Now, you could create a whole suite of micro-stats for oculina for under a thousand dollars; and then to run each sample, you're looking at thirty to thirty-six dollars, depending on individual regions. If we wanted to do it properly and look at Oculina Banks in connection to other populations, part of what we don't know is what effective population size is for these groups; and so you would want to target somewhere in the neighborhood of 30 individuals from each population to try to look at. We can do the math and figure out what that would take.

MR. BLAIR: Just thinking of the fact of we were talking about things that might be something that could still work towards our goal and be of a dollar amount that might have other resources rather than just the NOAA grant-type idea to get and may also be an opportunity for even collaboration relative to being able to being able to get out to get the samples; and maybe this is something we could suggest as a consideration for the research group as a means of being able to have this as a point to be in a high priority/low priority aspect; one of those opportunistic aspects

that we should be looking at. Because it is something that is a reasonable dollar amount apparently; that might be able to be moved forward as opposed to necessarily waiting for the big bucks to come in for.

MS. PUGLISE: The issue is not the actual running of the samples; it is the collection. The collection is very expensive; and so that is the problem. Once we have the samples, they would be relatively inexpensive to run.

MR. BLAIR: Well, collection relative for other areas. I'm thinking the Oculina Bank areas are somewhat more accessible, but other areas are not going to be.

DR. BROOKE: Back in the days when we had the JSL working down there was easy. ROVs don't work well. Even with the powerful thrusters; they don't work well. ROV is a great tool, but not for these areas. Yes, we can fund cruises to go out there; it is going to be difficult making those collections. It is not impossible.

If you throw enough money at any problem, we can usually fix it. But Kimberly is right; that is going to be the big challenge is getting those. Now one thing we may look into is historical samples. I know I collected some oculina for genetics. I think I gave them all to Michael Hellberg for this thing here; but I may have some and John may have some.

Now again back in the day we used to put a lot of them in formalin, so retrieving that DNA is not going to be easy. I think this is a really important question. We haven't what the population structure is of the oculina and where recruits might come from; because really as far as we are aware, the southern end is where the most intact corals are, and it is a fraction of what it used to be.

If those animals are supposed to produce the larvae that is supposed to repopulate that entire damaged area; that is a tough call. It would be nice to know if there are recruits coming in from outside from other populations, because there is more of a hope that numbers may increase recruitment.

We haven't seen a lot of recruitment; and that is very concerning. Whether it is something to do with the habitat being changed that doesn't make it appropriate or whether the pool of source propagules has been diminished to the point where it is not going to come back; I would like to see that question addressed personally. I think it would be a good use of resources.

MR. BLAIR: Just on a follow up; did that study incorporate samples south of the Oculina Bank as well?

(Answer inaudible)

MR. BLAIR: But shallower; okay.

MS. BROOKE: I just had a thought. There are some tech divers that work on the deep artificial reefs down off Jupiter; and they've mentioned oculina showing up on their structures. They are sort of the in-between morph, between the deep oculina and the shallow. That might be one

source of animals; and if we can get tech divers further north on specific structures, it might be useful, too.

MR. MERRIFIELD: I think she just answered it. I was just asking the populations that are shallower water and deep water; is that the same genetic population or are they different?

MS. BROOKE: This paper showed that there was a degree of isolation, but I think the only samples they had were from Jeff's Reef and from a wreck that was a little further north in about 120 feet. I think maybe the paper suffered from a lack of samples; but they did see some genetic isolation between shallow and the real deep populations.

MR. PUGLIESE: All this discussion really does highlight the point that there still is a need for manned submersibles. I think the world understands that; but I don't know why the U.S. has fallen back on it. I have heard a rumor that JSL may be coming back.

MR. BLAIR: That is a rumor.

MR. PUGLIESE: Okay, so that is dead. That would be amazing if it was going to come back up from Brazil.

MR. VOSS: They are going to get (inaudible) at Harbor Branch right now, but I am not allowed to talk about it. That's why I didn't press my button.

MR. PUGLIESE: That's fine. I think truthfully I am not joking about that; the world is investing heavily in not only deep submersible but significantly deep submersible, mainly because of the drive toward deep ocean mineral explorations. You've got China, Russia, really leading the way in terms of some of the highest end systems that can get out there.

I mean foot-thick titanium vessels and just amazing stuff that's being done. I think ultimately this is a perfect example of how important that type of capability is to not only observe but also have collection capability. A system like that with the current systems, I don't care how good the ROV is, you are just not going to be able to make it happen. You can probably do a whole lot more damage than collection.

DR. BROOKE: There are a couple of subs available as the deep workers, which in my mind are marginal because of their view port. But there is the Triton Sub, which is actually out of Fort Pierce, which I hate to say it, but it is what the JSL could have turned into had they invested money into it. It is a three person sub. It's got a beautiful sphere.

It's got all the high-tech lithium batteries, good thrusters, sea ports, connectors, everything. The problem again is not the availability of the technology or the development of the technology; but if the funding systems in the U.S. won't support manned submersibles, and they don't, then we can't get access to that technology. Those subs are used by rich yachties at the moment for tooling around in the Caribbean.

MR. PUGLIESE: Moving on; identify cross-shelf relationships between shallow and deep-water varicosa; we talked about that in terms of being able to go further on that. The distinction exists but we have not been able to –

DR. VOSS: One note on that; John Reed and I actually submitted a seed proposal relative to that this past cycle. They got favorable reviews but was ultimately not funded. But, some of the experimental designs for that kind of work have been flushed out a bit more, so there are some possibilities for pursuit there.

DR. ALEXANDER: Roger, I just wanted to mention I think that biogeography question; there may be a way that TNC larger scale mapping effort that is going on right now; that may be something that could be used to kind of target biogeography studies and sort of help us plan better where you might do those to the most effect.

MR. PUGLIESE: Again, Clark is identifying what I had mentioned earlier the other day when I left for – and Clark was involved in it – it is an effort funded through the South Atlantic Landscape Conservation Cooperative to look at the available benthic habitat mapping and to build on that and expand that for the use for the LCC.

I've been trying to expand that for our capabilities for essential habitat, for distribution information, et cetera. That may be a forum to do this. We do have connections to groups like the bottom mapping and species characterization workgroup that would be a good focus group to take this a step further.

What are the stressors affecting the Oculina Experimental Closed Area; and Objective 1 was to identify natural and anthropogenic stressors such as disease, gear impacts, poaching enforcement; the original evaluation for it downgraded this objective to a low priority. I think it was mainly because of the amounts of money involved in that relative to some of the other higher priority areas. That is really kind of what was driving it.

It was identified – the 2013 publication on sublethal stress is providing some understanding of the stressors and the impacts on deep-water coral systems in South Florida; but there has not been additional – and this was identified as actually the first study to detect sublethal physiological responses to environmental conditions.

This was something we discussed earlier about all the issues I think everybody has raised in the previous meeting with the Deepwater Shrimp AP; and I think our introduction discussion is about being able to document primarily some of the natural stressors that we don't – and the anthropogenic ones such as water, nutrient flow, discharge.

Determine the frequency and severity of sedimentation induced by benthic storms; what had been identified as a connection into work that Harbor Branch and FIU; examine the effect of sedimentation on coral in a reproductive capacity. Monitoring would be possible if an instrument package was utilized in the area. It does identify Sandra et al work in 2009, and the effects of sediments on the deeper water corals in the Gulf, lophelia.

MR. MERRIFIELD: Roger, I just wanted to go back and say those stressors were a big concern by the Deepwater Shrimp AP; because when we're out there, we just see so many changes occurring, and a lot of it seems to be driven by – certainly, there are environmental effects like the upwellings and so forth; but there is a lot of concern about water quality. Everybody out there – and not just in the shrimp fishery but the other fisheries as well – are pointing to we've

got some water quality issues. It was very concerning to see that this got pushed to a low priority.

MR. PUGLIESE: I think what I highlighted; in the original discussion it was identified as low priority in the previous one mainly because as stated is the funding. You put it in relationship to understanding spawning, understanding all that; and plus some of the more recent events and different things were not as highlighted at that point.

I think more of the focus was everything on what needed to be accomplished in that specific area; priority species, mapping, habitat, et cetera. It wasn't because it wasn't probably important to understand that but it got into the queue; and these have been highlighted even more. As Steve said, you've had some fairly significant flow years, whatever, so it has probably exacerbated some of the issues. I think the timing is an issue; so I would assume the recommendation from this group is elevate that up to a higher priority.

MR. BLAIR: These again are focused more towards the coral issues. Some of the things you're looking at are more broader scale than the water quality aspects of it, which have a lot of valid points to it, but kind of is a different question. If I get your gist, you are also looking at it relative to the impacts and so forth on the shrimp populations as well, their distribution and how they may be impacted in everything from spawning to larval survival, distribution and so forth.

This really is intended to be more explicit towards the coral aspects. There has been a fair amount or a number of studies that have been looking at these sublethal and, as you would say, non-visual effects when you have it to where you are not seeing the visual impacts of these water quality or other environmental changes on them.

Your point is good and it should be kind of continued, maybe even to the point of trying to find some other funds to work explicitly towards the rock shrimp physiology and so forth and effects of environmental conditions on them explicitly. I think it would probably work more towards what your greatest interest is. Characterization of the water quality out there is a big thing. It is a good thing; but again that is one that it gets incorporated into these other studies, because it is not something – I find less money for monitoring than I do for manned submersibles.

DR. VOSS: Just one other issue to point out relative to that is that we had discussed potential pursuit of proposals looking at coral stress indicators in the context of water quality; and one of the fundamental issues is that we don't even have baseline coral physiology and coral gene expression on Oculina Banks. It would be difficult to determine if there are impacts related to water quality when we don't know how those corals should be behaving normally.

MR. MERRIFIELD: Sandra, I guess you were saying you don't see a lot of new recruits. There is something causing that.

MS. BROOKE: These corals; they evolved in a hostile situation with their massive temperature fluctuations and high currents and so forth, and they made it. They formed these massive bioherms under those relatively hostile conditions. They are pretty tough little animals. The thing is what can affect them – and it is going back to the sublethal work – is that over time if you have a chronic problem like lowering of water quality, which we have not been tracking out there, we just don't have the information; we don't know whether the water quality has

degraded. Josh is right, if we have no base line, we can't detect change. It is possible maybe that something has changed and we are seeing some sort of sublethal stress that has affected their ability to produce viable larvae.

I didn't see that when I was doing the reproductive work, but that was a long time ago now. It is possible that there is something going on out there, but we are going to have to play a lot of catch-up in order to figure out what it is, if anything. The good thing about oculina is that as a species it is fairly widely distributed; so I think it might be possible to find animals that we can assume are less impacted or less potentially affected then those in the banks.

I think we probably could tackle it even given the problems, but I think the question is whether it is worth the funding that it is going to take to do it. That is always going to be the question. It is not that it is not important, but is it high on the priority list?

DR. ALEXANDER: I was wondering if you could – we use the term water quality here a lot. That is a very squishy term. I wonder if someone could tell me what are the most important water quality parameters we're talking about here. The reason I'm asking is there are some very inexpensive sensors that could be put out on everybody's nets down near – not the cod end but near the doors or something.

On every deployment out there, if we're just talking about salinity or rough salinity or temperature or something like that; we could just start collecting time series data on a large part of the water column and start getting baseline data in these areas, if those are the kinds of parameters that would be useful.

DR. FEDDERN: Are there areas out there where the rock shrimp are and also where they were? In other words, if we can get comparisons; we don't have historical data, but we can get comparisons from where they are now and where maybe they used to be and see if there is a difference. Then we could have a guide in searching for new areas using the criteria where they are.

MR. MERRIFIELD: Certainly; there is a lot of landings' information. It is pretty general the way it is reported; but there is probably enough there to show where productivity has been at different points in time.

MR. BLAIR: The issue would come into play with lack of information associated with what the conditions were where they were and where they aren't now. In other words, we have the landings' information to say where they came from or where they were collected or not, but not any information as to what the conditions were when they were collecting them at that point to understand what may have changed, if there was a change that would have stated that would make them not be there now.

DR. ALEXANDER: I think we might be surprised if there are specific areas of interest, if we started going back and looking at historic CTD casts that were done in some areas that we might have a relatively long time series; it wouldn't cover seasonal and it wouldn't have the frequency that we would like, but perhaps we could find similar seasons that would extend back quite a ways just from a vessel opportunity data that has been collected over, what, probably the last 40 or 50 years in the area.

MR. BLAIR: I kind of would agree with you regarding the fact that there is instrumentation that can be placed on the gear so they could be gathering over the period of time that they are out and doing a trawl and considering the time that they are out there and the number that are done and the diversity of the areas that they're going into.

I believe it would provide, as you say, at least a continuing source of information to be able to start to look at to see what type of temporal changes occur on a regular basis. I think that is a very positive aspect. Relative to the water quality, I think that is a huge question as far as what the important elements are.

I think some of the things that Mike are raising relative to if there are considerations of some of the aspects of contaminants; one, it is really short name for a very long list of compounds that can get very expensive to be able to try to elaborate. I think it would be worthwhile to be able to try to consider developing some program or process to be able to start gathering basic water quality information from these areas.

Again, it is very reasonable to think that this would be another area of cooperation where instrumentation for taking grab samples and so forth may be possible; at least to get the samples collected in a manner as least expensive as possible so that the impact of costs or the cost itself would go more towards analysis rather than having to do the times and everything else to get out there.

MR. PUGLIESE: The last comment – I think you all probably do need a break – that is something that I've been pushing from a fishery-dependent side. I think we're already seeing it with MARMAP and SEAMAP being able to carry CTD virtually on all their efforts. We're starting to build environmental system information. I want to make that more active, direct connection with the Ocean Observing System. There is I think that same opportunity with the fisheries to be able to work with them.

Like you said, it is amazing. Literally in the last two years the drops in the size and the cost of some of these sensors and the efficiency is pretty amazing; so I think that is real. There is also a precedence set in the Gulf of Mexico where there had been some work done on the penaeid fishery using connecting environmental monitors on some of the trawls. Maybe we could build on that type of work that has been done. –

MR. BLAIR: We will take about 15 minutes. Sorry for the prolonged break, but discussions were pretty good, so I think they were beneficial and useful. Okay, we would like to go ahead and continue on with the review and comments.

MR. PUGLIESE: Okay, moving on; one of the other aspects was to identify what the key trophodynamic functional groups were and to identify food web structure and dynamics within the system. The objective has not been addressed significantly. However, it was identified that prior to the evaluation report being completed, there was work done that gave a preliminary model look on ecosystem-based fisheries management food chain models for the northeast Pacific with George, Okey, Reed, and Stone back in 2005.

At least it began to look at some of the species; and that area covered the Pacific, the Mid-Atlantic Sea Mount areas as well as Florida oculina. I'm sure John Reed probably was the

significant contributor for the oculina component. That was presented at the third international symposium, D.C. Corals. But other than that, that has been the –

DR. ALEXANDER: Roger, do you know if that ever made it into a real publication or is it just an abstract?

MR. PUGLIESE: I am not sure. I think we need to follow up to see if it actually did get into publication; because in the review this was what was cited. John was on the review. I think he would have highlighted it if there was a follow-up publication to that other than just the publication; but we can follow up to make sure.

Moving on, unless there are any other comments on that, development index of physical and chemical parameters that characterize a healthy oculina coral ecosystem; the Objective 1 was to look at developing an index for coral health, looking at structure, damage, recruitment, genetics, physiology and life history. Again, this was one of the ones that fell to the wayside in terms of the cost associated with this effort; and subsequently there has not been a whole lot of additional work. I think some of the comments we made earlier; it still has not been done to date.

MR. BLAIR: I think it is also – in looking at the aspects of the research and monitoring assessment; it is a very comprehensive approach to trying to get the information necessary for the understanding of the system out there. However, like everything else, there are things that are kind of end product points to it versus those that are some of the basic information needs and parameters that you have to have in order to get to those endpoints.

This appears to have a lot of those endpoint products; the idea of developing things associated with habitat indices and indexes and so forth. After you have a pretty good understanding and comprehension of the way that the system is functioning and how it varies in response to numerous environmental changes; it is understandable that this has not been completed.

It may be something that maybe a refinement in this aspect would be to be able to start breaking these things out as these are things that can be approached in the next X number of years versus things that are the end products that are going to be accomplished after three, four, five, and six; not things that are going to be concurrently worked on; just so there is not the assumption that these things should all be being completed and worked on at the same time.

DR. GILLIAM: The only exception I think is what we've already discussed earlier about the importance of additional effort in population genetics, acknowledging the cost associated with that.

DR. VOSS: And if we are able to get the samples from population genetics, those exact same samples can be used for some gene expression work that would get directly to a relative coral health measure. Those would serve a dual purpose.

MR. PUGLIESE: Yes; and I think that is important. It builds right on what Steve had said. The opportunities we have; these are kind of cross-walking each other right now. There are some keys ones that can feed directly into other things. I think the ability to characterize say the system temperatures, the current systems are something that also could be added. It is a different subcomponent, but added into this discussion of the review.

MS. BROOKE: This was done back in 2007; and I think it is an excellent thing that we do reevaluate these evaluations, if you will. Certainly, the field of genetics has come forth in leaps and bounds since that time; and what wasn't tractable back then is now; and it is less expensive. Back in those days the idea of having a gene expression for coral health was something that was very much in the development phase and now we can do it. It has still not been nailed down, but some of these things that we couldn't do back then we can now. It is excellent that we are really reevaluating those things.

DR. FEDDERN: Is there a feel for the general trend of the oculina as increasing or decreasing or did it stay the same?

MR. BLAIR: I'll let Sandra address that.

DR. BROOKE: I haven't seen the Banks since 2000 and something. With that caveat; my understanding is that Jeff's and Chapman's are still intact. They don't look any different. There is still coral there. I haven't seen the videos, but that is my understanding. What really concerns me is that the areas that have been destroyed don't seem to be coming back. Again with this caveat; I am not sure we're seeing any degradation of the standing reefs, but I know we're not seeing very much of a return in the areas that have been damaged.

DR. FEDDERN: In that case, probably it is a good idea to find out what is affecting this in terms of what we can do to maybe eliminate some bad effects from keeping recruitment from happening. It would be a good idea to find out to advance the knowledge of what has happened and what affects those corals out there from low priority to higher priority. If there is something we can do to improve the water quality in that area, it would be a good idea, like mentioning the effluence coming down and falling there and damaging not only the corals but maybe affecting the rock shrimp and other things.

MR. MERRIFIELD: Any of the work that was done on the north for Coral Amendment 8 closure; was that all just mapping or was there an evaluation of health of the coral in that region?

DR. BROOKE: I think that was mapping and habitat characterizations, so the ROV went down and they saw the corals there; but I don't believe they sampled; no sampling, no. But the coral, it is really hard to say whether it is healthy or not but it looks the way it should. As far as we know, it looks the way it should. The dead understory is a natural part of the way it grows. What we're not seeing is complete dead colonies that have just died in place. When we see the low relief corals, they look okay. As far as we can tell they look okay.

DR. ALEXANDER: This discussion is kind of disturbing to me in some ways in that it doesn't sound like we really have any idea how well the coral is doing. We know what it is doing in the small places where you've looked at it, but how representative is that? Is there a front that is dying back that you just haven't had a chance to look at?

I don't know how you could develop an overall coral index for something that you can't even on a gross scale say whether it is expanding or contracting based on just the complexity of getting that information. I am just a little concerned by the detail that we're trying to talk about here, given the lack of detail we actually have on the whole system.

MR. BLAIR: To an extent, I agree with you, and I think that is part of the aspect. When we look at some of these questions that we're asking, they are follow-ons. They are not the immediate aspects and they are not things that are going to get addressed immediately. They are going to be addressed at a period of time once some more information comes in and is available.

I guess one of the things relative to the coral mound aspects is for those areas that you have gone back to that have had – we know that there are areas that have been destroyed that are not returning; but those areas that have had repeated aspect, are those areas remaining, as you say, in an apparent similar condition relative to the health of the corals in those areas?

Part of that goes to addressing that there is some repeated aspect of it. I would kind of categorize some of this as still being an exploratory process of understanding the full scope, full spatial extent, and full degree that these habitats exist. We're backfilling information as we can while we're still trying to figure out some of the greater extent of it.

DR. ALEXANDER: Yes; I think that it would really help move forward the effort you are doing here to show that there are certain areas that are not changing if you would emphasize the repeated surveys in the same area and what those are showing you over time. It sounds like there are some of those.

I think if you stress those areas, then it shows that you do have repeatable information in the same area over and over again as opposed to talking about the overall system itself. You need to be explicit that you are talking about a certain area but that it is representative of the area, which I guess is what you are doing.

DR. VOSS: I think that is exceptionally valuable. We're also kind of caught in this Catch 22 where we want to go back and look at areas to make sure that they are still there; but we also know that there is probably additional habitat that has not been mapped. To date the relative focus has been to try to map that additional area. Maybe what we're saying now is that, well, we understand that is valuable; but we still need to go back to these critical areas to make sure that we understand their dynamics over time. I would agree with you on that.

MR. PUGLIESE: On that, the second objective is kind of tied directly to the index of community health for the entire biota including coral biodiversity, richness, biocomplexity. Again, it is tied directly to a lot of what we're talking about right now or have talked about already.

DR. VOSS: One comment on that; there is another case where it may have been essentially too expensive and logistically unfeasible in the 2007 report. Another potential approach there would be to use an ED&A approach where you are grabbing a sample of oculina, a meter or a foot square or something like that and extract all the DNA out of that entire sample and be able to get an index of biodiversity across all taxa for just those grab samples.

You could also do the same thing for water overlying the reefs as well. There are newer ways to get at this large biodiversity issue rather than having to do traditional taxonomy, traditional collections of all of the individuals that are present. Again, that is going to be for relatively small animals that are interstitial within the oculina, but it still could be a good index.

MR. PUGLIESE: Objective 3 was looking at determining indicator species that are intimately tied with oculina, both invertebrates and vertebrates. It was identified again tying it back to our funded effort or at least hopefully funded effort 2014 through '16. That is going to provide some of the ROV surveys to evaluate fisheries and habitat.

Also, I think we're already looking at some of the data we have integrated into our Atlas and information system and online system to look at and tying it to some of the other existing information on indicator species, both for oculina and lophelia as possibilities. That is something else that is kind of being worked in the background.

Primarily right now it is the deeper water lophelia systems and working it with a lot of the information that Sandra and others have collected. Objective 4 was to look at the age of the coral substrates, geologic formations, death rates; also looking at associated mollusks and biota. It was identified that to date they still have yet to do a complete core area through an oculina bioherm.

However, I know work John Reed has done on Jeff's and others; they had identified all the way up to 850 years estimated age and several thousand for the entire bioherm. That is again something else that still has yet to be accomplished in this area is looking at kind of the longer-term function of this.

I know in the lophelia that had been something that had been discussed, because it is even longer and the opportunity to look at climate variability and climate change; and I would assume there still has to be some aspects that oculina could also provide in that same kind of context. Objective 5 gets to the paleo data, associated past climate and oceanographic conditions; again the same thing with paleo for Objective 6.

That moves us on to research relative to coral feeding ecology. The first was to define feeding dynamics. It was identified that some of it was partially addressed by a doctoral dissertation; Sandra's work 2002 that looked at growth, energy, allocation, and respiration. That is pretty much all that has been done unless Sandra knows anything beyond that point.

It moves on to the assessment planning projects; what is the effect of management measures in the Oculina Experimental Closed Area and on the status of fishery stocks? Objective 1 was to characterize, including distribution, abundance, size, age distribution, spawning aggregation presence, and size ratios of the major fish species within the Oculina Experimental Closed Area.

Again, this ties back to up to this date there has not been a lot done; but the upcoming proposal for 2014 through '16 will be utilizing the ROV surveys and collecting species and habitat information; and hopefully we'll begin to address especially the characterization of these systems.

The same with Objective 2 is the opportunity to look at characterizing fish communities inside and out, habitat utilization, and trophic interactions on its genetic changes and predator/prey relationships. To the degree the information you are going to be collecting; I will state that as the degree the information can be collected we can get further down the road, because you get the prey and predator by life stage. It is just going to depend on how much we can actually get accomplished within those three years, how far down the road you can get to do that.

Connectivity of the broader seascape, larval sources, sinks, spillover effects; we've had some discussions already on the opportunity to understand what some of those may be; and again this is citing Sandra's original work on larval distribution and recruitment. I think that whole discussion we had earlier about beginning to understand ultimately what some of the sources are is going to be real key to some aspects.

I know in the deeper water lophelia system, there has been some pretty dynamic bottom characteristics in some areas where you have literally reverse currents in the systems. The question is do you have anything remotely close to that in oculina? If we fully get a characterization of the oceanographic surface-to-bottom type of thing, do you have countercurrents, say, at certain times when you have spawning; so then maybe you're actually getting a self-seeding type of capability. I think Sandra can kind of get into that discussion.

DR. BROOKE: The whole question of retention versus dispersal is very interesting and has shown that some reefs have larval retention even though they have dispersal larvae. I am sort of loath to suggest this; but if we can get down there, those recruitment blocks, those are new recruits. It would be really cool to see where they came from, whether they came from animals that were on Jeff's Reef or whether they came from elsewhere. I think those would be very valuable; but we need to get down there first.

MR. PUGLIESE: Again, the opportunity to get a vessel to get down to the areas I think is going to be critical to be able to get some of these types of – especially if we're talking about maybe getting to those specific locations you know are new recruits.

DR. VOSS: Those are ones that we know where they are. They are not ones that we had trouble finding.

DR. BROOKE: That is correct; we know where they are and we know when they were deployed. I hate to go down there and take all those nice new recruits off of the blocks, but it is important information.

MR. PUGLIESE: It is critical information with that we're talking about in terms of really trying to identify what the connectivity in the system is going to lead to, how the health is if it is dependent on outside regions. They may be things outside the ability for us to affect.

MR. MERRIFIELD: One thing that the Deepwater Shrimp people were saying was that I know to get a research vessel out there you have got to reserve it or schedule it way in advance and you have no idea what the current is going to be the day you go out there; but these guys are saying their vessels are available. When they know that the currents are slack or reverse or reduced; you can get out there with short notice as long as you have a tech diver available or whatever. They are short-notice available.

DR. FEDDERN: Has anyone seen oculina spawning out there?

DR. BROOKE: Not out there, no. We know when it spawns, September time.

DR. FEDDERN: They what?

DR. BROOKE: They spawn in August/September time; but we haven't seen it in situ, no. I've seen it in the lab but not in situ.

DR. FEDDERN: It is related to moons or to water changes or current changes?

DR. BROOKE: That is a really good question; not as far as I could tell. The closest thing that I could get a correlation to was day length. Now, remember this is the shallow species as well. It is not a true deep-sea species, so there is light down there.

DR. FEDDERN: If it is water current changes, it could explain many of the distribution patterns.

DR. BROOKE: That is a good point; and that is the problem with not seeing it in situ; you've put the animals in an artificial situation. It may be that they're responding to currents now. These are broad cast spawners, which means that male and female releases eggs and sperm. It doesn't really behoove them to do it in a strong current, because things get washed away.

DR. FEDDERN: Is it spawn or spores; is it male and female? It is not actually spores like some of the other corals?

DR. BROOKE: No, there is a female colony releases eggs, male colony releases sperm and they join in the water column.

MR. PUGLIESE: Moving on; what and where are the major habitat types in the Oculina Experimental Closed Area? This gets into completing high-definition bathymetric mapping within the experimental closed areas and adjacent habitats; the coral zones, the soft bottom habitats, and other known areas of hard coral north. This is also highlighted with the upcoming work that is going to be done.

I think we've got some multibeam already existing in the area; the opportunity to use the backscatter from that information, as well as the new information, the sampling. We'll get to hopefully the opportunity to refine the characteristics of the complexity of habitats from coral bioherms, soft and hard structure habitats within the area, as well as the species associated with those different habitats.

That is the intent with what is going on; and anything else that can be accomplished beyond that is going to add to that characterization. The follow up is the same, again complete characterization of the system. Now the same thing; a lot is reliant on what we have coming up. It is somewhat of a shame, because really a lot of this was supposed to be done not ten years ago but 20 years ago. We're getting there, but forcing it now I think at this point.

DR. BROOKE: What is the resolution on that multibeam? It is the Pisces, isn't it, that is going to be doing it?

DR. PUGLIESE: The Pisces; I want to think it is 30 meters; it is not the highest. You are not going to get the AUV type of resolution in maybe 30 meters, but we can go back and look exactly what that it is. It is high resolution. Some of those are you can get down and zoom in fairly well. They are some of the higher resolutions relative to, say, what was done with the Nancy Foster.

That was really kind of using some of the more almost archaic ones relative to what you've got now. But ultimately what you would really like to do is not only this, but then bring in an AUV that has like the Eagle Ray and beyond. Eagle Ray is antiquated; some of the newest systems are meter resolution or even smaller than that.

That in combination with the acoustics is what is even – you combine these things and you start getting stuff without having to ever see anything; that gives you as good as photographs as you can get. I think that was one thing that we had talked about long term in terms of the mapping efforts is having something that would give you the broader mapping scales and then have deployed.

I think in this situation what would be ideal is to not only complete the mapping with the Pisces or associated vessels, but then have targeted AUV efforts on Jeff's and Chapman's that get you not only those locations, but it would do that thing where you could actually be able to get that high resolution.

You would be able to identify those locations of the rest of those reef ball systems. I think there is some opportunity to couple interconnect into some of the work that this is going to build on, but then maybe expand and get even more targeted areas. I think that is going to be critical.

MS. PUGLISE: It says here that Pisces is two parts; the bathymetry is the ME70 multibeam system; and the fisheries data is from the EK60 split-beam system.

MR. PUGLIESE: Moving on; what are the magnitude and causes of change in habitat structure and functionality over time? Again, this is not something that has been the determining causes in timing of coral death; all the discussion we've had on the coral rubble zone existence and what their origin is.

The reality is – and I think Clark got to the crux of this – is that the opportunities to dive have been right on the known systems. I think it is a good statement to say that at least in structure and form it looks as if those are fairly stable. That says a lot for what we know, but it doesn't get to the fact that we've only sampled about 0.1 percent of the Bank System.

I think there is probably a lot more census, especially with the implementation of these closure areas that I think is going to be really interesting as we get further into getting other resources to go beyond here and identify untouched, low-relief habitats. All these different types of habitats are combining to make this system functional for the fish resources that we're interested in understanding, too.

One last comment about the rubble zone issues; I think some of this has come up – John had identified some of that in our earlier discussion about the characterization of the transition from the pinnacles into the rubble zone and into the system and how those do serve as significant habitats for a number of different species that are feeding or moving through that system.

They do have – and further characterization I think is going to be really important to understand how those do function in the system. How do oceanographic conditions and episodic events affect production, condition reproduction; again this is cross-walking between different things, especially with we're talking about in the beginning about the opportunities; a couple different

things, the ability to monitor this. Of course, it would be great if we had landers placed all over the different places. We tried to do it and had some issues with that and we almost never retrieved it.

But I think given the technology changes that happened since that point in time; I think that is still a real possibility for the system. It may be the most significant possibility because of the depth and the ability to look at it across all seasons. Again, it could also be tied into this issue of looking at episodic events; the fact that we are seeing significant upwelling more frequently, and the ability to ultimately predict or monitor or identify how it is connected to drop-offs in fish catch, on shrimp catch, on recruitment, et cetera.

DR. ALEXANDER: I just want to mention that my very first research cruise as a graduate student back in, good Lord, 1983, was on the HEBBLE project, the High Energy Benthic Boundary Layer Experiment funded by O&R up off Nova Scotia on the Continental Rise; and it was all about benthic storms.

There is a lot of history of development of instrumentation to monitor these things, and there is a lot of knowledge about, at least in the deep sea, these kinds of activities. I think if you are interested in looking at benthic storm activity, there is a lot of work that has already been done that we could leverage very well, if that is somewhere that people wanted to put research dollars.

MR. PUGLIESE: I think the dynamics of this system definitely would be worth looking into, especially if a lot of the foundation work to be able to understand, describe, and characterize is there. Again, this technology; I'm sure the technology to be able to monitor that is probably a lot more efficient and a lot more accessible and probably a heck of a lot cheaper.

DR. ALEXANDER: There might be a tie-in with ocean energy, because certainly I know there are some thoughts to putting submerged turbans down, maybe not in this specific area that we're talking about right now; but in terms of getting time series information about upwelling events and current pulses and all those sorts of things, there might be a way to tie in with ocean energy activities or data-gathering efforts for this.

MR. PUGLIESE: I think that is a real good point, because the work that is being done has been highlighted through, say, SECOORA and the partners in SECOORA, I guess it is FIT's work off of Fort Lauderdale. Well, it is the placement of the test beds on the edge of the Deepwater Stetson-Miami Terrace Area; but the opportunity to tap in and see if as part of that system they are looking at some of these types of issues; if not then highlight the opportunity that does exist to be able to look at that and then relate it to maybe areas to the north.

Those are only test beds. The intent is that those types of systems – and I think that gets lost in some of this discussion – those types of systems are being looked at a broader case; and if they do, that current that they are capturing on that edge is exactly what is coming right over top of the Oculina Bank.

MS. BROOKE: These benthic hydrodynamic conditions I think if we can get a handle on it would be really interesting, because the corals themselves change those conditions. They create turbulence. One of my unwavering hypotheses I've never been able to test is that when these banks were formed. it was a long time ago.

Thousands of years ago sea level was different. Now you know sea levels, they are in deeper depths than they were back then. The current conditions may be different; and these larvae that are trying to settle, they don't have the structure to settle on. It is a very sort of aggressive habitat right down there in the rubble zone.

I guess what I am trying to say is that the conditions now may not be suitable in those rubble zones for larval recruitment. It would be interesting to look at a place like Jeff's and Chapman's versus a place that used to have coral and doesn't anymore and look at the benthic boundary conditions and see what difference the coral being there made to the hydrodynamics and in turn whether that might be affecting or inhibiting recruitment.

DR. ALEXANDER: I just do want to point out that if we're talking about coral features that are a few thousand years old; the conditions that they are experiencing now aren't that different. Sea level is within a couple of meters at best over the last 4,000 years of where it –

(Inaudible remark)

DR. ALEXANDER: Oh, okay, I thought you were saying a few thousand years, sorry.

DR. FEDDERN: Of course, if these bioherms are a few thousand years old, the currents may have been different back then because sea level was different and that could have affected the course of the currents.

MR. PUGLIESE: One of the connected – it talked about upwelling episodic, but also design and restoration. I think one of the opportunities that have been identified – and that is to some degree what the test with the reef balls – was opportunities for enhancement or being able to seed and see some development within the system.

I think it gets to that whole point of the rubble zone being dynamic enough that it is not able to have structure. You've lost the original structure of the coral for settlement. If you can supplement or add to that – and I think the investigation on small structures, it may involve larger structures to be able to do something.

I think that is still on the table. The cost associated with some of these things may be great, but if you are looking at reef ball types of thing, especially if you can go back and document and show pretty significant effort; especially if the ones that are clustered together and combined have fairly prolific systems, that may really provide an opportunity to go beyond what originally was discussed for restoration in the area.

DR. FEDDERN: One question; I assume the shape of the reef ball was spherical? Thinking that the reef balls might be shifted by storms, maybe it would be a better idea to shape them into a pyramid.

MR. BLAIR: They are half domes, essentially.

DR. FEDDERN: Half domes; okay.

MR. BLAIR: They are not round. Did they have a platform on them or are they open-bottom?

MS. BROOKE: They are open-bottomed, I think. Yes, I think they are open-bottom. It was a while ago now; but they have holes through them so there is flow through them. They are not just a solid mass sitting there.

MR. BLAIR: Right, it minimizes the drag on them.

MS. BROOKE: Yes. With the expense of doing this; restoration isn't going to be done over the entire area. It is just prohibitive, but this was a test to see whether putting habitat out there would even work, which is why it is so disappointing that we cannot find them. Until we've got some results from that either to the positive or the negative, we can't really move forward. We can't justify moving forward.

DR. VOSS: If ultimately the reef balls are not relocated and we make the supposition that they somehow then moved either through various different forces or rolled down the slope; another option would be aero jack kind of structures versus just reef balls that could potentially have better petition-holding capabilities.

DR. BROOKE: We put these reef balls quite far north of where Jeff's and Chapman's are. What I think the next step, should we choose to try again, would be to put bigger structures just north of Jeff's and Chapman's; sort of within spitting distance, a few hundred meters, because we are seeing recruitment on the ones that are right next door. Intuitively it seems, well, let's take a little step further north or around them and see what that does for us.

MR. PUGLIESE: On that. I think the last had to do with what we've already discussed, the identifying and characterizing the impacts of the anthropogenic sources of pollution, nutrients and sediment. We've kind of walked down that road a whole bunch of times already today. That is pretty much everything that is included in the review and comments and status that we have at this point.

I think there have been a lot of good comments on what else needs to be done or reorientation of prioritization opportunities. We are looking a lot to some of the work that is going to be done in 2014 through '16 to really add into the knowledge of this entire Oculina Experimental Closed Area, both on habitat, coral, and fish distribution and characterization.

The opportunities that have been identified beyond that to characterize more fully the oceanographic, the coral itself and the changes in technology that are really available; and the need to go beyond some of the technology we have now and go back to being able to dive in this area and being able to get to actually seeing some of the areas and collecting in some of the areas is going to be critical in the long term. With that; that is all I had to do in terms of presenting and open it up for any general discussion on where we are.

MR. BLAIR: Are there any general comments at this point?

DR. VOSS: I do have one thing to add relative to – there was a question about resolution of multibeam for the upcoming likely Pisces missions. The ME70 should be around a quarter meter or less resolution so it could potentially identify individual mounds.

MR. BLAIR: I had a question, Roger. Since there is a lot of reference to the upcoming grant and so forth; and everybody hopefully has had the opportunity to be able to look over the proposal that is included in your briefing materials; one of the questions – I know that there is time and criterion and so forth, but what is the target for actual on-water time or is there a target for the on-water time necessary to be able to get the multibeam data and so forth? In other words are you going to have a window? Obviously, you are going to have a window, but what is the anticipated duration that you hope to have to be able to gather the mapping and characterization information?

MR. PUGLIESE: I'll go back and look at actually the exact timing, but I think it is going to line up with what the cruise timeframe has been; the last timeframe of the Pisces that was used. It is going to be in the June/July timeframe; somewhere within that window. We'll assume it is going to be the same length for each one of these years to be able to both deploy ROV and do the mapping. I think it is around – I don't know if Gregg remembers looking at it – around a week in terms of the deployment, a week to ten days deployment of the vessel.

MR. WAUGH: Yes; in the grant on Page 15, it shows the project schedule, and each year they show collecting ROV and multibeam data in July. We had some discussion about this yesterday; this would actually begin in July 2015.

DR. BROOKE: Given that you've got the – hopefully, fingers crossed – got the assets; is there a potential for doing things on top of what the project outline is like deploying equipment or making collections? They might be able to modify the ROV. I'm not sure what the payload is of the little Mohawk; but since we've got the core there, can we hang things on it, do you think, or do you think that is just going to compromise the objectives in the proposal?

MR. PUGLIESE: I don't think it's going to compromise it. I think that is something we can investigate. If there are opportunities, this is something that we play the game with some of the fishery-independent survey work. As long as it is not going to affect the timeframes to be able to accomplish the rest of the collection efforts, then that may be something; especially if you were talking about modification of the equipment; if there is a way to modify the existing ROV to collect other information.

I think it is going to be collecting as much as it can in terms of at least environmental as well as imagery, et cetera, but the opportunity maybe to bring other assets on the vessel; sometimes that adds in. You're already doing the multibeam so we do have some of that already added in. The fish; a lot of that work is actually going to be done after the fact, once they have to analyze and review the video work. I would think there is definitely an opportunity to figure out how to do it, as long as, like you said, you're not going to affect time. What it comes down to is affecting the time so you don't affect the sequence.

DR. VOSS: When this proposal was written, it was still uncertain whether or not the collection skid was going to be built in time for the Mohawk. We now know that it will be. It is scheduled to be completed on June 30th of this year, installed and tested of July of this year. That collection tool skid on the front of the Mohawk would be available, for sure, by July 2015. That would be some capabilities for additional sampling; but again it gets back to the time issue. Every time you sit down to take a sample, you are not mapping or you are not characterizing habitat.

DR. BROOKE: What about capabilities for collecting environmental data; what does it have for that?

DR. VOSS: I will have to get back to you on that. I know it has a standard CTD. There was a DO probe planned. We had discussed a PH probe as well, but I don't know how far that discussion has gone, and if the PH probe has been installed yet; but it is a priority of all the user groups for that ROV. I know they are going to try to make that happen.

I believe it can carry two Niskin bottles currently, the way it is configured. What I don't know is whether or not you compromise the water sampling ability if you put the new collection sled on the front. I don't know if you have to lose the Niskin bottles to get the collection sled.

MR. BLAIR: Okay; any other comments at this time? Obviously; there is the information and so forth presented. Even though there appears to be a fair amount of information that is still needed and desired; I think that the importance of being able to concentrate and focus on obtaining as much of the information as possible is more important now than it has been even in the past.

As more time goes on, the ability to be able to better understand and initially even just characterize the areas in a more complete manner to understand the area, let alone the basic information needs we have for physiological responses and so forth of the organisms and community dynamics continues to be of very high importance.

We are looking forward to the upcoming grant and information coming out in the next three years and think that will go a long way obviously in being able to address a number of these outstanding concerns. I think we all need to collectively kind of be aware of opportunities that would provide us to gain information that is incremental towards the overall goals.

Obviously, the mapping and characterization is a big chunk, it is a big block, but there are a lot of small stones that we can cobble together to be able to make a big block eventually. Collectively we need to be assisting in the manner of being able to identify when those opportunities come along in our own programs. We obviously would request that the council continue to be diligent in working to be able to obtain necessary opportunities and funds for being able to continue the research and assessment plan and programming.

MS. PUGLISE: Would it be helpful if we prioritized the items that are not going to be accomplished in our '14 through '16 NOAA grant so that if money does become available, these would be what we would consider the higher priorities to accomplish outside of that?

MR. BLAIR: I think that would be very good if we could come up with a list of priorities, as you said, outside those that we know are going to be addressed, because we will have to see how that outcome comes. But in the prioritization, we may also want to consider some relative level of – ease is the wrong term – but if these are things that are thought that could be accomplished versus things that are going to require either too many resources to do, but still have that priority.

MS. PUGLISE: Some of these things, while they are important, they are not as important as other things. Some of them would be – you know, if we had enough money, we would want to know these things, but the reality is we might never reach that level of funding.

MR. BLAIR: I think that is an excellent idea and definitely something we want to do. I would be open to how you would like to approach that; and by that I mean do we want to go quickly back through the matrix to look at that or are there explicit ideas that you already have in mind that we would like to list as some of those higher priority projects?

MS. PUGLISE: I would say it is probably easiest to just go back quickly through them and kind of give them a high, medium, low, because I don't think anybody could say that this one item is higher than every until we get all the highest together; but I think we definitely could do a quick high, medium, low.

DR. BROOKE: Yes; I think that is a really good idea. Maybe in addition, as we're going through, we can give it a tractability rating or something like this, so that when we've got the priorities together we might be able to go back through and say, well, this wasn't necessarily a high priority but it would be really easy to collect the samples for it if we were out there; that kind of concept.

MR. BLAIR: Kind of realistic ease of completion; or probability of completion, easy, moderate, hard?

MS. PUGLISE: Possibly something like, I don't know, a piggyback notation that this is something that could be easily collected while you're collecting Objective 3A or something like that. The question is do we want to do it before lunch or after lunch, because we're at the golden hour.

MR. BLAIR: I'll go with the will of the group. This can be something that is an hour to longer, depending on how deep we get in the weeds. Do we want to break for lunch and come back? All in favor raise your hand; hands have it. The alternative would be to work through now until we get it done, which may be anywhere from 30 minutes to an hour and a half to two hours, depending on what we do. Then we're done; this is it. If you would rather stick to and run through, we can do that. That is up to you.

MS. PUGLISE: I believe Roger was going to give us a brief update on enforcement, which we have not gotten yet.

MR. BLAIR: We have other things. Mike, you had a comment you wanted to make?

MR. MERRIFIELD: I was just going to say that I didn't realize this meeting was going to be all day today so I have an earlier flight. After lunch, I won't be here; so if there are any other questions regarding Deepwater Shrimp APs comments, we can take those now or you can e-mail me; but I won't be here this afternoon.

MR. BLAIR: If we actually start going through this, it may be something that we are able to handle in a relatively reasonable amount of time. The idea is this and a couple five- or ten-minute updates following is what we have yet to accomplish. If it is the will of the group to go ahead and push through this to get done, we can go ahead and get done.

MR. PUGLIESE: I don't think we need to reiterate all of those detailed descriptions. I think a lot of that we're going to capture after here in terms of comments and recommendations since this prioritization ties back directly to what you've already stated I guess in here.

DR. VOSS: I guess that is my question; are we just going to go through and vote high, medium, low on each one of these or are we going to have further discussion? If we're just going to go through and vote, that is just as easily accomplished by everyone submitting an Excel sheet with their votes on it and collating them.

MS. PUGLISE: What we could do is we could all sit right now and do our prioritization list, and they could collate them together so we could see where we have differences, rather than calling out each one or we could write them down really quickly as you go through them. It is up to you.

MR. BLAIR: If we want to do that; do we have either of the other two enforcement aspects? Have you heard from Jenny to get the rest of the information that you needed?

MR. WAUGH: Yes, I've got here information.

MR. BLAIR: I'm thinking of the fact that if we hear those two presentations, then this can become the rest of our work for the day to get back to them; and it is more as a follow up to the meeting; the meeting itself can terminate, if that is the way that we could work it. Then we can spend the time necessary before and after lunch for that.

MS. PUGLISE: Well, my only concern was whether or not we wanted to have discussion on what our prioritizations are; because I have a feeling that we're going to come up with some varieties depending on people's backgrounds.

MR. BLAIR: If we're going to do that, I would suggest we go quickly point by point. It would be easiest to go ahead and do it that way; and that way everybody will be on the same point, if there is discussion to be able to do it, and we can track through it.

MS. PUGLISE: Okay, the real question then is whether or not we want to do the enforcement part before one of our members leave or if this is more important to do this now.

MR. PUGLIESE: If you are going to accomplish this, I think you ought to probably just go through this. The law enforcement discussion, we've heard the comments already from them and the concerns from the Deepwater Shrimp. I'm not sure how far you all are going to go other than you really get the update. They got the update and Gregg reviewed their comments and recommendations and thoughts about enforcement relative to the area.

I think if everybody has had an opportunity to look at the presentation; essentially what I was going to do was just highlight some of the things in the presentation. That is where the details really are. The summary didn't capture those. I think there is going to be work afterwards where we collapse those types of detailed information into the ultimate report.

MR. BLAIR: Mike, if you have to bug out now; the idea is just, as Kimberly said, you can do your prioritization aspects of it, your thoughts and submit them, and we will get them compiled into the overall group.

DR. FEDDERN: It is just that it is going to be difficult to prioritize these. It would be a good idea if we could have a little printout for each one of us; then after the discussion we can say one, two, three, and four.

MR. BLAIR: I believe the aspect is to kind of go through on a consensus graph here and Roger will be capturing them as we go along. We'll be working pretty much off the screen. Discussion is necessary; but as we've gone through this, hopefully this is something that we can look at. We are going to be looking at trying to comment on three points.

First, what a priority level is for that item in general. I would say if it is a low priority, we probably don't have to worry about the other two at this point. If we find it to be a medium or a high priority, then we can consider what the – I was using completion probability, in other words, how realistic it is that it could actually get accomplished. We'll use the next assessment will be, what, another ten years, five years?

MR. WAUGH: The council is going to have to determine that.

MR. BLAIR: It is not established at this time; but it was a ten year assessment the prior.

MR. WAUGH: With a three-year interim review.

MR. BLAIR: Three-year interim review.

MR. WAUGH: I would suspect they would want to have something more than a ten year.

MR. BLAIR: Let's do a three- to five-year timeframe for probability of completion as far as making it something that we think that has a high, low, or no probability. Again, if its priority is low, I don't think we have to worry about the other aspects. Let's concentrate on medium and high; high, absolutely; medium we can get back to if we have to if we find that we can't come to an agreement for it.

MS. PUGLISE: Is the three- to five-year probability if we have money? That is what needs to be done.

MR. BLAIR: I think that is part of the probability of completion that I'm thinking of is the idea that this is something that there reasonably may be – the funding amounts probably have a level that it is available or possible through other means than necessarily the strict NOAA grants that are going to be done, and that is reasonable for technology and everything else to be able to do it. If we're talking about lab-based systems, for the most part it may be more reasonable for something to get accomplished or not. We may only have a couple high priority items out of here at the most.

DR. VOSS: We should also keep in mind that identifying some of these objectives is high priority even if we don't yet currently recognize the cost structure in place to support them can help those of us who are writing the grants to justify why it is an important endeavor.

MR. BLAIR: Exactly. It is okay to have something high with low probability of completion, but again as Josh pointed out that is very important to be able to have the documentation that it is a high priority item that may be able to help obtain funds for it. Okay, we'll start with Objective 1.

DR. GILLIAM: Are we prioritizing these based upon how they are written in this document now or do we have latitude to change these objectives a little bit?

MR. BLAIR: I think if we have suggestions on the change of the objective itself, that is a different comment period or that is a different thing. I think that is open, but I don't think that that is what we're looking to – I guess it would be that if you want to have it, that it would be a note that we can make; but I think at this point we're looking at the present status of that objective, as to whether the need for either additional information or completion is a high, medium, or low priority relative to the assessment report or assessment needs.

Then if it is a high priority or medium priority, whether we think that it is something that can be reasonably accomplished within a three- to five-year period; and as noted, whether or not there is a sense that there may be ability to be able to dovetail ships of opportunity and other aspects to be able to – or dovetailing onto other projects to allow those better opportunities for completion.

DR. VOSS: We should also probably make a note on which of these objectives are dependent upon the completion of others. For example, in Objective 1 that we're looking at right now, it is about comparing recruitment to artificial substrate versus that to unconsolidated coral rubble. That presupposes that we have some information on recruitment on consolidated coral rubble, which is kind of a separate objective further down here in our list. To the extent that those links are present, we need to make sure we identify them.

MR. BLAIR: Languages and prerequisites, okay.

DR. ALEXANDER: Would one approach then be that if you have prerequisites, it automatically becomes a second priority and that prerequisite data becomes the first priority?

MR. BLAIR: Not necessarily. Part of the thing that we're trying to think about to a certain degree here is what information is important to have? Some of that information is going to be easier than others to get, even though it is not going to provide you the full picture, but it is going to be an incremental element, whether it is something that is needed later or needed now.

Yes, it may end up – and maybe this is what you were going at; if there is a prerequisite for it, it may raise that information that is the prerequisite to a higher priority; but I don't think that should mean if there is a prerequisite necessary for a given item, it should therefore be medium or low.

DR. BROOKE: Can we give this a try with the first one and see what the hiccups are?

MR. BLAIR: Yes, we've got to jump in.

DR. BROOKE: Okay, I would put this as a high priority. Then again this is open for discussion, of course, because figuring out whether this ecosystem is going to come back in my mind is very important. Probability of completion; I think using vessels of opportunity we could put the new series of restoration modules out there. In that respect, I think that part of it could be completed.

The assessment part I think is a much longer-term thing. Probability of completion within three to five years would be, yes, we could put them out there and we couldn't necessarily assess them thoroughly. I don't think that would be dependent on any of the other objectives; but it could link to some of the other objectives, and I can't remember what they all are. That is my two cents on the first shot.

MS. PUGLISE: Would you say, though, that there is a higher probability of maybe recovering the concrete blocks versus going and tracking down the reef balls?

DR. BROOKE: Yes, we know where the blocks are. We have no idea where the reef balls have wandered off to. However, one linkage would be if that multibeam on the Pisces could find out where the reef balls are, even indications of, and if you could put the ROV down there to take a look at them; that would be gold in terms of data.

MS. PUGLISE: In my opinion it would be a higher priority to recover some of the concrete blocks, because we already know that there is recruitment that has occurred on them. Then we have a relative probability of success in recovering them.

DR. BROOKE: I'm not sure if we need to recover them, but we would need to subsample them, yes, sample some of the corals off of them.

MR. BLAIR: Assess their status.

DR. BROOKE: Assess them, yes.

MR. BLAIR: Okay; any other comments on that?

DR. GILLIAM: This is where I'm struggling in terms of I think that looking at recruitment pathways and settlement and growth and survival rates is important; and I would think that there would be a way to do that without deploying more material. I am struggling with deploying material in this environment in terms of artificial substrates.

I think that it is a high priority to look at these processes; but without designing a research project right here and there; identifying these processes and understanding them is a priority, I just don't know exactly how to get to it sitting here right now. I don't know if the cost of deploying more material is what I'm struggling with.

DR. BROOKE: I'm looking at that one, and that specifically talks about human intervention. I agree with you, Dave, if that is the question.

MR. BLAIR: I think we're trying to work on Objective 1.

MS. PUGLISE: The screen doesn't show Objective 1, it is underneath it. It is showing the question that Objective 1 falls under.

MR. BLAIR: Objective 1 is identify coral fish recruitment pathways and compare settlement, growth and survival rates on artificial substrate relative to settlement, growth and survival rates on nearby unconsolidated coral rubble. I thought all the conversation made perfect sense to me, because it was talking about reassessment of the artificial reef materials that are presently down there.

I think Sandra had made a comment that after Kimberly's aspect about it may not be so much deploying new material as opposed to being able to be out there to reassess artificial reef materials that are there and the settlement on them. Relative to that; that is where the ranking or my impression of the ranking of the high priority came to and ability to potentially use vessels of opportunities to assist in that manner with a, say, moderate completion probability.

DR. BROOKE: Yes; I am with Dave. This is a little tangential, but just to clarify, I don't agree with just chucking stuff out there for the sake of it. If we could find those reef balls that we put out there, that would be the best case scenario so that we get some information back from the work that we've already done.

If we cannot find them, then the only way to address this, apart from the few blocks that are right next to Jeff's Reef, which gives us information but it doesn't really tell us whether we can get recruitment onto those really severely damaged areas; and the only way we're going to be able to get to that question is to put bigger blocks out there that we know that we can find. That is kind of the framework for what I was saying. But just to back up, seeing the reef balls and assessing those would be the best case scenario. I don't know if that helps at all.

DR. VOSS: I have another comment on that. The other things to keep in mind about this particular objective is that if we do revisit either the large stone blocks or the reef balls and identify recruits; that potentially sampling those recruits would directly link to question three, Objectives 1 and 2, which is research on population genetics and potential cross-shelf relationships between shallow and deep oculina.

MR. BLAIR: Yes; I think we're going to find everything is interlinked. I think that is going to be – very few totally stand alone. Okay, Objective 2 is model biophysical, chemical and physiological characteristics. Previous studies have shown that the benthic environment of the Oculina Reefs to be very dynamic and widely fluctuating due to upwelling events and meandering of the Florida current.

This is I think one of those aspects that might be some of the incremental aspects of it where we may be able to gather certain levels of information that can contribute to it, but not necessarily bite off the whole thing; so ability to be able to use vessels of opportunity or something of that sort to be able to gather CTD-type data on a regular basis through the area is something that would work and help towards this; but it wouldn't necessarily complete the objective.

DR. VOSS: Just a point of clarification; the objective is not to measure any of these characteristics, it is to model them.

MR. BLAIR: I understand, but in order to model you need the data.

DR. VOSS: I agree; and to my mind then this objective is a relatively low priority until those measurements are made.

MR. BLAIR: Okay, understood.

MS. PUGLISE: The only issue with going that route is that if these people are truly, actively seeking grant-funding opportunities; we wouldn't want to put it as a low priority, because to a funder that would say, well, it is a low priority to the council, why should we fund this?

MR. BLAIR: I think we have to avoid having everything as a high priority eventually, but the idea of a high priority but low probability due to lack of supportive information to be able to develop models; so the priority is on the data-gathering and not on the model development at this time. To that end, the idea of having it that it is a priority; to have the models developed you need the data, and work towards that way, but it is kind of going to look weird in here that we want it as a high priority when we don't have the information to be able to do that.

DR. ALEXANDER: I just want to agree with Josh that the modeling is certainly a lower priority than actually getting some data you can actually use to validate your model. I understand your comment about not wanting to discourage any activities that are going to help support the efforts that we are all interested in; but at some point you do have to choose I think and you have to decide what you are going to put your weight behind.

DR. VOSS: The final point I would make is that model development and measuring of any of these parameters is going to be iterative; that as the models develop, that will better inform what we decide to measure going forward. We're talking about them as kind of one depends on the other, but in fact they both depend on one another.

DR. ALEXANDER: I would just like to follow up that the most successful models are actually planned ahead of time; working between the people that are going to collect the information so that the models are based on that information. I've seen a lot of disconnects over the years where models decide what they want to use and it is not data that is readily available or easily collected.

MR. BLAIR: We also had discussions earlier when we went over this about talking about the varied data elements that are available more from not necessarily explicitly maybe on the OECA but on the surrounding areas so that the model may be able to be developed for the region and refined as other data come into play.

I think some of that depends, as it is stated in here, the aspects of probability that we're talking about ability to dovetail, the ability to be able to bring those monitoring networks and other individuals such as FAU individuals and HBOI to come in to assist in that element as well. I am open to hear at what priority do you want to have that labeled?

DR. BROOKE: Just a point of clarification here; are we prioritizing these in terms of how the council manages those ecosystems or just whether we think it is important information to have? I would assume the former.

MR. BLAIR: I think that it is a little bit of both, because I think we're actually trying to look in this aspect of what are some of the things that may be able to be concentrated to give information resources that are needed in the near term. I mean, obviously everything that is in here is a high level of importance to the research and monitoring assessment plan or else it wouldn't be in here to begin with. But relative to a kind of three-year scope type of an idea, what are our opportunities to be able to support and provide or where do we want to be looking to be able to provide additional information to support this overall effort?

MS. PUGLISE: Maybe we get around this, because otherwise we'll never be able to vote anything low, is we put a disclaimer at the top that all of these in our opinion are high priority. However, in the next three to five years some are higher priority than others; some sort of statement like that so that folks can use that.

MR. BLAIR: I think the intent here is to be able to identify those things that we think may be able to get accomplished. The level of significance is part of those things that are high. The idea is we're looking at where we think these information resources can be developed in the next three to five years. It is not that these are the most important things in the plan to us; but this is more of an ability to be able to execute some of these components to be able to help the overall plan.

MS. PUGLISE: I'm fine with that. I think if we put a statement in there, then it won't discourage people who choose to maybe pick some of the other items that were not a high priority to get done in three to five years or had a high probability of being able to be done in three to five years.

MR. BLAIR: For the actual aspect it sounds like the modeling would be a high priority, but it is probably a low probability that it be completed in three to five years.

DR. GILLIAM: That is my vote.

MS. PUGLISE: Yes; I would have said it was a low priority, actually, but low priority.

MR. BLAIR: Low or high? Let's just see if we can go through it. How many people are for the high? Low? Low probability, low priority for the aspect of seeking opportunities to be able to provide data to support the overall goals and mission to Number 2, Objective 1.

Okay assess spawning aggregations of fisheries. This one, the fishery aspects of it; are there matters that we think could provide information in that period of time? I know there have been some side discussions and general discussions about deployment of acoustical rays and so forth. Is that deemed a feasible aspect to consider in the short term to be able to assist towards this or other means?

DR. BROOKE: I think this is quite tractable if we get the funding. The Marine Fisheries Initiative is a possible funding route. The Cooperative Research Program is another potential funding route. I think if the right people put their brains together and focused on this, then I think it is tractable, personally.

DR. GILLIAM: This is a Coral Panel, right; so how does making grouper spawning aggregations a high priority if one of our tasks is to sustain, conserve, and protect the coral?

MR. BLAIR: Because this is the assessment of the Oculina Experimental Closed Area, which is a mosaic of habitats that has protective and conservation uses across the realm of multiple fisheries. The plan itself is to assess how it affects all those fisheries and not just the coral protection.

DR. GILLIAM: Right; so if we identify spawning aggregations within the closed area, that is used to support keeping the closed area closed; is that correct?

MR. BLAIR: Well, it is used to be able to identify that these are important for those species as spawning areas.

DR. GILLIAM: What happens with the alternative? What happens if effort is put forth to try to identify these as spawning areas and they aren't identified?

MR. BLAIR: We'll deal with that to the extent that whether it is not identified because they are not spawning areas or not identified because we haven't been able to be there at the right time. It is a needed aspect. We are trying to document what the benefits of the Oculina Experimental Closed Area and the HAPCs are. Some of them are coral-based, but the Oculina Experimental Closed Area, per se, is one that is explicitly for these multiple species, and we have to be able to address the complex and not just a specific group.

MR. PUGLIESE: To that; the connection I think, number one, you know that spawning did occur within these areas. The other side is the fact that, yes, you are coral, but you are supporting the Coral Reef Live Hardbottom Fishery Management Plan, which those habitats serve as essential fish habitat for managed species.

I think there is a connection also with that back connection of the habitat serving as a significant function for sustaining the managed species, also; so That kind of cross-walk between the habitat that is covered under this oversight by this group, but also by the plan and its connection back into managed fish species also.

MR. MERRIFIELD: That kind of gets into what Deepwater Shrimp is talking about and saying that the eastern one-third of that OECA is in 110 meters and deeper is all sand bottom. That's why we're saying what is there that validates that closure? I don't know; does that fit into this argument?

MR. BLAIR: Well, I think that is part of the overall purpose of the assessment that we're looking at and being able to give that information as to what the benefits and/or importance of those areas are to that complex of species and the habitats that we're involved with, yes.

DR. ALEXANDER: Following up on his comment; It seems to me the importance for spawning gag aggregations and things like that is much more a Habitat Advisory Panel question, and they can make it a higher priority. But, if we're looking at this particularly as a Coral Advisory Panel; it would seem to me that the questions about coral propagation, the importance of the structure of

the corals or the redevelopment of coral extent is the kinds of questions that we should be making our highest priorities.

Even though all these other things do play into showing the importance of the coral habitats; but again there is that word "habitat"; It is really a Habitat Advisory Panel question to make this a high priority in terms of other species that use it, because they just care about it as habitat. They don't care if it is coral or not, at least in my opinion.

MR. BLAIR: Again, we're here tasked to be able to assess what the research, monitoring and assessment plan for the Oculina Experimental Closed Area is. I think to do that we have to look at what the purpose of it is and what its goals are. It is beyond just oculina; and so we have to keep that in mind. I think as we go through this, we are trying to be able to look at what we feel might be important pieces to contribute to the puzzle despite which piece that is.

DR. ALEXANDER: I was just hoping that if we focused on the coral aspects of this, that at the end of the day we could come up with a few high priority items that we say these are the things where the money needs to go now to move us forward in understanding these systems.

MS. PUGLISE: Is the Habitat Panel looking at this and prioritizing them?

MR. PUGLIESE: Yes; this wasn't developed at this level. The Habitat Panel has already met, and we looked at information, but a lot of this type of detail was not available. We basically just were looking at the general discussions and presentations that were provided in the review. We did not get to this level of discussion at the last AP meeting.

We do not have one slated until November of this year; I'm not sure where. This is also going forward to the other advisory panels, so you are having input from Snapper Grouper and even from the SSC in the long term. There are other avenues. I understand exactly what both Dave and Clark are highlighting.

Yes, if you have that focus, then you can kind of really get to some critical needs as the highest priorities from this panel. These are going to get to some degree carried in for multiple other reasons because of the nature of what the experimental closed area is put in place for, you know, snapper grouper; but was on top of the core habitat conservation, which is the original Oculina Bank.

MR. BLAIR: Do you think it is a reasonable aspect that we take that perspective then and say that based on the Coral AP's recommendations towards the priorities for oculina coral or do you think the better aspect would be more inclusive in looking at what is most helpful to completion of the assessment?

MR. PUGLIESE: I think I go back to my first statement that the complexity of habitats are connected and covered by the coral, coral reef and live hard-bottom plan. That plan does have connections into as functioning as essential habitat for managed species.

That bridge between those, while habitat does use that across all of these types and will direct and identify those as priorities; I think the fact that plan does have that connection does give the latitude to this group to add this in. If you don't want to identify this as the highest, I think there

is a way to identify it as a moderate priority or a high priority relative to fish; but relative to coral, these are our key areas for coral, coral reef live bottom and characterization of the Bank Area or the closed area and these are the ones that you really need to get after.

I think it is almost a hybrid between the two. I think you can use it to expand how you present that priority, but not lose exactly what I think has been identified as getting that other focus, where you know some of these are going to get high priority from the fish, from the habitat side; what aspects of the functional nature are going to be the highest ones that need to be collected? That is kind of a roundabout answer to your question. I want it all; how about that; put it all high priority. Then we sort out the details.

DR. GILLIAM: In my mind, if the objective of the closed area is to try to conserve what is there and enhance or promote the potential recovery of oculina; then I think this is a low priority. If the objective is to sell the closed area, then this might be a higher priority, because identifying spawning aggregation does not provide us with tangible information on our ability to conserve and/or promote recovery of oculina.

MR. BLAIR: I would say that it does provide an important aspect of the importance of the presence of the oculina and the conservation of the oculina for that purpose. I am having a hard time trying to think about how we are going to be so explicit to a single organism and its definition and importance without looking at its role within the broader habitats and ecosystem.

DR. FEDDERN: However, the oculina, is it providing the basic structure for all the rest of the community? If we don't concentrate on the structure, everything else might be lost.

MR. BLAIR: I don't have a problem with seeing and focusing the Coral AP towards those items that are more directly related to the oculina; but just in the same way that we're looking at discussions of information needs and identification of things that default to low; or, maybe at this point the option would be that we do not comment on anything other than a direct coral-related objective; so that we don't inadvertently put a low or high priority on an object that is of high importance to it, but rather we're doing it from a more parochial perspective, if you will.

DR. ALEXANDER: I thought I had heard already somewhere – I don't remember exactly who mentioned it over here – that we were going to couch whatever statements we made, saying that we think all of these issues are very important; but knowing that there are limited resources, we wanted to prioritize the ones that are most important for the Coral Advisory Panel's purposes. We weren't going to diminish any of these things and their importance, but just make it explicit that we're not looking at things in a broader lens.

DR. BROOKE: I think this is kind of a fuzzy area. I see where you are coming from, Dave, this is not really our area of jurisdiction is figuring out whether fish are important. We were responding to what we were tasked to do, which did involve the fish. If we were to back off from fishes and just focus on corals; I can see Objective 1, 2, and 3 going away and any of the other fish-related objectives.

The question is who else is going to deal with those? I thought we were evaluating the effectiveness of the OECA and how it was functioning, which does involve fish, but it is a gray

area for the corals. I guess that is up to the council to figure out what they want us to be tasked with.

MR. PUGLIESE: I think it does get back to that point – and that is kind of how we opened it up – is this is an Oculina Experimental Closed Area Evaluation Plan; and the only reason that is in place is the actual designation is a snapper grouper designation. That really does have that linkage.

What is the condition of those habitats supporting this action for closure for these species? I think it is kind of reaching back in and it does get into all the other discussions we've had on condition and status of that and how they are connected to that. That is somewhat of the directive we have.

MR. BLAIR: I guess part of it is understanding really how we are looking at this and what we feel. My personal aspect is that we look at this in the broader sense of the experimental closed area and consideration of those things towards the needs for the assessment report; but what is the will of the group?

MS. PUGLISE: We go broader.

DR. BROOKE: I think since we've been tasked with it so far, we should address it; that is my feeling.

MR. BLAIR: The perspective is in showing the level, function, and importance of the Oculina Experimental Closed Area and not explicitly just the aspects of the coral is the way I see it. With that in mind, Objective 1; I think we heard high- high and –

DR. VOSS: High.

MR. BLAIR: Okay, we got high for the importance as well as a probable completion. I think I heard that it was reasonable to put a high at that as well, correct? Do we have any comment for the ability to dovetail on other aspects?

DR. BROOKE: I think with most other research projects I think there is. If we are going to be out there deploying instruments to look at spawning aggregations and maybe in situ cameras, benthic landers; that will feed into some of the other objectives that require environmental information.

MR. BLAIR: Okay, Objective 2; track fish movements.

MS. PUGLISE: I'm going to go out on a limb here. I actually think Objective 2 is maybe a little more important than Objective 1 from the aspect that to show that fish are actually actively using this area and seeing how they are using it would actually be more important than seeing a spawning aggregation. I mean, they are both important, but if I had a choice between the two; I would rather go with Objective 2.

DR. VOSS: Not only that; if you are tracking their fish movements and then in tracking those movements see that they all come together during a certain time; by default you have already addressed Objective 1.

MR. BLAIR: As far as the fish use, I think a lot of that – well, not a lot of it, but there is documentation to show that the fish have used it. Obviously, there is a tie in with the spawning aggregation aspects of it. The importance of utilization in the spawning is in my mind pretty significant. Some of it may be part of the ability of what is the feasibility and is one more reasonable to be able to get to than the other?

DR. VOSS: I'll revisit Dave's question, which would be if we find that they aren't currently aggregating to spawn in this area but they are using it heavily based on tracked fish movements; how do we rank the relative importance of this?

MR. PUGLIESE: I think getting to the broader issue, if it is being used extensively by, say, black sea bass and others that may not be spawning in the area; it is still going to be considered pretty high in essential fish habitat and possibly essential fish habitat area of particular concern; and it is actually right now. The bottom line is it is not all about just spawning.

You've got the issues about being able to track fish. Ultimately we'd like to be able to have really documented cases of where you have tracked the fish into there from pre-spawning into the spawning aggregations and movement; but just understanding fish movement in and outside of closure areas is something that is a pretty significant thing. Again, it is getting further and further away from the habitat connection to the coral connection.

MS. PUGLISE: If I were to rank these. I actually would rank this one high and I would rank Objective 1 as something that would follow automatically underneath this one. If you did 2, then you were going to do 1; but actually implanting tags to track the fish would be more important to me than finding a spawning aggregation.

MR. BLAIR: Would you put Objective 1 as a moderate then – as a medium?

MS. PUGLIESE: Yes.

MR. BLAIR: The first one that had something other than a high; that is a good thing. Is everybody okay with that?

DR. VOSS: The only comment I would make is you can use acoustics fairly effectively to get aggregations; you can't use passive acoustics very effectively to do fish movements.

DR. BROOKE: I think this speaks to the next thing, which is the probability of completion. That would be much more logistically challenging to do, especially bringing animals up from that depth and tagging them and putting out receivers over the area and that kind of thing. It can be done, but I think it is more challenging than looking at –

MR. BLAIR: High priority; low probability, yes? Okay. I'm just going to roll along through these; Objective 3, Oculina Experimental Closed Area fish population demographics.

DR. VOSS: Once again, if you are doing 2; 3 will likely fall under it. If you are using just passive acoustics, you can get relative sizes but perhaps not species. If you actually do tags on everything, you will by default be collecting size demographic data on all of them as you tag them.

DR. ALEXANDER: I don't know if someone mentioned it already, but there is a series of passive acoustic receivers around Cape Canaveral that have been put out I think by BOEM, a cooperative project. There is something like 15 or 20 of them out there extending across the shelf that they have been doing fish surveys with. I think they are going to remain out there.

MR. BLAIR: We are keeping that – that would be essentially the same as Objective 2, high and moderate or medium; is that correct? Both ways?

DR. BROOKE: Yes; I think you may be able to increase the ability to look at the fish demographics because it doesn't just include reef fish. The ROV survey will pick up some of the small – well, the bigger ones as well, but fish isn't just the big managed species. It is the little forage fish and the tropicals and everything else. I think the ROV survey will pick that up. So maybe move that up to a high in terms of logistics.

DR. ALEXANDER: I know the Pisces has one of these fishery acoustic systems. Is anybody going to be using that on these NOAA cruises to look at aggregations or fish species in general?

MR. PUGLIESE: He said, yes, they are going to.

DR. VOSS: It has been identified as a high priority in the proposal as it's written to use both the acoustics as well as the ROV to characterize the fish populations.

MR. BLAIR: Okay, Objective 4; determine pre-closure distribution and dominant harvest species in and outside the reserve areas in order to provide historical context for subsequent assessments, review landings, spillover effects; i.e., identify benthic and juvenile pathways, upwelling events, spillover between deep and shallow reefs. I don't want to be offering all the things here, so I will let someone else come up with what they think.

DR. BROOKE: I would say this was a medium to low just because we know what it used to be. We don't know the details necessarily, but we know there used to be a lot more corals, there used to be a lot more fish. I don't know that has any bearing on how we managed today's situation. I think it is probably more important given limited funding to find out what we've got now rather than emphasize what used to be.

MS. PUGLISE: I would go with a low priority on this one.

DR. VOSS: Agreed; and even in the 2007 report they identified that most of the data was already established. Perhaps it is a bit misrepresentative to have the zero in terms of what has been done there. I think it was one of the priorities that were set with the recognition that much of that work had already been figured out.

MR. BLAIR: As it is a low priority, the other categories we don't have to worry about them. Moving on to 5; determine age, distribution, nursery grounds, migratory patterns and mortality

rates for dominant, harvested fish stocks. Remember, part of this may be important, but we're looking at it in the perspective of things that we might be able to provide significant information on in the near term; so how can we focus our energies to be able to provide incremental information that is useful to the overall assessment?

DR. ALEXANDER: I would say that this is probably a low priority. This is much broader and a bigger question than the closed areas. It is much bigger than all of us.

DR. BROOKE: I would agree.

DR. VOSS: Agreed.

MR. BLAIR: Low it is. Okay, Number 3 which is what is the population structure of corals; and Objective 1, research population genetics of oculina varicosa.

DR. BROOKE: I would say high, too.

DR. GILLIAM: High.

DR. VOSS: Agreed, high.

MS. PUGLISE: High.

MR. BLAIR: Completion probability?

DR. BROOKE: I would say if you are looking at oculina varicosa as a species, we can get that relatively easily. The challenging part is going to be getting it from the OECA and getting it at enough spatial distribution to really address the population structure; but I think it can be done. It is just going to be challenging, so probably a medium to medium high; I don't know.

MS. PUGLISE: If hypothetically speaking we were to pick up or go visit the concrete blocks, we could possibly do some of the sampling in our visitation time.

DR. BROOKE: Yes; that is true, and there is also a wreck up there that is known that we could harvest samples from and there are other known areas that came out from the ROV sampling. If we can get a sampler on the ROV over the next three years, then maybe we could address this question. You don't have to collect them all at once for population genetics. We can build up the samples over a time period; but I think it is tractable and it is important to at least start doing it.

MR. BLAIR: It sounds like, Josh, that it is possible that collection platforms would be available if that submersible could be used for collection in this area; which is two different questions, I realize.

DR. VOSS: Two things; number one, it is not only possible; it is planned and going forward. Number two, it is not that we're potentially adding on something to the three-year plan that wasn't already identified. In the proposal it states fairly explicitly that if the collection capability

is available, they are going to exploit it. The plan is not in addition to; it is already included in that three-year plan.

MR. BLAIR: This would really be more of a high probability of it being able to completed and perfect dovetail into the other as it would be an element of the genetics aspect of it. Is that explicitly stated as a component?

DR. VOSS: I would give it a medium feasibility and logistical probability for a couple reasons. Number one, that platform is still not proven in its ability to effectively collect; and number two, again we don't know much about effective population size. We may go out there and sample 15 oculina and think we've done a great job and then realize they are all clones of one another. Again, we can potentially control for that by making sure we're trying to collect what looked to be individual recruits or individual colonies that recruited individually.

DR. BROOKE: Yes; and also because they are broadcast spawners. If you collect them a certain distance apart, they are not going to be clones. They might have come from the same general location, but they won't be clones.

MR. BLAIR: Okay; so we have high and medium; high priority, medium probability. Ability to dovetail, I guess it is already part of the NOAA grant or could be made if the equipment becomes available, right, is what we're talking about? Number 2; identify cross-shelf relationships between shallow and deep oculina varicosa populations.

DR. VOSS: I think it is high probability and high likelihood. If we can do Objective 1, it is very easy to add on Objective 2 by sampling from nearshore populations.

MR. BLAIR: Any other comments on that?

DR. BROOKE: I agree with that.

MR. BLAIR: Okay; Objective 3; biogeography.

DR. VOSS: Just a clean-up point; can we delete Sandra Brooke, 2008?

MR. BLAIR: Yes, it should be the Eytan, 2009, right?

DR. VOSS: Correct.

MR. BLAIR: Okay, biogeography.

DR. VOSS: Actually, I would appreciate a bit more clarification on what were the goals of biogeography. A big broad statement; you can argue that one and two fall within biogeography studies.

MR. BLAIR: I thought there was a little bit more. Gregg, do you have the 2007 report? I think we have worked through lunch. I think we should either skip this or move on at this point. I am trying to get some background information on it; it is not immediately handy.

DR. ALEXANDER: If you are talking about the broad-scale distribution of these features within the experimental area, it would be a higher priority than doing these detailed analyses, I would think.

MR. BLAIR: From the experimental plan, biogeography is propose the geographic boundaries of species within the oculina. They are not currently well defined. Molecular investigations will help clarify the boundaries and geographic overlap of species within the oculina; D, and provide insight into ecological and functional controls of their distribution. That is what the purpose is to be for that to be geographic boundaries of the species of oculinity within the area.

DR. VOSS: I would argue that the criteria put under biogeography as originally outlined is fairly narrow in terms of biogeography, and they were talking almost explicitly about genetic issues. The only difference between these and Objectives 1 and 2 is that they tended to focus more on beyond just the OECA. To that extent, I think that biogeography simply falls in line with Objectives 1 and 2, and doesn't need a separate ranking.

MS. PUGLISE: I agree with that.

DR. ALEXANDER: I agree as well.

MR. BLAIR: Thank you. Okay, 4; what are the stressors affecting Oculina Experimental Closed Area; Objective 1, identify natural and anthropogenic stressors, disease, gear impacts, poaching and enforcement.

MR. WHIPPLE: I will say high.

MS. PUGLISE: I think it is important; but in the near term I don't know how we would answer the question. I actually would put it at a medium because I don't think it has a high probability of completion.

MR. WHIPPLE: I didn't think we were linking the two in how we're looking at it. We need to identify those independently, right?

MR. BLAIR: For the ranking aspects, you mean? Yes; I was going to make that comment, too. We would like to have them identified separately and try not to join them.

MS. PUGLISE: Something has to be medium.

MR. WHIPPLE: I don't know if it does. I would put everything as a high priority I think in terms of looking at this and then move forward more according to probability and availability of funds, resources, et cetera. If something is a low priority but easily accomplished, what direction does that give you in terms of whether to do it or not?

MR. BLAIR: Right now if it is a low priority, it is not even being considered for whether or not it is easy or not. The idea was hopefully to be able to identify some things that might be able to be accomplished in the reasonable future that will provide appropriate and needed information for the assessment. We understand the fact by default it is of high priority, because it has been identified as an information need for the assessment. We know they are all high priority. Now

we are looking at what we can look at as potentially being able to contribute to the data needed for it in a reasonable period of time that would be fruitful.

DR. ALEXANDER: In one way what the objective says it is to identify natural and anthropogenic stressors. We could do that in ten minutes right now. Really, that objective if it is high priority, it is very achievable. If it is ranking the relative importance of different stressors on the system; that is a whole 'nother question and has another level of difficult to it. I don't know whether you want to change the language here or add it or put a note what really is being asked. I feel we just need some more clarification.

MR. BLAIR: Reading from the plan; identify natural and anthropogenic stressors; i.e. disease, gear impacts, poaching, and enforcement. The approaches to this objective would be interdisciplinary and complicated. Water quality would be an important factor and would include nutrient content, suspended sediment, salinity, dissolved oxygen, temperature, and toxic content. Other factors would be location of the coral colonies. Evidence indicates that habitat quality is not uniform within the Oculina Experimental Closed Area. In concert with suspected stressors, the tolerance limits of the coral to various stressors must be evaluated.

MS. PUGLISE: It sounds to me like the objective should have been to assess natural and anthropogenic stressors; not identify.

MR. BLAIR: I think that we would concur with that; and considering that, how would you now look at the –

DR. BROOKE: I think that is too big a question for us to tractably answer within the timeframe.

DR. VOSS: I also think that some of the things that have been called out here; for example, disease and gear impacts; oculina varicosa is not a coral that is susceptible to many different kinds of coral disease like other corals. The disease rates in oculina that have been reported have been relatively low.

Secondly, gear impacts, if we're talking just about the experimental closed area, gear impacts should be relatively minimal. Poaching enforcement, nutrient or other land-based sources of impacts are separate questions; but this is one for me that within these some may be higher priorities than others; but as a group, I would agree that they are low priority.

MR. BLAIR: I would just like to make the note that we did have – although it wouldn't address it completely; we have discussed potential ability to be able to gather information that may be able to help this; and that those are something where there is a reasonable ability to be able to gather some incremental information that could contribute to this in the long run, and we shouldn't lose that opportunity to do that. But other than that, it has a low priority.

DR. VOSS: I have a question maybe for you, Roger, since we didn't get to the enforcement thing yet. Is there evidence for poaching in this area; is that a source of concern?

MR. PUGLIESE: I think there have been some cases made. We would have to go back and look at the reports that have been provided to the council over time. More recently, I guess they had a pretty significant number of boardings. However, while they may have had some cases,

very few have resulted. I think it has happened. It is not extensive, but it also is connected to how much time they are actually on the water monitoring the area.

DR. ALEXANDER: It sounds like from what you just said, Josh, that most of the things that they list as important parameters to look at or assess are not the major factors; and that water quality and sedimentation are the two things I haven't heard you say are probably relatively unimportant. The other factors that they do list; you seem to have data to support that they are not that important. Do we want to prioritize those two factors in terms of assessment here? We're making comments.

MR. BLAIR: In other words, like high for water quality; low for disease and others.

DR. VOSS: I would agree with that.

DR. ALEXANDER: What about sedimentation? That one is called out specifically; is that one that we want to give a high priority to?

MR. BLAIR: Good segue way. For Objective 2, determine the frequency and severity of sedimentation induced by benthic storms.

DR. ALEXANDER: From my perspective, it is high because I know that is a major impact on corals; but I just don't know how frequent there is any information that it is important out in this region. Can you talk about that?

MR. BLAIR: Just as a little bit of additional background information; the anticipated aspect would be deployment of instrumentation through buoy systems to be able to document at least turbidity type controls. Whether it is sedimentation is another question.

DR. ALEXANDER: I would say that buoy systems are not necessarily the only way to approach this. There is a lot of work that has been done with bottom landers and freely deployed tripods to measure benthic kinds of activities like that that could look at sedimentation and turbidity.

DR. BROOKE: Yes; the benthic lander that we used has sediment traps and turbidity instruments on the bottom; but sedimentation isn't just a result of benthic storms. This is specified benthic storms, but I think we can address this question. If we had the samples, exposing them to different sedimentation regimes is not difficult. Getting the samples is the problem.

MR. BLAIR: That sounds to be part of possibly Objective 3. Maybe the idea again in this type of aspect, 3 may be more the higher priority in determining the sedimentation rates out there and so forth may be a lower priority at this point.

DR. ALEXANDER: I would agree with that; first find out how much is important; and if it is similar to ambient levels, then you need to worry about measuring what is going on out there; but if it has a wide range of tolerance, maybe you don't.

MR. BLAIR: For Objective 2, determining the frequency and severity of the sediment; sedimentation induced by benthic storms relative to this; is that a moderate or low?

DR. ALEXANDER: I would say that it is moderate at this point until you have number three.

MR. BLAIR: Moderate is fine? Okay, Objective 3; identify physiological tolerances of the corals to environmental stressors.

DR. VOSS: Essentially the only way to approach Objective 3 is entirely experimental. Although we're supposed to sort out relative importance versus relative feasibility, I think this is one where feasibility completely trumps importance. It is unlikely to be able to develop experimental procedures for these colonies that are going to allow you to explicitly determine environmental thresholds for each of the corals.

The other way to get to this is through a modeling perspective where you model where coral is and where coral isn't relative to all the environmental parameters from that given area. We've already well identified that we don't know everywhere oculina is and is not; nor do we have the environmental criteria associated with each of those potential places.

DR. BROOKE: Actually I'm curious; why do you think it would be difficult to do the experimental work?

DR. VOSS: If we're talking about the extreme difficulties we're having even collecting the samples, then collecting live intact colonies to bring back to do experiments on to me is a step harder.

DR. BROOKE: Yes; I agree with the collection is going to be hard; but once we get them, they are relatively easy.

MR. BLAIR: From what I've heard and so forth, I would have thought it would have been a high priority and a low probability of completion based on the ability to be able to get the material to be able to test.

DR. BROOKE: If we are separating the two, I think it would be a high priority to understand. Whether we can manage for it is a whole other question; but I think it is important to understand what their tolerances are. If we can get the samples, then it is tractable; but I agree with Josh, it is always getting these things that is going to be the hardest part.

MS. PUGLISE: I do agree that it is a high scientific important question, but I look at what would we actually do with the information on the other end? The reality is to me it is not the highest priority of all these things, because there is not a lot we can do with that information. I think there are things we can do with some of the other information.

DR. VOSS: That's if we're talking about environmental conditions in general. If by environmental stressors, we're also talking about – you know, we've discussed quite a bit about water quality impacts or anthropogenic impacts. Looking at some of those thresholds might be more important. I think there is fairly strong evidence that oculina as a species is fairly robust to a wide range of environmental conditions.

MR. BLAIR: The position of the group for priority and completion; I see a low for priority.

DR. VOSS: It sounds like we're going to split on priorities. How about moderate priority and low probability?

DR. GILLIAM: I agree; moderate and low.

MR. BLAIR: Okay; for Number 5, Objective 1; identify food web structure dynamics.

DR. BROOKE: I would say low and low.

MR. BLAIR: Hearing no objection; Number 6, Objective 1, develop index for coral health, including structural damage, recruitment, genetics, physiology, and life history.

DR. ALEXANDER: I would suggest that those are both low.

MR. BLAIR: Again, as we talked about before, I think that these are aspects that you could call the back-end type of aspects; that they are very good and they are very important, but we need all the front-end information below these things to make them happen in an accurate aspect.

DR. VOSS: Again, I think that if we reframed the idea of quantifying coral health or community health, looking just at some molecular indicators, that these could be fairly easily assessed if we're already collecting corals and coral samples for the population structure objectives in question three above. This is one that I would argue is still important; but not in terms of a gross index but in terms of a more targeted approach.

MS. PUGLISE: I am going to interrupt again with a request. Is there anybody else who is ready to eat lunch, because I'm worried that we're going to start just voting to get it off the table so that we can go eat?

DR. GILLIAM: To reiterate, I think what Josh was saying is as stated, developing an index is of low priority, but there are information needs stated in there that I think are a high priority. I think we need to know more about the genetics and recruitment.

MR. BLAIR: I think that those aspects – well, the recruitment is part of it. The elements of those were other objectives in other portions of the plan for the genetics, for the recruitment. This is tying those information resources together to be able to produce an index.

DR. BROOKE: That thing where it says could be easily addressed; I might be misquoting – Josh, you can clarify – but I think what he was saying is that there are molecular tools that we can use to figure out whether the animals are expressing stress-related genes. It would give us an indicator rather than index, which implies multiple sources of information. The way it was stated could be easily addressed; I think it is a bit of a misrepresentation. One aspect of that could be addressed, but that wouldn't give us the index. Does that make sense?

DR. VOSS: I think that's correct; it is low/low, but it does have ties or linkages to other objectives.

DR. ALEXANDER: I think it is important what she just said is that there are other ways of assessing coral health that could be developed using molecular tools, but the way it stated here

an index that incorporates a bunch of other parameters that we don't even know and probably will never know for any one given area has low probability of success.

MR. BLAIR: Objective 2; develop index and community health for entire biota, including coral. I would think that this would fall under the same level.

DR. BROOKE: Yes; I think it falls under the same level, but you probably wouldn't get the molecular stuff for the community.

MR. BLAIR: I'm sorry; say that again.

DR. BROOKE: I think it is the same low and low; yes, I agree; but what Josh was saying about being able to address some of the coral health aspects, I think would be harder with the community, because this talks about the community. I would say that was a bit further removed from being tractable.

MR. BLAIR: Objective 3; determine indicator species that are intermittently tied with oculina; be they vertebrates or invertebrates.

DR. ALEXANDER: Could I just ask was the goal of this aimed towards developing an indicator where something like SEAMAP did when they found these fish, they could say there is probably live bottom; that if you found these invertebrates, you could say there is probably coral?

MR. PUGLIESE: I think that actually is probably some of the rationale behind some of that. I think I indicated earlier there was some of the work that Tina Udouj was working on applying some of the deeper water lophelia information to generate some of these types of capabilities to look at and build on that.

Yes, I think in kind of going to that, it was to identify the ability to maybe go beyond, for example, that work that was done to use other parameters to look at distribution of deep-water corals. That model work that was originally done for deeper coral systems again, maybe this gets to be something that at least adds another piece of understanding in terms of if you have those species, you have a high probability of oculina associated with those and making that linkage of species to habitat type. While it may be a low priority under this, there may be opportunities to use other information as collected, especially if some newer information is going to be coming out of the next three years to at least begin to build these oculina species associations further.

MR. ALEXANDER: Of course, those chunks of coral in your trawl work well, too.

MR. BLAIR: Objectives 4, 5, and 6 are all associated with the aspects of paleo information associated with the banks and the bioherms.

MR. VOSS: Low.

MR. BLAIR: I think relative to what our discussions would be; I don't think we would have any of this –

DR. ALEXANDER: I would say that the probability of success is high if you could get a sample. The priority is low, but I think the probability of getting the data is high.

MR. BLAIR: If the samples can be obtained. Number 7; conduct research on coral feeding ecology; and Objective 1 is define feeding dynamics.

DR. BROOKE: I would say low.

DR. VOSS: I agree; and difficult.

MR. BLAIR: Low and low. Of course, then again I think with low we were saying that we wouldn't go for any of the other characterization. For the assessment planning projects that we move into now, which is what is the effect of management measures in the Oculina Experimental Closed Areas on the status of the fishery stocks; Objective 1 is characterize including distribution and abundance, patterns, size, and age distribution, spawning aggregations present, sex ratios, et cetera; major fishery species within the Oculina Experimental Closed Area compared to reference sites.

MS. PUGLISE: On those that we know are going to possibly be covered by the '14 to '16 proposal; are we just reconfirming that we agree that this should be done?

MR. BLAIR: I say that we just say '14 to '16 proposal, because there is a lot of stuff that is depending on it and information that can come out that may address these. I'm okay with doing that; if that is okay with others.

DR. VOSS: Again, I think this is a case where some of these characterizations are certainly going to be addressed within the '14 to '16 proposal, but not necessarily spawning aggregations or sex ratios.

DR. ALEXANDER: It seems like some of the objectives that we looked at in the very beginning of this process today are redundant with this here, you know, in terms of spawning aggregations. We might want to at least have someone go back and check and see that our priorities are the same now that we've kind of gone through this process.

MR. BLAIR: When we went through the actual report itself and the narrative, especially the section heavily references the output of the upcoming '14 to '16 proposal and the output from that. Agreed that it may not be able to address all, but I'm not sure we want to spend time picking out what it will and won't, but rather say being address, should be assessed after determination of that I think would be appropriate. That is true for Objective 2 as well. Objective 3 is connectivity to the broader seascape, larval sources, sinks, spillover effects.

DR. BROOKE: This pertains to fish, right?

MR. PUGLIESE: Well, you're talking larval sources connectivity.

MR. BLAIR: It could be all. From the Plan Objective 3; connectivity to broader seascape, larval sources and sinks, spillover effects, proposed methodology is otolith, microchemistry, mathematical models, genetic markers, and tagging studies.

DR. GILLIAN: Having said that, Sandra, does your dissertation chapter address that?

DR. BROOKE: I don't do backbones, no.

DR. GILLIAN: Yes, that is what is confusing.

DR. ALEXANDER: We've talked about this already today in terms of spillover effects in Section 2, Objective 4, which is looking at historical data and supposedly using that as a way of looking at spillover effects; although I'm not sure how you would do that without the post-closure data.

MR. BLAIR: Objective 3 remains low?

DR. GILLIAM: Are we providing comments? My comment was that this is actually not even correct. The major section is on the status of fishery stocks; so the objective under the status of fishery stocks is connectivity in the broader seascape, which is interesting. That objective was partially addressed by the following doctoral dissertation; that is not correct.

MR. BLAIR: Yours was on coral, right, and that is a note we can make.

DR. ALEXANDER: I would say it is a very broad topic that probably has low priority at this point and probably low probability of success at this point.

MR. BLAIR: It will be low. Moving on to question two of this is what is the major habitat types in the Oculina Experimental Closed Area, the Oculina Bank Habitat Area of Particular Concern, and adjacent hard-bottom areas? I believe both Objective 1 and 2 again reference the '14 to '16 proposals for at least addressing to some extent information needs for those two.

MS. PUGLISE: It says here that Objective 2; they won't be doing numbers 4 or 5.

DR. GILLIAM: Boy, that '14 to '16 proposal is rather ambitious, that it is directly – I mean, I kept track of it; that it is directly addressing six of these objectives in this document. That is very ambitious.

DR. ALEXANDER: It is ambitious. It is unfortunate that it isn't going to look at the soft bottom habitat east of the coral zone, because that is definitely where the interest in the shrimpers are in terms of their request to perhaps change the designation of the area, because they don't think it needs to be protected.

MR. BLAIR: Because it is addressing one –

MS. PUGLISE: Back to Gilliam's point; I think the point in here is that they are going to make a dent in these objectives. They probably aren't going to answer them outright.

DR. ALEXANDER: I do think then that if we're going to note that the proposal will cover these first three areas; I think that it is still a high priority that we get mapping done of the area four and five.

MR. BLAIR: I think our understanding; it may be the adjacent areas that are of concern. I'll let Roger try to give clarification; but the intent is for the entire area of the Oculina.

MR. PUGLIESE: Yes, we're going to be looking back at this. These are statements provided by some of the researchers involved in here. However, our intent was that you have as much characterized in terms of species use and habitat type for the entire experimental closed area. This may have slipped by in terms of our looking at this. We do have John Reed involved to have not only looking at the coral systems, but all the other benthic habitats involved in that box. That is the intent of what this effort is.

DR. VOSS: I agree; and if you look more closely at number four, they are talking about areas east of the OECA in just the HAPC. That is further east of this potential boundary that we're discussing.

MR. PUGLIESE: Yes; and I think that is the point. The idea here is it was focusing on – definitely the characterization of all habitats was intended in here. If there is a tweak that needs to happen in terms of the understanding of this, it definitely is going to get highlighted in this document as well as in what actually happens.

MR. BLAIR: Okay, so '14 to '16 proposal will be the comments associated with those objectives.

DR. ALEXANDER: Not to belabor the point; but given that we're setting high priorities to things that they probably aren't going to cover; number five are known hard coral areas which we do want to identify so that we can think about protecting them in the future that are outside of the HAPC. I thought we might want to highlight that as a high priority that is not going to be covered by the proposal.

MR. PUGLIESE: It isn't, because I think what we're trying to do is get them to do as much work within and complete the characterization within the area; but I understand exactly what you're saying is characterization outside the bounds is still significant, of course; because as additional resources are able to do that, we want to document the full distribution of oculina and other associated habitats throughout the entire HAPC.

MR. BLAIR: In priority you would just like to make a point that number five should remain a high priority.

DR. ALEXANDER: That is correct, because those are areas that are outside of the HAPC from what I'm reading here. Every time that we've been able to identify new areas of hard corals, we've tried to expand the boundaries of protection to include them. That would be a way to expand the boundaries in the future.

MR. BLAIR: Okay, I think the comment is that number five, which is areas outside the oculina; that should also remain high priority for characterization considering that the '14 to '16 proposals will be concentrated within. Number three is what are the magnitude and causes of changes in habitat structure and functionality over time? There are two objectives. The first objective is determining causes and timing of coral death; and the second being origin and functional characteristics of the rubble zone.

DR. VOSS: I think as that group consists; it appears to be low/ low.

MR. BLAIR: Yes; I would think considering the other issues; that would be. Number four is how do oceanographic conditions and episodic events affect production coral condition, reproduction, and growth? Objective 1 is quantify the extent, intensity, and frequency of the episodic events, upwellings, storms, et cetera. Two is assess the impact of episodic events.

MS. PUGLISE: I think at the present time; I think all these things are important that are listed underneath this, but at the present time I would say that they have a moderate priority.

MR. BLAIR: I was going to say it is not a low priority. I think it is a low probability that we be able to do the completion within the period of time, but I think the importance of the information needs support.

MS. PUGLIESE: Yes; I think they are important; but when you consider them with everything else that we need to know, these are moderate.

MR. PUGLIESE: Yes; and I think this is one of the conditions and opportunities we have to tap in on some of the other efforts underway; so keeping it at least in the middle, so that it is identified as a priority; not a low priority, as a moderate priority we can maybe push some of these other efforts with the observing associated data.

MR BLAIR: We may want to discuss how – I think that this is, if you will, somewhat of a working document to work with the research team for this. I don't think – and I think everybody here will say this is nowhere meant to be an attempt to reprioritize these items, but these are more looking at what we feel may be helpful in being able to provide data to the purpose of it over the near term. We want to make sure that there is no inadvertent explanation as to what our effort here is today.

DR. ALEXANDER: In terms of the probability of completion; I think Objective 1 probably has a high probability of completion, because there is a lot of existing ongoing efforts and a lot of preexisting data as well that have looked at these kinds of issues. In terms of storms there is a lot of monitoring going on. I think Objective 2 obviously has a lower probability of success within the timeframe you are talking about.

MR. BLAIR: Again, I think that the intent here is very site-specific. We understand in certain aspects of the regional aspects from the buoy systems and so forth; but on the Bank itself and the relative sense of what the corals are going to be, there is inferential information that can do it, but I believe the intent was to be very explicit for the area. In other words, we're thinking of additional or new data focused at the area as opposed to inference from regional assessments.

MR. PUGLIESE: Just a follow-up point directly to this; I think this may actually get more traction hopefully with our partners, et cetera. Because we just came off of a national climate change workshop with all three councils. From the South Atlantic, that was highlighted by our chairman as one of the things to try to get some additional focus on is understanding what these increased upwelling events may mean with regard to fisheries in our region. For a different reason it may be connected or at least highlighted. Feelers have already been sent out to try to begin to go further than we have in the past on this.

MR. BLAIR: Okay, so moderate to low; moderate for one and two, is that right? Okay; and Objective 3.

DR. GILLIAM: Yes; that is low. I don't think we're anywhere near trying to identify methods of restoration.

MR. BLAIR: Okay, I guess maybe kind of going along with that, potentially, characterize impacts from anthropogenic sources of pollution; I think that has somewhat been addressed in some of the other aspects about lack of information associated with it. It is difficult to characterize it without the information. I would imagine that is low. With that; that is the last objective in the matrix.

DR. VOSS: I would point out that one thing that could be – we've talked about the importance but yet challenges with essentially identifying thresholds for oculina. This is an objective that is essentially identical to the previous one that I think we called moderate. It was question four, Objective 3 or Objective 1.

MR. BLAIR: It originally was identified that we said assess; so moderate.

DR. GILLIAM: Steve, would it be possible to sort by Column K? I am just curious now that we've gone through this to see what it is that we've prioritized as high.

MR. BLAIR: I am doing that now at least on mine; and, yes. I am somewhat afraid to do it, but, yes. Okay, we've gone through and sorted them by – for this point you are going to take the topic of the objective as the understanding of what you have rated in a specific manner. We just said sort by it; but the idea here is these are the information resources that the panel has felt are of a high priority that can – I've got six high. There are some that we didn't rank.

DR. VOSS: I think all the ones that we didn't rank were ones that we just said were being assessed by the upcoming cruises in '15, '16, and '17.

MR. PUGLIESE: Yes; the ones that didn't have rank, I think that is all in there was identifying they connected to the

MR. BLAIR: We had high as the track fish movement. Okay, the high objectives were to track fish movement; and another part of that was thought that it could be more inclusive and provide more information including potential aspects about fish spawning, if appropriate or if timed appropriately.

The next is research population genetics on oculina, which was high with a medium probability of completion. Next is to identify cross-shelf relationships between shallow and deep oculina varicosa populations, which was considered to be a high priority with a relatively high probability of completion.

DR. VOSS: I think that we should amend that one to high/medium; because two can't happen there without the one above it. If one is moderate, then this one is moderate.

MR. BLAIR: I think that the moderate came in later, as a matter of fact, considering some of these things, because it wasn't absolute at this point; so that is fine.

MR. PUGLIESE: I think I need it standardized; moderate or medium?

MR. BLAIR: Moderate.

DR. GILLIAM: We think that there is a greater probability of completion to track fish movement than it is to be able to collect samples?

MR. BLAIR: That's what we said.

DR. GILLIAM: Is that true?

MS. PUGLISE: In theory you could put down aero traps, you could trap the fish. You could puncture them and you could tag them and re-release them without having to dive down to depths below 100 feet.

DR. GILLIAM: Do we have any idea how many fish or fishes we would have to tag to get a sample size appropriate to be able to discuss movements and behavior, including spawning?

DR. BROOKE: Presumably these would be a telemetry project with receivers rather than just tag and catch and release; because if it is catch and release, it is pointless I think; but if you have telemetry, then you can track the movements, but it is more expensive.

DR. GILLIAM: But you still have to catch them.

DR. ALEXANDER: They've done something like this out at Gray's Reef, and the numbers were pretty small on the order of tens of fish, 10, 20, 30 fish. They put them back out and they had trouble seeing – even in a four by three kilometer area actually with the receivers, which are a few hundred meters apart covering some small part of that, they had trouble seeing fish again except for a few species that don't want to go anywhere. I think your numbers would have to be very high to provide anything useful for something like the experimental area in terms of fish populations. You would have to instrument it quite intensively. I think it would be a big job.

MR. BLAIR: Do we want to reconsider the high probability?

DR. ALEXANDER: I think the high probability is could we attempt it; yes. Could we achieve it with the goals that we have in mind; I don't know if it is high probability.

DR. VOSS: I think what we're basically stuck with here is we've chosen a scale that is too coarse with words that carry too much implied meaning. If we're saying relative to tracking fish, it sounds like, yes; the ability to look at coral genetics is higher. We're just still unwilling to call it high is the problem we're running into. I don't know how we want to deal with that issue. I think we're just recognizing that there are shades of gray amongst our moderates.

MR. BLAIR: I think the intent for the probability of completion is for us to be able to have the information associated with addressing the objective to some significant amount. If we feel that it is a limited aspect, we can make a comment to that point.

DR. VOSS: Could you give me until July 19th, when I use the collection skid? Then I'll tell you if it is a high probability for the oculina objectives.

MR. BLAIR: I think that is an appropriate caveat that we could put that the high was based on anticipation that a collection mechanism would become available as being tested or something of that sort. We can use that as the indication of why that is there; otherwise it dies. The one with the research to have your linkage; there is a comment to it and that was going to be high.

MR. PUGLIESE: You do want to change it up to high.

MR. BLAIR: We're working the right one, correct? This was going to be high but it was caveated on the presence or the finalization of pending –

DR. VOSS: The ROV collection of tool.

MR. BLAIR: Right. Next is research population genetics of oculina, which was a high priority and considered a moderate. It seems as though that would be –

DR. VOSS: This is one we just talked about. Now what we're going to do for Objectives 1 and 2 is change probability of completion to high pending ROV collection tool.

MR. BLAIR: Got it. MR. BLAIR: The next is assesses natural and anthropogenic stressors of water quality. What we did; the reason for the high there is it is high for water quality. I'm looking at mine; I'm not looking at yours.

MR. PUGLIESE: That's fine; there was a second part of that.

MR. BLAIR: Right. It is high for water quality, but information exists that would indicate disease would be a lower priority. Corals are not as susceptible for disease, so it is not as great a priority as information need.

DR. VOSS: I think it was just of the potential natural and anthropogenic stressors that were culled out in the original document only of those that are not well known and potentially deemed to be still a large threat was water quality in particular and sedimentation; but that is culled out in a separate objective.

DR. GILLIAM: Steve, did we need to identify probability of completion for that one right there?

MR. BLAIR: Could you say that again, Dave; I didn't hear it.

DR. GILLIAM: I said we said high for water quality, but we didn't provide a probability of completion, if we want to.

DR. ALEXANDER: I guess it depends on – we were discussing earlier what we meant by water quality, because things just get more and more expensive as you want to measure more and more trace pollutant kinds of things. I would say that for basic parameters the probability of completion is very high, because these are the kinds of things that you could put on shrimpers nets and be collecting basic data, depending on how much you had to put towards buying SAWNs that they could deploy.

DR. GILLIAM: That's true, collecting the data, this could be high, but then interpreting how it affects the community is low or moderate at best.

MR. BLAIR: Two points; data collection versus the ability to have enough data to do the assessment.

DR. VOSS: Actually we discussed that previously when we said that evaluating environmental thresholds was a high priority but also much more difficult and low probability of being completed.

MR. BLAIR: I would suggest that we would probably stay with the same aspect on this.

DR. GILLIAM: Collecting those types of parameters is doable; it is done all the time; but interpreting what the data means is the challenging part.

MR. BLAIR: There are challenges in both collection and funding for analysis, too. The idea that it is important but the ability to probably complete it, I think is – especially to the effect of being able to complete it for assessment purposes is low. For that assess the natural; we said low for that; high for water quality, but probably a low probability.

DR. ALEXANDER: That is linked to Item 4, Objective 4, which was characterize impacts from anthropogenic sources of pollution, nutrient/sedimentation. I think we ranked that moderate, low; I can't remember now.

MR. BLAIR: Moderate with a low – I think a moderate priority and a low probability. Characterize impacts of anthropogenic sources of pollution; is that the one you're speaking of?

DR. ALEXANDER: Yes, Objective 4 under that heading.

MR. BLAIR: We ended up using a moderate priority with a low probability.

DR. ALEXANDER: Yes; and then also I just noticed under number four, Objective 3; that is the physiological tolerances of coral to environmental stressors. I guess it is related to that one as well.

MR. BLAIR: Are those comments for the linkages?

DR. ALEXANDER: Yes. Unfortunately, when you sorted them, they lost their context within which item number.

MR. BLAIR: We can also capture this. These are some of the notes we can take on the side, but we want to take a look and just make sure that we're okay with where are. Essentially out of this area it appears that we had rankings on about 34 of the criteria of which we had five that were ranked high; one with a component of an element being ranked high, that is the water quality aspect of it. We had scrolling down to the bottom selection six that were ranked as moderate.

Now the other thing that we can do is get this kind of cleaned up a little bit and send it out, so that everybody can take a final look in their own formats and own machines so that they can scroll through and get that ability to take a look at it a bit better. I know it is getting difficult to follow it on here.

DR. GILLIAM: It sounds like we want to know more about fish behavior within the area, spawning or whatever, and the connectivity of the oculina within the area versus its larger scale population through molecular genetic approach.

MR. BLAIR: Well, we have a combination of identify the coral and fish recruitment pathways. There is fish-related aspect, research on genetics of oculina. Assessing natural and anthropogenic stressors are the highest priority ones that we looked at; so it is a combination of things associated with the specific corals as well as the dynamics of the habitat and associates of the habitat.

DR. VOSS: Also remember that the ones we're not talking about are the ones that we said to be addressed by the cruises. You might argue we have already by default made those the highest of the high priorities, because they are what is going forward immediately.

DR. GILLIAM: That is actually very true, because those are the only items that actually at this point appear to have some type of funding to make happen or at least it be addressed.

MR. BLAIR: I don't think that there is any real problem with the caveat that the work associated with the proposals will fulfill the anticipated information that they are going to gather; that we could have those included, as you say, as a high priority and high probability; and thereby giving that kind of noted level of significance to those objectives, which would lead I think to another four additional objectives that would be added to it.

MR. PUGLIESE: Yes, four.

MR. BLAIR: Because we are going to drive ourselves crazy here trying to look at this; why don't we go ahead and we'll get this cleaned up and we'll get it sent out so that everybody can review it? If there are any other explicit comments and/or modifications that they want to make, they can do so; and we'll get them put together in a final format.

DR. GILLIAM: Steve, just one last thought on this document before we leave it; I don't remember were we supposed to comment on the Shrimp AP's question about the eastern edge of the closed area and then also the comment made in this document about opening up would be counterproductive? We're not supposed to comment on that?

MR. BLAIR: Well, we were given a presentation or at least the aspects about the comments were presented here regarding that proposal. There are aspects in the outline of the bullets at the

beginning of the research, monitoring, and assessment that include it. I don't believe that it is outside the realm. It is within the purview of the panel to make a comment. If they want to submit a comment or a statement to the council regarding that; I believe that that would be appropriate or acceptable.

DR. GILLIAM: I guess my comment is I understand the concern addressed by the Shrimp AP, but I agree with the Research Evaluation Team that at this time I think the risk of changing the boundaries is great and that they shouldn't be changed. That is my comment.

DR. VOSS: I would also support that statement and reiterate that as part of the existing cruise plans; the entire OECA is going to be fully mapped and characterized. The exact boundaries of where those delineations are and whether or not it is indeed pure soft bottom or soft bottom veneer over hard bottom habitat will be better known as a result of that work.

MR. PUGLIESE: The question is whether it is a recommendation. I think that is the purview of the AP. This actually didn't make it out of the research group. There is not a recommendation coming up from the research group. The people on the Deepwater AP had resurfaced it as their recommendation. However, from the research and monitoring standpoint, it was addressed and that is the comment you got. I think what you are trying to do is reaffirming the conclusions of that group.

MR. BLAIR: It would be a statement essentially to the council from the Coral AP reaffirming the Research and Monitoring Team's position that a proposal of the – and we don't even have to say, since it is apparently not a proposal, correct – so that consideration of opening areas for trawling in the CHAPC/OECA would be extremely counterproductive and would put the remaining dense stands of oculina varicosa at risk. We could word it in that manner so as to make just a statement to the council that we reaffirmed the Research Evaluation Team's opinion regarding potentially opening areas of the CHAPC and OECA to trawling.

DR. GILLIAM: I agree with that.

DR. ALEXANDER: I do think it would be an olive branch to the Deepwater Shrimp Group to say that we're open to reassessing the bottom character and the habitats after this new suite of data is available, after this '14 to '16 cruise.

MR. BLAIR: I understand that, but I think we're overstepping our bounds because we're not the only panel that is associated with that. I would think that might be something that should come out either as a group aspect or maybe the council considers that they direct that evaluation; but we're one of many that have involvement in this area.

DR. VOSS: With a follow-up to what Clark just said; we could simply add on a statement that anticipated additional data collected during the '15 through '17 cruises will provide information for improved habitat characterization for this area and leave it at that.

MR. BLAIR: Can you type that up? I agree that sounds very good and it is appropriate.

MR. PUGLIESE: It is appropriate, because I think one of the key things that it is going to provide not only the distribution of that but the species' utilization of those other habitats. I

think that is something that is critical, understanding the complex of species not only using oculina but the sand and mud systems; because as you get further into there, I'm sure they are probably going to potentially see tilefish, especially with that higher-resolution mapping. Then maybe even the ROVs may be able to picture and identify some of those deeper species using the outer bound areas within the OECA.

DR. ALEXANDER: I noticed, Josh, that you slipped us into that it is a '15 to '17 cruise now. We've been calling it a '14 to '16 cruise. Should we change that language throughout the matrix and our recommendations?

MR. PUGLIESE: We'll address that because, yes, in reality it is going to start June or July of '15.

MS. PUGLISE: The reality is it is '14 through '16 funding; but it is always shifted by a year. Cruises are always starting the year after so it is '15 through '17; so you really won't have data until '18.

DR. ALEXANDER: Just for people who are planning on thinking about using that data or wanting to keep it on the radar; I think it is probably fair to them to start calling it a '15 to '17 cruise.

DR. VOSS: If you look at the current proposal, they do expect to analyze the data as it is collected. There would be data available at the end of '15 from the '15 cruise; it wouldn't be a wait until all the way of '18.

DR. ALEXANDER: But I would think that probably any large-scale reassessment or looking at distribution of habitat would wait until everything was together. You wouldn't want to look at it in a piecemeal fashion.

MR. BLAIR: Right; and I would imagine that there will be reports coming out from that. Essentially what would be considered is looking at and evaluating that information relative to this would come along within the next reevaluation report. What we'll do with this; we are going to finalize the wording utilizing the aspects of the additional information that will be utilized to improve and enhance management of the area and get that out for everybody to have a look at before we do the final submission to the council. With that; Gregg, did you have the information or additional information from Jennifer for those questions?

MR. WAUGH: Yes. She said part of the confusion got into talking about hypothetical situations. She wanted to clarify first elkhorn and staghorn corals are currently threatened and regulated under ESA Section 4D Rule. She recommended people take a look at that. What she didn't point out at that time is that in the existing 4D Rule; they extended all of the Section 9 prohibitions other than takes that would result from restoration or research to elkhorn and federal corals.

Take that occurs from any other activity other than restoration or research is already prohibited for elkhorn and staghorn corals. Nothing much would change as far as those are concerned. We will get into a little more detail talking about live rock in a minute. She says with respect to aquaculture, it was made clear that for endangered species, the ESA prohibits all commercial

activity automatically and with no provisions for receiving a permit to perform such activities. However, she believes – then she proceeded with live rock it wasn't clear. If acropora settles on live rock, it must be left untouched and can't be harvested. The following special condition is included in the programmatic general permit for aquaculture live rock in federal waters.

Each rock must be visually inspected for the presence of acropora palmata, elkhorn and staghorn coral prior to harvesting. Harvest of any rock with these species attached is prohibited. That was certainly news to me; I didn't realize that was already in place. In short, permittees have to inspect each rock; and if staghorn or elkhorn is found, they must leave it, can't touch it, move it, et cetera.

This prohibition is also included in the state of Florida's programmatic general permit, which covers live rock aquaculture in state waters. An identification placard was just sent out to all existing and new permit holders. I asked about the final rule; if more species are listed as threatened or endangered, what impacts would that have on live rock?

Would they have to inspect the rock? She said yes for endangered species. For threatened species, take prohibitions would not be automatic or immediate. They would have to issue regulations extending the prohibition to all commercial activities for that to be true. Then as far as timing, the statutory deadline for that final rule to be published is June 6.

Then I asked about restoration and research should not be impacted in the final rule. For any restoration and research involving an endangered species, a Section 10 Permit would be required. They've been working with NOAA Restoration Center and Coral Reef Program and a Section 10 application that would provide take coverage for NOAA Restoration and Research and its partners if needed. For threatened species, the same thing from live rock would apply. That was it.

DR. GILLIAM: The question about the timeline after June 6 really wasn't addressed?

MR. WAUGH: In terms of when the regulations would be effective; what she said was they have flexibility to what that delay is. She said 30 to 60 days is a reasonable time period. Once that final rule is published by June 6, then either 30 or 60 days later those regulations would take effect.

MR. BLAIR: Gregg, did I hear correctly that the prohibitions for take would extend to the threatened species as well; and I'm thinking of the live rock?

MR. WAUGH: They have to take action to do that. They have done that now with elkhorn and staghorn. If it was done for those two, I would certainly expect it would be done for the others.

MR. BLAIR: That is because when they did the acroporids, they extended the full Section D prohibitions to it?

MR. WAUGH: That is correct.

MR. BLAIR: Okay; so they would have to explicitly extend the Section Ds to the threatened species that has the same level?

MR. WAUGH: That is correct.

DR. FEDDERN: That would basically pretty much eliminate the live rock fishery for just soaked rock.

MR. WAUGH: That would be my supposition. This will be published the week before our council meeting in June – we'll be in Florida – so I'm sure we'll talk about this; but I think we'll also follow up with our live rock industry and find out how the existing regulations are impacting them. I can't think of why they wouldn't already have some staghorn and elkhorn settling in there. Then if it is broadened to more corals, I would think it is just a matter of time before you have some settlement that wipes out your crop.

DR. GILLIAM: I think it doesn't fundamentally kill the industry; because again one of those nine species would have to settle on a piece of rock for that piece of rock not to be eligible to be sold. At least that is what I think I understood that you just said. I think also we have to remember that one of the reasons why – this is neither in support of or objection to the listing; but one of the conditions that were evaluated for them to be listed as a condition was their likelihood of recovery and population maintenance. That includes recruitment. I think just jumping off the cliff and saying that all these nine species are going to settle on a live rock lease and destroy the lease; I don't think the evidence is there for that. Otherwise having them listed in the first place might have been more challenging.

MR. WAUGH: I wouldn't disagree with that; that was just my supposition. One would expect if you extend protection to these corals, over time there is going to be some increase in the population and you would eventually expect to see some recruitment. I wouldn't invest in a live rock operation right now.

DR. ALEXANDER: But perhaps if the live rock farmers, our aquaculturists do start to see large pulses of recruitment, capturing that data is important in terms of informing the status of the species.

MR. BLAIR: I would also suggest that it might be an avenue for them to be able to consider or a venue to be able to consider if this really what becomes an issue that it's significant settling; that these maybe have some level of consideration as a nursery aspect or ability to be able to contribute that in a manner to allow them to be able to at least recover.

MR. PUGLIESE: To that; I actually was going to ask another question. It sounds like the state of Florida has already implemented these provisions. The question is that idea of having to look at every single rock coming out; that definitely has got to be a complication or a change in the way the fishery operates. I think right now already we have one of our biggest individuals that is not here right now, Ken is directly – he has shifted most of his effort into restoration efforts where they were planting it and growing it and doing restoration work.

They are involved in that activity. However, this side; I would be interested to see with the state already having that in place, what they have run into in terms of people pulling out already or complications, because having to look at every single rock and then really with the potential new listings and extending for all the way through threatened; that could pretty much finish that.

DR. FEDDERN: Would the prohibition extend to a single settled larva that you can barely see? That would be very difficult to identify on a rock, especially if rock has some algae and other things on it.

MR. WAUGH: In the wording that was provided, it says each rock must be visually inspected for the presence of elkhorn and staghorn prior to harvesting. Harvest of any rock with these species attached is prohibited.

MR. BLAIR: There are many times I know that people have taken, including – I don't have one but my sons have saltwater tanks and they have brought rock that looks pretty barren in; and it had a surprising array of things grow from it. Again, the visual aspect of it; you can't sell something that obviously has an acroporid on it; but if you can't determine that it has an acroporid if you can't see it, then you have done your due diligence in meeting the rule, I would imagine.

DR. VOSS: Take a picture of each rock before you sell it.

DR. GILLIAM: I think the question is did they have to do it before? I mean, do they have to do it now?

DR. VOSS: For acropora; I think that is correct; but now it is going to be for acropora plus seven more.

MR. BLAIR: That is what the rule says now.

DR. GILLIAM: Right; so if they already are supposed to look at every rock now, they are already looking at every rock now; so I don't know.

MR. BLAIR: Now it just may have grown from two to seven or two to nine that they have to look for. We have one more item that we had talked about, which was the law enforcement idea, which is a brief update. That will be the last item that we'll be attaching today.

MS. PUGLISE: Were we having to make any comments on the enforcement and outreach?

MR. BLAIR: If you have any comments on any aspect of this, yes.

MS. PUGLISE: But we're not doing it as a group, because there were other tabs to that spreadsheet.

MR. BLAIR: There were. Do you have specific items that you have?

MS. PUGLISE: No, I don't; I'm just asking.

MR. BLAIR: Okay, does anybody have any specific comments relative to the other tabs for outreach and/or law enforcement that were part of the matrix? I know that we did give Kim some input yesterday that was taken. After law enforcement, if we have any explicit updates from that we can do that; otherwise, hearing no other comments about it, we don't need to review those. Roger, will give us the law enforcement update.

MR. PUGLIESE: I just was going to quickly touch on what you received in terms of the more detailed information on the presentation for the update; the oculina evaluation that Richard Chesler provided to the council. The evaluation plan was put in place; and this presentation was updating enforcement information from 2007 through '13.

The strategy and effort highlighted five major principles on vessel monitoring systems, cooperative enforcement, increased enforcement presence, enforcement reports and outreach. It did highlight the VMS and the ability to use VMS to more effectively monitor any incursions or movements into the Oculina Bank and representation of the VMS tracks highlighting the vessels being outside the bounds of the entire Oculina Bank and satellite areas in this case.

There is increased fishing activity to observe that with intelligence, planning patrol activities, and investigations to follow up on inspections and interviews. The patrols were increased and conducted through the Coast Guard and the Florida Fish and Wildlife Commissions efforts, investigation through the Office of Law Enforcement with NOAA, as well as the intelligence using and/or finding the VMS as well as contacts and training.

Increased effort in terms of enforcement presence; they have been conducting surge operations between the Coast Guard, Florida, and Law Enforcement Office, in addition to cooperative enforcement utilizing each agency's assets and personnel. Patrol activity has been conducted through the Coast Guard and Florida, the vessels, boats, as well as aircraft. This is some statistics over time form '07 through '13 that highlight Coast Guard and Florida's efforts both in primary and secondary patrol hours.

MR. BLAIR: Roger, just to give us a sense, because it is hard to read on there; can you say the numbers from the major bars?

MR. PUGLIESE: Yes; at the top you were looking at 327 hours down to say – that would be a primary U.S. Coast Guard effort in 2009 to in '13; 30 primary hours to the Coast Guard. That is kind of the scale. The lower ends are like two. You've gone from real big peaks in '07, with especially Coast Guard's effort in '09 and '12; down to present in '13 with 30, and primary Florida is 36 hours.

DR. GILLIAM: Roger, is there any reason for that decline?

MR. PUGLIESE: Well, some of it has to do with connections to some of the surge operations that they have conducted in the past where they've had these; but also the reliance more I think to some degree – well, there has been a drop-off in terms of resources and the ability to get into the area; but the reliance on use of the VMS information especially for the monitoring of the shrimp fleet has been highlighted; and they've been more effective at using some of those capabilities. However, there has been definitely a reduction in opportunity to be able to.

DR. VOSS: Roger, related to the increased reliance on VMS; the last time we had talked about whether or not they were going to be able automate identifying speed violations of the VMS within the restricted zones. Has there been any advance on that?

MR. PUGLIESE: That was some discussion that happened at the last Deepwater Shrimp meeting. I would assume they are internally working on some of those efforts, because we have

Coral Amendment 8, which will put in that that transit provision; and those types of capabilities have to be in place. Some of the qualifiers on law enforcement that the Shrimp Panel did put in had to do with the ability to do very specifically that.

Like you said, while they have said that is something they can do, we have yet to see actually the product. The AP was very specific on being informed of the status, the timeframes and all those and that a lot of these types of capabilities be in place in advance of the requirement for being able to use VMS to do the transit in those areas.

I think that is part of the implementation of this; and NOAA Law Enforcement I think has got to be working in the background now. We have yet to see anything beyond what the commitment is to do this. I think as Otha back when he was originally looking at this had pretty much said with that shift to the region having control over the systems, really provide them the ability; and the technology is there to be able to do it.

Some of the other issues that did come up is with regard to making sure that the vessels had the capability of the VMS unit to be able to use the increased ping rates that are going to be needed to be able to capture that five knot speed, and understand I think at a five minute rate or something like that.

It is going to have a more significant – I think a longer term is definitely to go to this automated system. It is going to be part of their implementation and they are going to have to be able to provide that and provide the capability to get it accomplished and within the timeframe as the rule moves forward.

Let me keep on going real quickly. The detections and boardings are the other component of statistics that have been identified. In the past, earlier on in the efforts in '07, '08, and '09, you are seeing some pretty significant numbers; and again they are tied to some of those surge efforts that they did, both from the – what you are looking at now is the blue is commercial.

This is boardings; this is detections. Detections is blue; boardings is actually this brown color; and then the orange is recreational detections; and then recreational boardings, so that they track through the system. It has gone from numbers on this again; in '07 that is 49 commercial detections, 91 recreational detections, 20 commercial boardings, 12 recreational boardings.

You had again some surge efforts all the way moving toward '12, where in that case they had a pretty significant effort on the recreational with 48 recreational detections and 46 boardings. In that time, this is some of that transition, they are really relying more on the VMS; two commercial detections, two boardings; a precipitous drop off in '13. There was a question about if that is partial, and I think it almost has to be a partial presentation.

DR. BROOKE: It is more of a comment than anything. It is a little misleading to look at boardings and detections when the enforcement effort is so low. We've got pretty much -- that is for the fiscal year, the whole fiscal year. Even at their peak and their surge, 200 hours a year is not very high. That FWC boat was supposed to be specifically for the Oculina Banks. I would question what is going on? Why do we have consistently low patrol hours for a vessel that is supposed to be working primarily out there?

MR. PUGLIESE: If you look at – when you started with '07 and '08 where you had 210/227 hours down to in '12, 57 hours from Florida; these are specifically Florida vessel operations. As you had indicated, they did have that. The whole point of that was to have a dedicated vessel in that region. While you may have Coast Guard being able to rely on the VMS. That also is actually some of it, because the state has now access to VMS systems.

DR. BROOKE: Yes; that is absolutely true, and FWC out of St. Pete – I think it is FWC, it might be NOAA. Anyway, the St. Pete office monitors that. That is true, but it is not just the rock shrimpers that work in here and they are the only ones that have VMS. Specifically down towards the end near the OECA with the snapper grouper regulations; they don't have VMS.

MR. CUPKA: If it is a vessel that fishes in the Gulf, they are required to have VMS and it will be on. There are some non-rock shrimp vessels in the South Atlantic that are monitored.

DR. VOSS: But am I correct in that they are not required to engage their VMS system while they are in the Atlantic?

MR. BLAIR: Josh had a question regarding if their mandate is to be having it for the Gulf; are they also required to have it active when they are fishing in the South Atlantic?

MR. CUPKA: It is my understanding that it is active when they are in the South Atlantic or the Gulf; it has to be.

MR. PUGLIESE: Yes; they have it on continuous, because I've looked at some of both HMS and the Gulf permitted vessels to get a little idea of some of other activity going on.

MR. BLAIR: Also, if I remember correctly when this presentation was given to the Research Evaluation Team, a comment was inserted relative to the low hours. It was recognized by law enforcement that it was. As Roger said, it was so much a resource and economics aspect relative to the cutbacks that the OLE has experience as well. To what extent that comes into play, I can't say, but it was mentioned as part of the reason for the lower numbers.

MR. PUGLIESE: Let me continue on. With regard to enforcement reports, which are really highlighting some of what were identified earlier; they are providing information on patrol sightings, boardings, violation data, and provide the quarterly report to the council; report highlights, case dispositions, media stories, outreach activities, and training.

Those are, as I indicated, provided quarterly. The outreach and education connection; enforcement partners support those; because it is highlighting what are the rules and regulations within the areas, but also the connection and intent of some of the regulations. They have distributed oculina regulations through outreach events, fishing shows, tournament meetings, recreational anglers; and on patrol they have been provided to recreational anglers in or near the closed area, as well as commercial fishermen.

In addition, they participated in outreach and education activities, as well as issuing news releases for oculina enforcement cases and patrol activities highlighting what has actually been occurring and their activities within the Oculina Bank Area. Areas for improvement that they

had identified is they have highlighted that the VMS has been an effective tool and some of the more recent refinements are making it even more effective.

Cooperative enforcement has provided an improved patrol coordination between Florida and U.S. Coast Guard. The increase in interagency ride-alongs has a need right now, and also to establish a semiannual oculina specific enforcement meeting or training to highlight the newest information relative to oculina, and maybe some of the technologies being investigated for enforcement.

Areas for improvement; also increase enforcement presence, utilize covert patrols in conjunction with overt patrol; obtain the living marine resource mission hours, LMR hours of patrol under secondary missions; and also to patrol smarter to look at weather, ramp, and marina checks, et cetera.

Other areas under reporting; have better record keeping by source agencies, timely submission reports, outreach, engagement of tournaments in Sebastian and Fort Pierce so that the rack cards are provided and things such as captains' bags as part of the tournaments, et cetera. Some of the recommendations are to adapt current law enforcement plan to the project management format, establish resources, outputs, outcomes, constraints, risks, reporting and accountability and determine enforcement burden within the transit provisions; mitigation strategies be highlighted, establish enforcement expectations, and to come up with a compliance metric.

Moving toward the project management format would provide the ability to define the objective, for example, to increase compliance within Oculina regulations; target outcomes with the increased compliance with the regulations. The metric would be really linked to the target outcomes; and the outputs are the deliverables, patrols and monitoring and compliance of systems.

Project management format; some of the other aspects involved reporting requirements, frequency formats – we're looking at quarterly reports at this time – assessment personnel, risks and risk management, and identify risks and mitigation strategies; for example, rock shrimp trawling and recreational snapper grouper poaching within the area.

Quality control is looking at reviews and the frequency of those efforts. That really was the context of the update that was provided by Richard Chesler and the Law Enforcement Review that was conducted to date that is updating the existing evaluation plan information.

DR. VOSS: I have a quick question in regards of reports to whom? When there are violations; are those reports automatically shared with the council?

MR. PUGLIESE: Yes, they are; and they are included not only in the quarterly reports, but I think we do get notifications. I think the state actually has another separate – what I had highlighted earlier on had another notification program that shows where there have been violations.

MR. BLAIR: Okay, thank you, Roger. I believe that completes what our activities and tasks were. I apologize to have made you go through lunch. Had I realized it would be taking this long, I would have definitely done that. However, the good news is you are out at 3:00 instead

of 4:00r. Are there any other last comments or thoughts, considerations from the group? We will be getting the finalization of the matrix and the comments and the prioritizations out.

We will also include with that the statement that we will forward to the council relative to the reaffirming. If you don't mind and provide me a little latitude, I would also like to include with that a statement reaffirming the AP's reaffirming purpose, need and desire to fulfill all points of the assessment program and its importance in being able to utilize and have the information to appropriately mange and adaptively manage the area. I will draft something for your approval and send it out when everybody gets the matrix and so forth for their review. With that; Roger, anything?

MR. PUGLIESE: Other than thank everyone for the patience and the input and providing I think a lot of really significant guidance to the council on making this a more effective review and documenting and really enhancing what needs to be done for the long-term sustainability of the Oculina Experimental Closed Area.

MR. BLAIR: I thank you as well; and nothing else, we are adjourned.

(Whereupon, the meeting was adjourned at 3:00 o'clock p.m., May 8, 2014.)

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South Atlantic Fishery Management Council
Coral Advisory Panel

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PLEASE SIGN IN

So that we will have a record of your attendance at each meeting and so that your name may be included in the minutes, we ask that you sign this sheet for the meeting shown below.

South Atlantic Fishery Management Council

Coral Advisory Panel Meeting:

Wednesday, May 7, 2014

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