

**Meeting Minutes**  
**FBHCP Steering Committee**  
10 December 2012  
Bryant Building, Tallahassee

**Steering Committee members present:** Thomas Eason (FWC), Danielle Fondren (DEP), Stephen James (Assoc. of Counties), Tamara Pigott (Lee County), Brett Moore (Humiston and Moore), Gary Appelson (STC), Julie Wraithmell (Audubon), Blair Witherington (FWC; phone), Ryan Matthews (League of Cities; phone)

**Others present:** Bob Ernest (EAI), Mike Flaxman (Geodesign), Jackie Larson (DEP), Kelly Roberts (FWC), Robbin Trindell (FWC), Trish Adams (USFWS), Brian Powell (USFWS), Kipp Frohlich (FWC), Amy Knight (FNAI), Gary Knight (FNAI), Sally Davenport (CT), Tom Ostertag (FWC), Kim Colstad (CT), Kat Diersen (FWC), Jimmy Sellers (CT), Shannon Miller (Defenders), Elizabeth Fleming (Defenders), Laurie Macdonald (Defenders), Rebecca Pfaller (FWC)

Recorder: Rebecca Pfaller (FWC)

## **MINUTES**

(Introductions)

### **Review of minutes**

TE I am switching jobs starting next year, so I will be working for the U.S. Fish and Wildlife Service (USFWS). I will be the Science Coordinator for the Florida Landscape Conservation Cooperative. That leaves the question of who takes over FWC's role as co-chair, and we're open to ideas, suggestions and feedback you have on that. I'm invested in this effort, and I think we're doing great work, and I'll do everything I can to help make that transition smooth and make sure FWS stays focused on it. With that, I'll turn it over to Kat.

KD Thanks, Thomas. It will be a tremendous loss to the team and the Steering Committee. We'll miss you very much. I'll start off with minutes from the September meeting. I sent them out to you with the agenda. Hopefully you've had an opportunity to review them. If anyone has any questions, comments, corrections to the minutes, now's the time to bring them up.

BM There was some discussion last meeting about piers and some other things. There was confusion about JCP permits and CCCL permits and what would be covered and what wouldn't be covered in terms of efforts to protect endangered species. I have a question about that before this goes away. With a JCP project, do they automatically coordinate

with the Corps and the federal resource agency, so there are automatically efforts to put together Biological Opinions (BO)?

- RT The joint application immediately goes to the Corps, and this is where Trish may want to jump in...
- TA Then the Corps makes the determination whether or not it may affect listed species, or may affect, not likely to adversely affect. And then they request concurrence with us on their determination. If we disagree, then we explain why, and if it's a may affect, not likely to adversely affect, it requires informal consultation, which is a fairly simple process. If it's a may affect determination, it requires a BO. This is all under the guise of consulting under the Clean Water Act. The Corps is required under the ESA to consult with us, so that's an automatic requirement. We have a programmatic BO for beach renourishment projects, and things like that, which are the typical projects that we've tried to streamline it as best as we could.
- BM We had discussions about improvements to a pier, some things that may be on the upland, which may not necessarily trigger the Corps jurisdiction. That's why I was curious, though, if it is a JCP, this would automatically give your agency an opportunity to comment.
- TA If it comes in under a JCP, that means, generally, it'll need a 404 permit. And we do evaluate the project as a whole, so if there is an upland component like a dune restoration, in addition to the sand pumping...
- BM Or a restaurant on the landward side of the pier.
- TA Well, if it's part of the entire project, then it would. But generally a restaurant or something like that happens above the mean high water, and would trigger a CCCL permit. So, then there's no federal nexus there. So that's why we're here in this room right now, is because those projects don't trip an automatic 404 permit, and we don't have a federal nexus, meaning that there's either not federal funding, or there isn't a federal agency that's issuing a permit. Then, if those people wish to be in compliance with the Endangered Species Act, then they can seek consultation with us and receive an Incidental Take Permit, if it's indeed going to have an impact to listed species. But Section 10 is voluntary, which is a little different than under a Section 7, or where you need that JCP because you have that federal nexus.
- BM So, in other words we still have a little bit of a gap that could be addressed somewhere down the line. But that's what I was looking for is clarification. Just because it's a JCP, but it may involve upland activities, does not necessarily mean that you will be involved, unless someone voluntarily does that.
- RT But that's a good point. It takes an affirmative action by the Corps to actually consult. In my experience, they don't always do.

TA It depends if, again, it's their determination and if they request that consultation with us. And sometimes they think there are things that are excluded and there will be no effect and they won't. Generally, they should consult, but that's not always the case.

BE I think this question Danielle posed at last meeting. It was that should we include piers in our threats analysis? And we said no, because that's going to be a JCP permit. I think we would capture things like a restaurant, though, because that's the same as a habitable structure. It's a little bit different, but it might be captured under other things like dune crossovers, dune restoration, those sorts of things. But I think that's a good point, and we'll need to revisit that.

TE Kat, can you and the Work Group make a note of that, that you need to look at that some more and make sure we're covered, and, if appropriate, we can have a Steering Committee discussion if we need to, based on what you all figure out.

KD Sounds good.

DF On page 20, in Dr. Flaxman's notes. First paragraph on the page, toward the end, it went from 9.7 million people living within 20 miles of the coast in, I believe that's supposed to be 2000, not 2010. And then to 1.2 million in 2010.

TE Thanks, Danielle. Any other questions on the notes?

TP With changes, motion to approve.

GA Second.

All in favor. Minutes approved with revisions.

### **Staff updates**

KD (agenda review)

We've accomplished so much in 2012. We're continuing to work hard on grinding out content and finalizing many of the preliminary chapters. We've incorporated your feedback from the WebExes, as well as from these meetings, so we're inches away from have numerous chapters wrapped up. We've made some revisions to Chapter 6 since the last Steering Committee quarterly meeting, and that is just about ready to be sent out for preliminary peer review. We've done work on Chapter 7, we'll see more of that later. In last quarter, we've conducted two more face to face Work Group meetings, and will be conducting a third as soon as this meeting is over. These sessions are where we get together and chew on the ideological, adaptive, high level aspects of developing the HCP – assessing take; brainstorming major issues to be addressed, such as minimization, mitigation and adaptive management; high level conceptual thinking.

We're still planning large dump of the preliminary HCP chapters on the website by end of year. We will have Chapters 1 (Introduction), 2 (Biological Goals), 4 (Covered Activities), 7 (Threats), and 9 (Alternative Actions). All of those will be out on the website and available to the public by the end of this year. Two other chapters, Chapter 5 (Covered Species) and Chapter 6 (Plan Area) won't be far behind. This process will be accompanied by outreach to stakeholders via WebEx and an invitation to begin the public feedback process. There's a formalized process at end of the HCP planning phase, but given the volume and complexity of this program, it wouldn't be sufficient for the public to really come to grips with everything that's in there if we started it that late.

We've initiated drafting a few other chapters this quarter. Work on the Take chapter has been underway for a while now. We have preliminary drafts of many other chapters – Minimization, Mitigation, Implementation, Changed Circumstances, Monitoring and Reporting, and Adaptive Management . For the Implementation chapter, you may remember CT sought you out for brief interviews. Everyone has provided feedback, so thank you.

Meeting dates for 2013. Invitations have been sent out. They should be on your calendar. I know there are a couple instances with unavoidable conflicts. If there's something that's on your calendar that you didn't see and you want us to address that, let me or Rebecca know. Otherwise those dates are set. They are February 21, June 11, September 12, and December 5.

We're starting Year 6 on January 1. The RFP for Year 7 has come out and is due in January. I've already started drafting the Year 7 grant. It will look a little different than previous grants, because we'll be including some of those elements needed to wrap up the planning process – begin working with USFWS on NEPA analysis, and also working on an economic analysis of the real cost to DEP and the permitted public to actually implement the HCP.

- GA There's a whole bunch of things you're proposing down the road for the Work Group. I would love to see the Minimization and Mitigation chapters fast tracked or prioritized so we can start to look at those as early as possible.
- KD They're already prioritized. They're top of the list, and in fact we'll be working on them in our Work Group meeting later today.
- GA That would be great, because the sooner we can see them, the sooner you can move ahead.
- KD I couldn't agree more. We're moving ahead with them full steam.
- BE I think the minimization measures will be ready to go out pretty soon. The mitigation is more problematic in terms of timing because that's going to be predicated on the amount

of take that's assessed to occur. We have comprehensive list of things to use for mitigation, but as far as which ones to use where, that'll may be a little further down the line.

KD Also in the last quarter – FNAI has been developing numerous habitat maps to help support the take estimate and ultimately help target mitigation areas. They did a great job on these and developed a process for getting them out to the scientific community and getting them vetted. They've hosted two workshops so far to get these vetted by species experts – shorebirds and beach mice. We received really good feedback.

AK The beach mouse workshop was held on October 26, and shorebirds on November 6. Both were well attended by outside experts. There were also members of the Work Group present. The purpose was to get feedback and consensus on our habitat maps to help inform the take model. In large part, those maps were validated, but we also got feedback on how to fill data gaps, especially geographically where we're representing occupied habitat, and also feedback on spatial representation of the extent of habitat. We got clear next steps to move forward on revising our habitat maps, but we also discussed mitigation and our approach to representing mitigation on the maps. We showed you guys the prioritization effort we did earlier, but at the workshops, most feedback was that we need a different approach to that, and that mitigation will be in many different categories. For example, in the beach mouse workshop, we had shown high priorities for large habitat blocks, and the feedback was that we may also need small stepping stone parcels in developed areas to connect larger parcels. Other feedback had to do with restoration and management issues. So we have some more work to do on the mitigation aspects of our mapping. At both workshops, Mike Flaxman solicited feedback on impacts of various take activities and discovered that there were larger data gaps with beach mice for types of impacts and appropriate buffers, and some research that may need to be done to inform that.

KD Thanks, Amy. Jimmy's going to go over in a little more detail our progress to date with the Gantt chart

JS We've been focusing since last time on Chapter 8, through the development of mapping support with Mike and FNAI. We've also been working on, Bob and EAI have been working on the Minimization chapter, and we've gotten the skeletons together for the Mitigation, Implementation Strategy and Adaptive Management chapters, but there are still many gaps to be filled. The critical path is with Chapter 8 (Take) and minimization and mitigation, and we're just moving these other chapters along slowly, as we can, and gathering information for those. In year 6, we started a little more detail in the planning. Our overall goals – for the first quarter is to wrap up take, second quarter to wrap up minimization, third quarter mitigation, and fourth quarter to balance or make sure that all the mitigation will be balancing the take estimate. There's a bunch of small tasks as part of each goal.

KD Questions?

- BM With regard to the plan for next year, what's the schedule for dealing with necessary legislative changes to implement this?
- JS We've started to look at that, and we know the basic statutory changes that are needed. As far as pursuing changes through legislative aides, I think we're still at least a year away from that.
- KD we'll be writing a lot more money into outreach in year 7 grant, in anticipation of reaching out to legislators. It's my hope it won't take this long, but we won't actually need those changes to be approved and in place before we can submit our application and HCP.
- JW So the Service would hold the application, submit it conditionally and delay full acceptance until those rule changes have been made?
- TA Not necessarily. We can say within x many months, these things will be in place. So you can put those placeholders in the permit, so that you can reach those goals. Because a lot of times it's not feasible to have those things entirely wrapped up prior to permit issuance, and we understand that so we do allow that flexibility so we can work that into the permit.
- JW At the same time, it's helpful legislatively, to be able to say in order to get that certainty for DEP and the State, these statutory changes need to be made if this and that. But at the same time we can't go to the Legislature requesting statutory changes without at least having that conditional document so that there's some understanding of the context of this.
- TA We can build it into the permit and put in some pretty tight timeframes.
- BE Every HCP has an implementation schedule within it. All the county wide ones have had that. If they're not in place in that time, then the permit will be suspended, or the Service will work with the applicant to maybe extend the timeline.
- KD The application will outline the strategy for going to the Legislature.
- TE I assume it's on your agenda for the upcoming year – I think the sooner the Steering Committee have better clarity of understanding of exactly how these pieces are coming together and needed actions, the better. We're talking legislative action, and that's not minor, it's huge, and I think DEP is going to have to take the lead on that and, I'm looking at our timeline and it goes out to 2018 for approval. I think we're getting ready to hit a critical point, but as soon as we can get clarity on here's what take looks like, here's what minimization and mitigation looks like and then know what changes we need to start working on. It may be time to start prepping our elected officials and having it on their radar. I think we're getting close.

- KD I think we've all felt that the complicated stuff with take and mitigation, the things that will impact the types of changes we'll request, we're right on the cusp of those.
- TE I just don't want to miss the right steps now of getting people prepped.
- BW I know public outreach process is ongoing. Do you anticipate a push early on to contact the press and orchestrate an explanation of the HCP process in general to help set the stage for legislative attempts?
- KD The public outreach we've done so far has come in the form of outreach to county government and potential partners in implementation of this program. We spent a lot of time working with them. Primarily, it been the regulatory community. As far as going out to the press, that's not something I've gone too far down that road with. My reasoning is I've been considering target audience as being more specific than that.
- BW I'm just picturing a potential stumbling block, and that's negative reaction by public at large to the HCP process because it's not fully understood or this specific type of HCP is a little suspect. Anyway, it might be worth considering.
- TA One reason we've been hesitant to take this to a broader audience is because they'll be asking very pointed questions like what does it mean to me and what does it cost. And some of those questions we don't have answers to yet. So we've limited that audience up to now. Some county wide HCPs have made mistakes by reaching too broadly too early on and raised a lot of fear, and it had a negative impact on the plan as a whole. So I think we need to roll out slowly to not cause panic.
- BE That was my concern too.
- TE I'm hearing that as we're getting closer to being able to provide those answers and have more concrete results, we need to think about more inreach and who else we should be reaching out to. I don't think we need this at the next meeting, but just capture this as something to come back to the Steering Committee with as we get better clarity on it.
- KD I think it will help that we've already developed solid outreach materials, and established process with WebEx and our website. So the tools are there, we just need to be thinking about the different levels of outreach and the appropriate time to do that. Any other question?
- BM I agree with Trish's comments. On the other side, when you refer to your outreach program, do you have an ongoing list of stakeholders?
- KD It's monstrous. It's not on website, but we have it internally and could furnish you with it.

BM I was just thinking if any of us comes across an entity that may be interested in being a stakeholder, we could know if they were already on the list.

KD I want to wrap up this staff report a little differently than I typically do. I think sometimes it can seem to the Steering Committee that maybe we will be spinning our wheels on a particular issue or that maybe it doesn't seem like there's a whole lot of movement because in the limited amount of time we have with you we pick and choose what to highlight for you. The reality is we've accomplished a tremendous amount of work on this team, which has grown over the years, and I wanted to highlight some of the achievements that we've made this year.

We've established first drafts on chapters 10, 13, 15, 16, 11, 14 just in this year. Bob, Jimmy Kim and Sally have been the lead on those. We've refined species accounts based on peer reviews. We've continued development of the take assessment. Bob has been developing the actual chapter language. CT conducted a close the gap study based on your feedback. We updated the beach cleaning study. Interviews for the implementation chapter. We've all worked on inreach with DEP's senior leadership. We continue to do the annual WebEx outreach to stakeholders and regular updating of the website. Gary, Amy and others at FNAI have been responsible for developed detailed habitat maps, preliminary methodology to define habitat. We've engaged in preliminary efforts to prioritize habitat for species conservation. We've initiated a sea level rise simulation. I think it's undeniable that our team's rock star this year has been Mike. He's already developed a shift and clip method, developed a plan area units, characterized census land cover parcels and historic CCCL permits, projecting future CCCL permitting activities, developed initial take buffers, begun developing preliminary method for ITP computations. It's a mind boggling amount of data and modeling that's been produced in the last year. There's just so much that goes on behind the scenes and staff just put a Herculean effort into this and I don't always get a chance to highlight and thank these people for their hard work.

I also want to acknowledge Trish for her contributions to the team. When she came on, her initial role was to provide oversight to the Beaches HCP planning process from the Service's perspective and make sure we didn't wander too far away from the Service's expectations in developing the plan. But she's ended up doing a lot more than that. She's actively contributed to the work of the team in helping us develop our product. Her creativity has contributed importantly to almost every major component of the plan so far. She's been a cheerleader and advocate for us to DEP senior leadership and other potential partners down the line. She has showcased our efforts at the regional and national levels and set us up as a model for other HCP plan developers around the nation. She has hassled the people with the purse strings in her agency numerous times in order to keep this project moving and keep everyone on staff getting paid. She's been invaluable to the team in more ways than I can count. And I think she has an announcement to make.

TA Thank you, Kat. It's been a privilege working with everyone on the Work Group. This is one of our office's largest, most complex HCPs, and ironically, it's running the most smoothly, and that's a testament to everyone's contribution and the skills that Kat brings with organizing. With that, I'm happy and sad to announce that this will be my last Steering Committee meeting. I accepted a position in our headquarters office up in Washington D.C., and I will be splitting my time, half my role will be doing Section 7 consultations at a national scale and the other half of my duties will be serving as the national HCP coordinator. So I hope to stay somewhat involved in this HCP, but Brian Powell is going to be taking over my role, and he's extremely competent and very enthusiastic, and I know he'll do a really great job, and I'm glad he's on board.

This plan is something that's extremely important to our office and to the U.S. Fish and Wildlife Service. We've committed quite a lot of resources to the plan. I think we had close to 4 million dollars in grant money, that has been invested through Section 6 planning grants. We feel that this is a plan that once it's implemented will have great benefits not only to protecting the shorelines of Florida, but will also benefit the people of Florida because it will give them a streamlined regulatory process that will enable them to remain in good standing with the ESA. We just strongly encourage you all to continue this effort. I know there's a little bit of concern on our end with the reorganization at DEP and we hope that DEP's senior leadership embraces the plan and continues to move forward with this wonderful effort.

DF Trish, we're sad to see you go. Thank you for all the time and effort you've put into this, and Brian, welcome to the oversight role. I also wanted to mention that from my perspective, there's no concern in terms of the commitment of DEP the Habitat Conservation Plan.

GA I don't know where to begin, so I'm not going to say much. Trish, your involvement has been so important. And most importantly is not only your skill and understanding of the HCP process, but the Service's recognition of the need for this from day one is really what's driven this process. And I don't think the Service would have understood that need if you weren't in the position you're in. So thanks for everything. And I would like to say one thing about DEP and your concern about the integration of the HCP. From what I've seen, they're actually integrating the HCP pretty thoroughly into the reorganization of the agency. I find that very encouraging, and I think that's largely thanks to Jackie and Danielle.

BM Trish, from my perspective, you've always been a great resource by not only your knowledge of the private sector, but also the public sector. You've always been very respectful and very fair. And we certainly wish you the best and hope you stay involved as much as possible.

TE Trish, I appreciate everything you've done. Good luck in D.C. and beyond.

## Chapter 7

BE At the last meeting we went over the construct of the Threats chapter and got some good feedback. So I went back and restructured the chapter to address your comments and concerns. One of the issues was that the introductory section needed to be revised so these are some of the things we did. We added a statement to indicate that even though some of these activities that the Department permits under the CCCL program have actual conservation values, nevertheless there are impacts associated with those, and it's the Department's obligation to list all those threats in this chapter. One of the concerns was the tone was somewhat negative and needed to be balanced, so we've attempted to do that. Also on the certainty of impacts, where we say this causes this to happen, we softened that by putting in words like 'could' or 'may.' The coastal process discussion in introductory portion of the chapter, the Steering Committee wanted some feedback from a coastal engineer to make that was accurate, and Brett Moore was kind enough to undertake a thorough review of that section, and we incorporated his comments. We distributed the revised edition to the Steering Committee and hopefully everyone has had a chance to review the revised version. Any questions or comments?

GA I certainly appreciate all that. I do have one or two comments. On the second page, third paragraph, it says 'beach erosion/accretion are natural phenomena to which coastal species are adapted.' You might want to rephrase that to 'coastal species have become adapted to natural beach erosion and accretion.' In other words, change the focus. Does that make sense? I'll send you these edits. And I think the tone is much better, so thank you.

\*\*Gary to send edits to Bob

JW I just had a couple word tweaking things, so I'll just send you those in email, too.

\*\*Julie to send edits to Bob

BW I really appreciate the reshaping of the chapter, and I'll send you a couple detailed things by email. Also, one thing I wanted to introduce, you mentioned the difficulty in describing permitting activities in terms of benefit and harm, and I think wherever possible it'll be useful to use neutral descriptions, but one of the terms in the chapter – restoration – as it refers to dune fill, or placement of sand on the beach or dune, and I was wondering if that could be replaced with a more neutral term, like fill or sand placement.

BE I would defer to Jackie on that. Is that a permitting term?

JL No, I think it's beach placement or beach fill. It also depends on what type of project.

BE And the threats assessment portion of that chapter, we use fill as the threat, but we can change that.

\*\*Blair to send those edits and comments to Bob

- TE Y'all did a great job cleaning it up. Flows better, reads better, and good job with the tone.
- BE The next issue had to do with redundancy. This just owes to the number of iterations there are when going through the threats – 144 combinations of activities, species groups, threats, and type of impact. So there are 3 ways of presenting those things – you could do the threats first, and then species group, then impact type, which is the way it's currently written. An alternative would be to do the threat first, then impact type, then species group. Or a second alternative is species group first, then threat, then impact. One thing we do under each threat – in this case it's vehicle operations – is we list general ideas or elements of that that are of concern and can affect the extent or severity of threat. So how many types of vehicles will be involved, when will they operate, how are they going to get onto the beach, etc. Those will be same for all species groups. So that almost eliminates that second alternative, because if you go with species group first, you'd have to repeat those things each time. So we eliminated that option and that leaves the other two – the current and the first alternative. One thing that caught our eye was to go with alternative one, we could under impact type list the general impacts to all species. The concern with that is if we do that, we have to generalize how things are presented. The way it's currently written, we're very specific about the threat to each species group, so with alternative one, you lose some of that specificity. So the two options are we can compress and generalize, which I just described, or we can include only the identical language in the general impacts. I think that's the nuts and bolts of it and we're looking for feedback from the Steering Committee about which way to go.
- TE Questions? Comments?
- JW I think the detail comes in handy in a couple places. One is when you can specifically understand the mechanism of the threat, it helps you come up with solutions for minimization and mitigation. The other thing is making sure that affected parties have access to information to understand the legitimacy of those threats. So I agree with not wanting to be redundant, but be cautious of throwing things out too quickly. What are the intended functions of this chapter? On one hand, there's the issue of cataloging threats to assess take, but I also wonder will there be interest from affected parties once the HCP is in place to be able to look at what kinds of activities are being undertaken in their area and what kinds of species are in their area, and as a result what impacts are going to require minimization and mitigation. Maybe that's going to pop up in a later chapter, but I was looking at this and almost thinking that there may be a reason later in the document to organize this information according to those other structures you've laid out here, whether by activity or by species, so that an applicant would be able to flip to a table and say, okay I know I want to do beach raking and I also know I have mice and Wilson's plovers, they can easily work out where they're protected.

- BE I think the primary goal of this chapter is to inform minimization measures. But you come up with minimization measures for each of these threats, but they're only applied to the areas where those species occur.
- JW I just think you've put a lot of thought into this and just find a way to preserve that, because it may have some utility later in the document.
- GA I wonder if there's a way to accommodate both needs – the need for removing redundancy and then also including an appendix that incorporates all the detail.
- KD If you guys remember, we started this with a threats matrix, which is essentially a spreadsheet and that's what we have here in narrative form. We could attempt to preserve it that way too.
- BE That may be a good idea. We could include that matrix as an appendix, which is very specific, and then just generalize it in the text.
- JW I think the detail was not always the problem, it was being able to navigate through it because there was so much. So if we have some kind of reference like that where you could easily scan the table, it might give people an easier way to go through it and find what they need.
- TA I'll take the blame for the redundancy because one of the issuance criteria is to thoroughly explain the threats to the species, so typically we'd rather have more detail in there. So if we didn't address those now, we might have to go back and do it later after public commenting. I would personally rather see the detail, but the key is presenting it in a way that's not so cumbersome, so I think the solution may be that appendix.
- KD We really did play with the structure of chapter 7 a lot. The redundancy came in because many of the same threats affect many of the same species in the same ways, and we had to be able to reference those threats and it just happened to sound very redundant. But I think we're heading in right direction with chart.
- BE So are we at a consensus to generalize in text, but provide specifics in appendix?
- DF It seems to me that alternate 1.1 would be a way to accomplish both within the text. I think if it's sent to an appendix, it won't get read very much. So I like the idea of putting it in the text itself. One idea to consider would be to take the language that's the same type of impact response that applies to all species, and then with the individual species response, put it in a table in that one section. I agree with Julie about the specificity giving us ideas on mitigation, so I wouldn't want to lose too much of the specifics.
- BW I wonder if we'd be having this conversation if we had in front of us the take chapter. That will have a tremendous amount of detail, including some of the most important detail, and that is some of the quantitative aspects of each of these threats. If I were

going to the HCP and I wanted the intense information on the precise threats that are occurring and their magnitude, that's the chapter I'd go to. So I wonder if we could get away with keeping chapter 7 a little more generalized.

- BE The problem there is that in the take analysis we're doing permitting types. So, for example, single family residential and Mike's projecting what the amount of habitat's going to be affected or impacted as a result of the permits issued for single family residences. But the single family residence, that construction activity encompasses a number of these threats. So we're not actually calculating take on each threat, but on basically each permitting category.
- BW so the threats tables that we've been talking about, those could be much more than just presence or absence of a threat, they could be quantitative, couldn't they?
- BE Well, they could be, but I don't think they're going to be. Not the way that you're approaching this.
- MF At the activity group level they could be quantitative.
- BW Right. It would be a big job.
- TE Is there going to be a one to one relationship to what's in this chapter under explaining take to what minimization and/or mitigation is, or are we simply laying out the case for here is all the ways that take occurs, and then we're going to create a different way of calculating and doing minimization and take that will relate back to that. My question is, is it going to be hard wired in? Because if it is, we need to get the structure right here, otherwise I'm more comfortable with generalizing and possibly an appendix.
- BE We need to segregate minimization from mitigation. This chapter lays out all the potential threats that are out there for everything the Department's doing under the CCCL program. This will allow us to develop minimization measures. We know what the threats are, how do we minimize those or how do we avoid those threats from becoming actual impacts. That's almost completely segregated and independent from mitigation. Take informs how much habitat is going to be impacted, and that's what informs mitigation. So they're not tied that closely.
- TE So when we're talking about take vs. mitigation, they inform each other, but they're not directly linked.
- KD So, it's threats and minimization; take and mitigation.
- TE I just think about this differently, but I think we're saying the same thing. My point is the way we structure this chapter is going to much more directly affect and interplay with minimization, as opposed to how we do mitigation.

KD Absolutely.

TE But I'm much more comfortable with, I like where Danielle was going. Some form of generalizing, but not losing specifics that are going to be important and/or using an appendix to help with that. So I think we're all saying the same thing, and I'm comfortable leaving it up to the Work Group to figure out how to do it, but what I don't want is to have eight chefs in the kitchen with this. Whatever we do, it needs to make sense and be consistent throughout.

BE I'm not sure we've addressed Blair's concern.

BW I think I'm satisfied that the link between threats and minimization is going to be detailed most in the minimization chapter. So if we miss out on some detail in the threats chapter, we shouldn't worry too much.

BE Right.

BW But from an editorial perspective, I'd say we should reduce redundancy in the overall document.

BE I think I've got the minimization chapter structured so that it mimics this. In other words, each of these threats we go through and we'll have the minimization measures that correspond to that, so that there's that linkage. And that will be reorganized once we settle on the restructure here, which I think we have now.

KD We're comfortable with those marching orders. We know what we need to do. We're very much ahead of schedule. Next item is getting back to PSMUs and a discussion of where we started off with the history of those and where we're headed now.

### PSMUs

BE This whole concept, we initially came up with 4 regions in the state that corresponded to climate, population, geomorphology, and also densities of turtle nesting. The way that we envisioned this was that these management units would be used by the Department's permitting folks to say, this is going to occur in this area, and these species occur here, so therefore I'll take off the shelf for this PSMU, and here are the permit conditions for this activity. That was the initial structure.

There were a total of 12 PSMUs, and the thinking was, although naïve at the time, was that birds occur everywhere, so they were kind of out of equation, so it was primarily beach mice. So it was based partly on where unique combinations of beach mice would be.

But at some point we recognized we could run into some problems. We hadn't considered birds, hadn't considered plants, and even if we just use beach mice, there will

be some counties where the range of beach mice will be very compressed, and you figure you can't administer this on a county-wide basis, because you can't make people in a county minimize for beach mice in an area of the county where they don't occur.

So that was the dilemma, and we sent FNAI on a mission, and I'll let Amy pick up the story here.

AK So we were asked to look county by county at the distribution of beach mice to determine if there were portions within each county where we could use some description, maybe range monuments, to say this is a part of the county where the permit conditions could be different. The first two slides give an overview of where we have currently mapped occupied and potential mouse habitat. You can see it is somewhat disjunct.

One case example is from Bay county where it seemed to be clear there's a huge portion where we know beach mice don't occur, and we may be able to characterize that through range monuments, and say that permit conditions would be different there. And I have examples from other counties where we have similar situations.

TE Are the beach mice not in those areas because the habitat is not suitable? Are we not expecting mice there ever? Or are they just not there now because they've been pushed out?

AK That's a question we'll need to discuss more. There are certain areas where the habitat is completely gone, and there is no expectation that mice could live there. Other areas are not as clear cut. In Okaloosa county, there have been surveys that have shown there are no mice in those areas, but we wouldn't want to exclude them because there could still be some remnant patches that would allow for genetic flow between those two occupied areas. So, it's not always very clean cut. On east coast, particularly, there's been a lot of survey work done and the consensus in many places is the habitat is not suitable and mice won't ever return there.

TE It seems to me like it might be better to as opposed to having set PSMUs, or whatever we're calling them, maybe we have good GIS database of all these layers that when someone's doing a permit, they can pull them up and see what's there, and then we have conditions for whatever those critters are. I'm starting to think about what if restoration is part of mitigation and/or we start getting people to minimize in ways that beach mice could expand. I just get concerned about having static boundaries of where they are.

BE One thing to keep in mind is no matter what kind of process we come up with, it's got to be easy for permit processors to utilize. The other aspect is that defined property boundary issue. So you want a balance between having it large enough so it's not arbitrary, yet small enough so it accomplishes what we want it to.

DF It makes me think that on this map, the dashed blue line would be a great place for mitigation. And then even in your unoccupied zones you have potential beach mice

habitat there, so that could be a potential restoration area. Would you break up the unoccupied zone to exclude that light green area?

- AK The light green is Henderson beach and beach mice haven't occurred there for years. There was conversation at the species expert workshop about that as a relocation site, but..
- GK In some ways, I think we were building on the previous effort for PSMUs, using more precise information. Perhaps we should be thinking about expanding on that, with the idea of restoration or mitigation. I think the level of information, the data that are out there, would allow us to maybe augment more than we have at this point, which was really trying to make more precise the original concept.
- AK And we've really just started talking about this idea.
- BE We tend to start interchanging minimization and mitigation. The original concept was where do we apply minimization measures? I like the idea of us continually updating a GIS map that would inform permitting decisions because where there's an area where potential habitat could be identified as a mitigation area, but that may not occur for 15 years, and someone there shouldn't have to minimize for mice that aren't there right now, but in the future they could be. So, again, if we want to have a dynamic system with a GIS database, and the PSMUs or management units change based on habitat acquisition and restoration, I think that's a good way to go, as long as it's not too complicated for the DEP permitting folks.
- DF I'm looking at this, not only from a permitting, but from an applicant perspective, and just using this slide as an example, if I was looking to minimize my impacts and I was in the occupied beach habitat, then that would sort be the highest priority area to avoid or minimize your impact. Versus if you're adjacent to potential beach mice habitat, that might be the second level of priority, where you have to go through most of the minimization measures but maybe not all.
- KD With the build out scenarios that we're looking at for the future, there's the additional conflict of when people want to build in these occupied areas and we start getting past minimizing and into mitigating impacts, if we're encouraging...we've got to mitigate for them somewhere, and here we've got this tiny piece of potential habitat in an otherwise unoccupied area. We're not worried about this unoccupied area for purposes of calculating take, but we still have to figure out on what scale we're going to worry about it for targeting future mitigation, because those mitigation areas are not always going to fall in the occupied areas.
- DF Just to finish on the thought, not just in terms of where you need to minimize, but as an applicant if you want to figure out where your potential mitigation areas are going to be, it seems you could prioritize, well first and foremost, your occupied beach mouse habitat is already occupied, so the presumption is you wouldn't have to do any mitigation there.

Potential beach mouse habitat would be a great place to do some mitigation or restoration. The dashed zone, whatever you're calling that, could be the next step. I'm just trying to think in terms of prioritizing. So I don't think it's overly burdensome to tier your minimization efforts and tier your mitigation efforts based on some of these criteria that we're creating. It actually brings to mind the manatee key, when you key out your activity, whether it's a marina or boat ramp, based on whether or not it's in a manatee aggregation area or a special exclusion zone. If you key it out, if this then that, if you key it out all the way to the bottom, it says you need a formal consultation or an informal consultation.

- KD With the caveat that it probably won't be left up to individual applicants to determine where the mitigation is going to be.
- TE Building on what Danielle was saying, I feel like we're trying to back into what we should be doing. For beach mice we should be looking out, what is it that we're trying to achieve, and then build our minimization and mitigation into achieving that at both levels. Say you have that dotted blue line, there may be people redoing their house or building a new house and we don't have them doing minimization because they're not in beach mouse range, but if we ultimately may want to connect all that habitat, we may want them to do that now. We need to identify what success looks like for beach mice, and then you can build in minimization and mitigation around that, as opposed to by where people are doing individual work. You may already be there, but it seems to me we need to be able to know what the end game is to be able to engineer the process to achieve that.
- DF I think it's an excellent idea to know where you're going, but it seems like that may be outside the scope of the HCP. It brings to mind the least tern management plan that is being put together where the concept is to have certain number of colonies above a certain threshold of nesting pairs. Just coming up with that management plan and that long term goal, that's very intensive and involves stakeholders and is a process in itself. I don't know how to blend those two.
- BE I think we've addressed that in part, and that's the reason for showing you what we're doing. I think our idea would be we'd probably include that whole section in there even though there's currently unoccupied habitat. For that particular reason, the Working Group, with Steering Committee feedback, would decide okay we're going to include all that. So it doesn't matter if you're in that dotted area, you're still going to have to minimize. Because we don't want to impact the habitat and affect our ability to recover the population in that area. I think the only thing we haven't done that gets to the broader picture of the end game is we don't know yet where we're going to mitigate and how big the area's going to be and where they're going to be, and that's somewhere down the line.
- DF I think this is a very useful approach to identify where they're occurring, where they could be occurring, and this can help feed mitigation in terms of guiding us to where our

biggest efforts should be. I concur with Thomas that having this in a GIS format would be the most user friendly to permittees.

KD Amy may have mentioned this but, species experts knew where mice were, but were hesitant to be bound to that in map form because of the nature of mice where they will just pop up and blink out. The maps kind of drew a line in the sand for where these critters are currently found. So the species experts had some trepidation in saying this is the end all be all, even if you update it every year.

RT Well they know where they are where they tracked, and that's a big part of this, the sampling effort. It's best available information, but it is a limited sampling area.

KD And when the Service is providing guidance to anybody who's doing anything on the beach in the panhandle, they tell applicants to presume occupied. So there's some fluffy stuff in here too. The maps are very useful for habitat types, targeting future areas, but there's some fluidity we're going to have to figure out to build into this too.

JW When you say unoccupied, there's a presumption it's been surveyed. Can you differentiate on the map, places that have been surveyed or not? Unoccupied v. uncertain?

RT That term, unoccupied, has generated a lot of discussion among the experts and within the Working Group. The question is, where does this all lead? Ideally, it's recovery of the species, which is the real challenge because there is a certain point in time where it's going to have to be static, and that's where the take is estimated. But there has to be the flexibility to have the minimization measures, and if we are actually successful in recovering these populations and their ranges expand, that has to be accommodated.

TA Right, but one thing to keep in mind is with the HCP we're supposed to be contributing to recovery, but DEP is not responsible for recovery.

TE I would just rather have our experts and managers sit down and say, this is what we think based on our best understanding or analysis of what success would look like, so we can engineer that intelligently, as opposed to making random decisions that may not add up to the best answer. That's what I meant by trying to have an end game or picture of success.

BM Does an unoccupied zone mean it can't be potential habitat? And down the road if it's unoccupied, is that just because we haven't found the mice there? If one day it's going to be used for mitigation, now it's going to have to have protective measures. It seems there should just be two zones, unless it's very clear that there's no way it'll ever be suitable for mitigation or habitat restoration and will never be used by mice. If no one's willing to draw that line in the sand, seems we just need two colors – occupied and unsure.

TP I would agree. It's like begging the question a little bit, what happens if it is. Literally you're talking a tenth of a mile, the distance from one section to the next.

- KD At some point we just have to set up a standard.
- GK That was part of the feedback we got from the experts at the workshops. That dashed blue line, there's genetic exchange between those two areas.
- AK Actually, there's not. It would be considered occupied habitat if there was genetic exchange.
- GK Okay, but that was the feedback we got to put that fine point on it.
- AK And we still have work to do to revise the maps, and we tried to solicit good feedback on where they thought potential habitat for beach mice populations to come back or to relocate. But there is still a degree of uncertainty on that.
- GK And our approach was to identify where it is known that these beach mice live.
- AK And at the workshops the questions were a little different than what we're trying to address with this, which is what is valid habitat for purposes of a take model.
- TE Can you help calibrate us on how, Bob, you said this was meant to help permittees as they're getting applications in, and I just heard Amy describe something a little bit different. I'm describing something different, yet, so maybe you could help get us calibrated back on what we're trying to achieve with this, and then we can just capture good ideas to include wherever, versus what the Work Group needs on PSMUs.
- BE I think this will have multiple uses. The original intent in terms of management units was an aid to permittees in terms of determining which minimization measures to include in a permit. That was the original intent, but it has other uses. Right now, we're not really seeking a decision. We're just showing you that we're exploring this management unit concept and some of the issues that we're having.
- KD And as much discussion as we've had on this, there are a great many of counties where there's no issue. There are just a small handful of counties where permitting guidelines won't be uniform across the entire county. There are areas where we don't want to unduly burden permit applicants by requiring them to minimize for species that don't occur there. Just purely an effort on an administrative level to make sure we're being fair, and it's only an issue in a few counties. The maps, as we've discussed, are going to be brought to bear on almost everything.
- BE One thing we glossed over was on the shorebird issue. I think one of the minimization measures would be, for nesting shorebirds for example, you would do a survey to see if any nesting shorebirds are present prior to initiating, and then implement minimization measures if they occur there so that we're not ignoring those in this.

- KD And that was something that was asked of us. We had based these largely on sea turtles, which occur everywhere and then beach mice, which are fairly limited in their range. But there is just not a good way to get at birds the way they disperse and where they can be found. I think we decided that there were only two counties where we didn't have documented shorebird nesting and even both of those might be anomalous and we're going to be going back and looking at them. So, it'll have to be case by case basis for shorebirds.
- DF When I heard these maps would be used to determine take, we want to be careful where we put occupied beach habitat so we're not overestimating such that we are running out of potential restoration and mitigation areas or asking for an incidental take permit for more than we're really anticipating take. I think these maps are important, and I think the continued dialogue and updates are very helpful so we can hear how you went through your thought process.
- BW I think what we're looking at are maps that begin to satisfy our biological curiosity, but eventually we need to come up with more specific language describing zones where take could potentially occur, zones where minimization would be required, zones where mitigation is possible. And that's ultimately what we'd like these maps to do. So my point is maybe the biological descriptions aren't as important as those more practical definitions.
- TA One thing I was going to caution with the use of maps, if you get it down to the parcel, it can definitely affect a person's property value and it causes some panic. So I would advise that we keep these maps fairly general for discussion purposes, and if it needs to be more defined, that should be kept in house. So just be mindful of that.
- GA I'd say we have to be more than mindful. I think we have to consider that very carefully.
- BE I think that's why we originally set out at county wide management units.
- TE I could see as part of a statewide HCP there are areas where we just say human use is going to dominate and there will be bare minimum BMPs. Then other areas where we say this is set aside for natural resources and we're going to be really strict with conditions. Then there would be a third category of sort of intermediate. To me, if we went that route we might be able to, on a political spectrum, make something work statewide that if we just apply one standard across the whole state we won't. I don't have clarity on if that would work or not, but I know FWC has had a lot of internal discussion and thought on ways to utilize a statewide approach that gives us flexibility in ways that we don't when we take it on a case by case basis.
- BW It's going to be awfully hard to get around designating properties for what they are, either having protected species or not or potential habitat. It's the way property use is managed with regard to flood zones or economic zones. I know those sorts of designations are

controversial but it will be hard to get around coming out and saying what sort of things should or shouldn't be done on a given property relative to protected species.

- MF One of the approaches that came up at the expert meetings was the idea of doing two passes through this. The first of which would be to develop a categorization of a combination of management and biotic units, basically management context areas. You have a number of those, and then see if we can comfortably fit packages of minimization, for instance, within those units. It doesn't entirely alleviate the concern, but it's kind of a reasonable intermediate, and we thought we could prioritize within those units for particular activities.
- BE I think what Blair was suggesting, although it is a good conservation goal, it may be overstepping what our obligations are to minimize impacts. The minimization aren't intended to prevent the applicant from doing an otherwise lawful activity. The object here is to minimize impacts associated with that.
- TE A lot of this will depend on the activity. If someone is building a skyscraper complex versus wanting to have a wedding on the beach. There's a ton of complexity here, and I think we're all thinking about it from individual perspectives around individual issues, so I like the improved species information, I think it will be useful. I'm still wrestling with exactly how we use PSMUs or not. With that, I'll hand it back over to Kat to wrap up this topic.
- KD We've received as much feedback as we wanted to receive, inasmuch as our only objective was to show you we did indeed take your concerns under consideration. We're starting to have to think about this on a lot of levels for how we're going to administer this thing, and this is just one of the pieces to that. Fortunately, because nothing is set in stone until the very last minute, this will continue to be adaptive as new information becomes available.
- TE Any final comments or feedback?

### **Geodesign**

- MF I wanted to talk about 3 things: review of what I haven't shown you visually of the work completed, a lot of the work in progress, and a brief work plan for 2013. I spent time last time talking about the sea level rise inundation analysis, so I'm not going to go over that again, but basically there are four things we've been working on. The first starts with a little bit of slang, but those of you who know r monuments, we're calling them r zones, but they're spatial units built around r monuments. We've been using those as accounting units; they have no presumption for anything else. A lot of the work that Coastal Tech is doing right now is revising the coastal erosion estimates, and in order to be able to reintegrate that well with the geography, those coastal erosion units are computed on the r monuments. We've also done some land cover and tenure

characterization of those areas and used that to drive statistical modeling of CCCL permits, which all feeds into take computation.

BE What is tenure?

MF In the non-academic context we're talking about who's managing the land, regardless of who owns it. You have all these complicated situations in Florida where one entity owns the land and the State manages it for the Feds, or vice versa. Because those affect where permits need to be drawn, in particular we need to distinguish federal conservation or federal lands from other lands. Otherwise you'd expect not to get any permits on State parks, but you do indeed get permits on State parks. They're conservation lands, but because of the programmatic requirements it's not the land cover that matters, it's the land tenure in predicting activities occurring there.

So, why do we need r zones? When we did the first blush analysis we used plan area polygons and habitat polygons, and those varied in size from really tiny to half a county. So we need some relatively equal-sized units and we wanted to tie it to r monuments. We used ArcGIS's technique for Euclidean allocation, which basically starts at every r monument and goes halfway to the nearest neighbor or a distance of 500 feet, and then we aligned that to the FNAI 50 foot habitat grid so that we'd have a clear definitive line of whether a piece of land was either inside or outside one of those units.

The intent is that the r zones are already characterized by the profile data that's been collected by the State for many years, so I was just using those to add on the socio-economic characteristics all lumped into the same sampling unit.

So we need to worry about land cover and tenure because there are federal lands not in the CCCL. I was also interested to look, in terms of predicting future, the issue of grandfathering becomes really important. And built out beaches are expected to have different projections than developable private beaches. So basically we're looking for explanatory factors at that level of the r zone, and if it's entirely federal land you'd expect one thing, and if it's private and unbuilt, you might expect something else. So we went about creating masks for federal and all other conservation. We created masks for parcels based on the date stamp of the parcel year built field from the counties. And we computed statistics for all those units.

So then we pursued statistical modeling of the historic 35 year database that DEP was kind enough to provide. Trying to use the past to model the future. The other thing that came up right away is green field development, which is a little different than the way I'm used to thinking about it, the CCCL program issues the majority of its permits for areas that have previously been developed. So you can think of that as either redevelopment or relandscaping. So that means we need to simulate that future scenario as well. And so it's not as simple as just taking the MIT scenarios that we have sitting on the shelf and saying here's where the new people are going to be. We also have to talk about properties that are already developed and what activities will occur there.

So the general approach, we used a statistical package called “R,” which is an open source. We wanted to be able to hand over what we did to anybody to make this as transparent as possible, so we didn’t want any proprietary statistical package. So we started comparing two basic datasets, the permit data and county parcels. We used scatter plots and histograms and general linear modeling. We ended up wanting to look back at the census, because that’s the best general source we have for complete household counts.

In the parcels history, there’s a time stamp for every parcel in the state, and these go back into the 19<sup>th</sup> century. You can see from this graph that the period from 1970 to 2000 includes a pretty large slice of the total development in Florida, so we had a huge historic database because the CCCL program was occurring. Obviously the housing crash and influence on new construction.

So here’s the camel hump of single family residential permits, and you can see there was a rather substantial decline. But the story is more complicated than you might expect, if you just thought about single family residential construction permits. This is one that caught me by surprise, it turns out that even if people aren’t building houses, they’re still doing landscape, and they’re doing more landscape. So we looked at this in a little further detail, but basically, the fact that new construction does not exactly correlate to new permits, permits of different kinds have different temporal distribution.

There’s something that went on with seawall permits at the initiation of the CCCL program that caused a big spike of seawall permits. I suspect that has something to do with how the law was implemented.

So conclusions from this, permits are not being driven by green field development. If you regress the year built and single family residential permits, it explains about 45% of the variance, significantly. So green field development, at least for a single family, is only 45% of the problem. So if you just make a scatter plot of these two datasets, and you say what was the year built and whether they pull single family resident permits, if they’re only pulled once at the start of the construction, you basically have a single line here. So all the scatter that you’re seeing is redevelopment, so it gives you a reasonable visual impression. In the next slide you can see the same thing is true with landscape permits. And that’s more expected, because people landscape on average of every few years.

So the way we try to summarize that we have a histogram based on year of initial construction. An easy way to think about this is a fall off over time after initial year built. Yes, it goes down over time, but there’s still a large and fairly predictable reissuance of permits. So the key thing is it’s predictable and it’s linear.

For landscape permits, 15 years after the initial permit is issued, people are still doing a lot of landscaping; it’s almost equal to the initial. It falls off, but it falls off very slowly.

Essentially that tells me today that a lot is going to be built, we can predict something about the next 15 years.

So conclusions from this kind of descriptive statistic work, the simplest good model needs to address two things. It needs to deal with expected frequency of green field development, and it has to deal with the expected permit fall-off curve with time since development. Basically this feeds into the intended incidental take computation approach, so I wanted to go over some of the details of where we've gone with that.

The intended approach has five steps. It starts with determining disturbance tolerances by species for each permitted activity group. So it starts from the biological point view of what is the area of disturbance zone where we can defend there's harm and harassment of species likely to go on. Then it takes the data I just showed you to simulate future permitted activities that we do on a parcel polygon level. Then we buffer the parcel where there's a permitted activity to create a disturbance zone. And then we intersect the disturbance zones with habitat. There are two double counting issues, one of which we do take care of, so if there are two adjacent property owners doing different things, in theory those could overlap, and who's responsible for the disturbance? Basically we decided to do shoreline parallel buffers and allocate responsibility according to those. The second area of counting is between species groups. There it is fair game to double count. So, one set of permit activities could have cumulative impacts to different species. In that case we do want to count each time take occurs. So the result is a habitat area-based measure of incidental take, expressed in acres or hectares, and it's driven from linear buffers.

A few principles we ended up using as our working guidance. First we wanted to deal with both direct and indirect impacts. So here we're thinking about the footprint of the development or the footprint plus the immediate area around that needed to construct the building. So, obviously, we'd like this to be grounded wherever possible in empirical observations and in the literature. As Amy described, in the first two species workshops we had good news and bad news. There's a lot of literature on shorebirds, on the other hand I was surprised at the lack of literature on the beach mice side of things. So right now we're basically erring on the side of caution, because we don't want DEP to underestimate the take, on the other hand, in the Spring we're going to have to have a workshop to make sure that people are comfortable with these distances. To start, we had to make some assumptions about the normal level of activity, and since the minimization stuff is in progress, we chose to start from the 'worst legal neighbor.' So we're taking that as a starting point, but ultimately all of these buffer distance computations, even though they're informed by the literature and expert opinion, really fall on the shoulder of best professional judgment. That can be done in general for some species. It can be done in detail for any combination of species and activity group. It felt in the initial workshops that a lot of the shorebird experts were comfortable with using more general guidance.

So this slide is just talking about intended process. Basically, our mandate is to get deliverables that define the worst legal behavior. We'll have that done by December 31<sup>st</sup>.

We're developing an interactive web-based system to support and review and experimentation with these. We'll start internal review in January, and then get expert groups involved later in the quarter when we'll combine that with a discussion on minimization measures with the expert groups.

There are many interactions between FNAI's work and my work and the policy issues we were talking about a moment ago. Just to be clear, there's a pretty big division that has come up in the way we're talking about habitat for different species groups. For sea turtles and non-colonial shorebirds we're using a very broad definition of habitat, and that was validated in the shorebird expert workshop. Meanwhile, for colonial nesting shorebirds and beach mice, we have existing occupied and adjacent. In the workshops, what the species experts seemed most comfortable with, they wanted an adjacent habitat, kind of getting into the issues we were just talking about. And yet when we asked for literature on the adjacency stuff, they said it's more of a gut check. So the reality is that we're going to have to lean on best professional judgment for that adjacency.

GK And the buffers are in terms of hundreds of meters, not miles.

MF Right. And that may still be adjusted in the meetings coming up, and they ask for some experiments that we need to present back to them, but just so everybody's aware of that. So basically there will be some need to bring in the adjustments that FNAI is currently working on in January. Also there's been a parallel effort that Coastal Tech is undertaking to nail down the mean high high water lines using survey profile data. So that's an important improvement in our base dataset, because that's measured at the r monument level, whereas the prior work was either done from aerial photos of varying dates or from the 2004 shoreline dataset. But in any case it didn't correspond to legal or survey. So Coastal Tech is doing important work in bringing in the legal high tide line in a consistent format.

So just a little detail on each of the groups. I think I mentioned there's lots of literature on this. The expert meetings and some follow up emails agreed with adopting existing guidance from the State, which is essentially a uniform 300 foot buffer. That certainly could be refined by species and activity based on literature. We've reviewed some of that, and you get into things where one species is 79 feet from flight distance and another species is 25 feet. There is variation in there, but in overall terms, 300 feet seems to cover most of it. My team and I did some research on cats and dogs, and basically the cats have much longer distances, so we need to bring that up again I think, because both domestic and feral cats hang out around human urbanized areas. I was very surprised by the number of cats in Florida, based on the literature review. One-third of households have an outdoor cat, nationally, and your average cat kills 100 birds per year, and they go 300 meters. There are two counties in Florida that have done trap, neuter, release programs and permit those. Volusia County is one of them, and their estimate of the feral cat population was 100,000 cats. Certainly for beach mice we think we're going to need to deal with this issue, but we need to have some more discussions within the group about the legal repercussions and whether the CCCL program is responsible. If you know that

a third of people have cats and you permit development in a coastal area without any condition, is it the CCCL program that's responsible for that take? Or is it the county that's issuing the building permit? So this is a challenge on the incidental take modeling of these species specifically. There are two possible enhancements to think about. Some of the experts already have trap line data that includes some natural experiments, so there's the possibility of doing some follow up analysis. And there are two counties that have these trap, neuter, release programs regulated, therefore there should be some data.

Buffers for sea turtles. So here we've basically got great leverage from work done in Walton county where there was a method for incidental take buffer distances. We have not yet had an expert meeting on this, so exactly where we go with this is going to depend on that. I think based on that work, we're going to use area estimates, as opposed to linear estimates. It was originally thought that doing linear might be simpler, but in some ways doing area for everything is simpler computationally. And it's better in terms of future when you have beaches moving and shifting and narrowing to have an area based measure. So we'll see what the experts say about that. The method used and what the county emphasizes, the 50 foot zone centered on the toe of dune, and it weights successive 50 foot bands seaward 25% less until mean high high water. So that goes against some of the guidance we got internally about habitat is habitat, so we need to resolve that. This will also be influenced by the revised shoreline estimates and Coastal Tech is also refining the coastal armoring locations. Particularly if we get into an area based approach where it matters how far back the armoring is, then it will be useful to have the refined armoring locations. The other thing in here that's a problem is we don't have the geography for the toe of dune. We do have the profile data, so there are potentially some ways of getting at that. There are some things we can do simply here, and there are things that would add work tasks, and how fancy and refined we get would definitely affect the amount of take. Anyway, those are kind of the messy details of the take computation. I'm just laying the cards on the table here.

GK Mike, you said the aerial computation is easier than the linear. Can you elaborate on that?

MF Sure. So, this shows some of the actual geometry. One of the things that turns out to be complicated is if you're doing this for 100,000 future simulated permits, you can't hand draw much. And which object to use as the source of the permitted activity is not straightforward, because the point data provided by DEP is pretty generalized. So, I tried to show it here, but even here it's hard to see, but points are piled on top of each other and not necessarily in the actual location of the activity going on. So the top point shows public or commercial. The next point has fences, railing, privacy. The third point has ramps. I can't find the ramp next to the ramp point, and the commercial is obviously seaward of the actual building. And there's a known error in the permit data point spatial resolution, and it's documented, but it's not even true that the point falls within the parcel. So we're going to need a method for, at the very least, snapping stuff to the parcel. It's easy enough to draw this in there for one parcel, but not when you've got 100,000 parcels. The geography is definitely a challenge, but using that approach we

could do linear as well as areal. One of the things I put onto the Spring agenda is to start looking at average footprint sizes of different activities using the aerial photos. But also not in the permit data is the explicit footprint size of these. So we have different activities that have various sizes of footprints and we're going to have to approximate those. We can approximate them by buffering the parcel, or we can approximate them by averaging their shore parallel width. The reality is we don't know where somebody is going to build a pool. So the worst case is easier to compute than the average case, and the average case is easier to compute than the actual.

Looking at the broader view, with the Working Group starting to put all these computations into a format that's web accessible, with log in permission only, because we want to have a review process so people can get hands on the data and be able to zoom in and out. So we wanted to make a web based system that would allow us to visualize how we were computing the take and bring that to the Working Group and then to the experts so we can get good feedback, particularly on the buffer distances for now. The intention is to integrate the changes that have occurred, based in part on Steering Committee feedback, on the revised habitat and coastal erosion lines in particular, and then to do this internal and expert group review of the incidental take calculation. Then in the second quarter, the plan is to work on the simulation of minimization measures. A lot of the measures that Bob has started to write up in the minimization chapter, we can't prohibit all activity under the minimization clauses, so there's the extent practicable language riddled throughout. And to do a simulation of that is difficult because I don't know how to simulate what the extent practicable is, so I made this into a task to look inside and outside of the CCCL line and say, okay how did these footprints actually play out over time, are they noticeably different, and show me what a minimized layout looks like and what that person came in the door with. So there are ways to get at this. We know where we need to get, thanks to Bob's work, but the legal standard is vague. So if you're going to simulate the future precisely in GIS and you're starting only from legal language, that's really tough.

And then as Amy has talked about a little, we have this kind of joint task on the research preparation for the mitigation conversation, and so the way we're thinking about that internally is FNAI taking the lead on the biophysical characteristics and my group taking the lead on the socioeconomic characterization of those areas. Basically try to put together the factor maps that you want in making decisions about mitigation. So we're going to have the initial conversation with the experts, go back and start mapping what they think are the most important three or four factors for planning. Then last but not least, in quarter four, I think we need to plan to circle back around to all of this stuff because everything feeds forward. Take is feeding into minimization. Both of those are feeding into mitigation. I think of it as balancing the equation. I think we need to build some time in for that, because I'm not convinced that it will all balance out naturally.

GA Obviously this is much more sophistication and detail and data than the Steering Committee is typically used to, but it would be nice to know, from your perspective, what

the Steering Committee's input on this will be going forward. If you come to us with major decisions about where you go in and pull out, what level of sophistication is required, where do we play in? We don't really play in in the details of this, do we? Will you still continue to refine this and come to us with overarching questions?

- KD Not only will we continue to refine and come to you with overarching questions, but we're also continuing to refine through our own outreach process to the experts that can really drive down into this data. And so I think where I've seen your role being is, for one thing we'll be vetting their feedback with you, especially if their feedback ends up highlighting not so much deficiencies to the approach, but concerns with the outputs. It's not the construction of this that has conjured too much flak. I think it's the outputs that it will generate that will be potentially controversial and that may force us to reconsider the inputs.
- GA But the output is the measure of the level of take. When you talk about what's going to be controversial, it's not going to be the data you have on individual lots.
- KD I don't think so. I think that we have and what we will have represents far and away the best that there has ever been.
- GA Thank you. I have two comments about the armoring. I'd like to offer that the drop in the armoring that preceded the implementation of the CCCL program, I would suggest, and you can confirm this with Gene Chalecki or Tony McNeal, that that's more a reflection of the beginning of the State's beach renourishment program, as opposed to fear of the implementation of the CCCL program.
- BE I think it was kind of a philosophical change at the Department as well to get away from armoring.
- GA Sure. So, there are other explanations. The other question is Jimmy has looked at an analysis of armoring and projected out future vulnerability to project out future armoring, whereas you're looking at permitting to project out trends to project out future armoring. Which dataset do you rely on moving forward to look at take, because armoring is pretty significant in terms of impacts to marine turtle habitat. Is it Jimmy's assessment, or yours based on permitting numbers?
- MF They're actually the same. Jimmy's numbers and geography provide the entire universe of what's legal, and then, the way I see my work is kind of here's where the market is pressing for stuff. So just because you can build a seawall, doesn't mean you're going to. So the statistical work basically summarizes a lot of socioeconomic forces. So Coastal Tech work basically provides the universe of maximum legal build out of seawalls, for instance. And also they're looking at development parcels. If you developed every single parcel left in the state that's in the CCCL, what would it be? So, indeed, that's kind of the universe, and then I take the scenarios working into those, because we're not simulating illegal activity, we're just simulating within the bounds of legal. And then we

have to do it at a five year time step going forward. We can't just jump straight to the future; we actually have to step through it. Well, we can, but we've chosen to do it in increments, and to do it that way you have to decide where is the armoring going in first and second and third and fourth. And we do that with a statistical based approach. So it doesn't really tell you that one property owner is going to put up a seawall in 2015, but the overall numbers will add up. And I don't know, because I haven't looked at it, if one overshoots the other, but if the demand outshoots the supply, then in our simulation, we end up with Jimmy's answer sooner rather than later. But that's the relationship between the two things, we're using

- BM Mike you've given a lot of interesting information. You've obviously done a lot of work. Just following up, Gary was talking about what happened between 1980 and 1985 and why things are so different. Certainly the Department is a good resource for that, Ralph Clark has done a lot of work for the Department for documenting storms, so that information would be easy to get. But that period from 1980-85 it was a lot easier to get permits to build revetments and walls, and there were a number of storms during that time period. After that, the Department started working on their coastal armoring policy and it became more difficult to get those permits. So I think the combination of storms and the regulation change probably has to do with it. The other comment I wanted to make is in regards to the landscaping permits. Every time there were storm periods, people need to go in and kind of clean up their property, and that may be why you see periods of increased landscape permits. The only other thing I would point out that you may or may not be aware of is from 1982 over the next 10-15 years, the Department's jurisdiction changes because they moved their control line more landward. So when you see a parcel with an older house and it's been redeveloped, it's because before the '70s they could probably build without a permit. Then all of a sudden the line jumps back one or two rows of development, so if the jurisdiction increases that much, you'd expect the permits to rise.
- MF That's very timely because in January, part of the Coastal Tech work is they're looking at storms, and I've been ignoring them for a while. But I completely forgot about the move of the CCCL lines. If the CCCL lines are not going to move in the next 25 years, which is our current model...
- BM I wouldn't be projecting that they move in the next 25 years. Again, it was just that they were all set and then they went around the state and reset them again by county. And there's obviously, when you reset a line there's a lot of resistance, and I think the second time around they kind of captured a pretty good chunk of the area that they should in terms of the dynamic part of the system that is subject to a lot of changes. So I can't envision that they're going to go around and do that again.
- KF I suppose these are all for internal basis, but I'd lop off the last years of all your graphs until you get to 2015. I heard something about lights impacting to property line, and I'm not sure if it was just how you said that or what.

- MF Actually that's a good point to elaborate on, because we haven't done the detail version at the activity level. My assumption is that we're computing everything in real space and then clipping as needed into legal space and within that, responsibility space. For instance, light, we want to use distances for light that are physically appropriate for the distance that light carries. The impact, or the take, can extend outside of the CCCL jurisdiction in that case. But the accountability for the light, we're subdividing it according to parcels, and basically the parcel the activity falls nearest to or in. but we need a way to capture all three of those things, which is basically what biophysically we think is going on, and then if it's necessary clip that legally, in accounting terms. For instance, at the mean high water line.
- BW I'd like to follow up a little bit on what Kipp was saying. I listened to that part of the presentation and I was paying attention to your assessment of buffer distances. I believe you were talking about an attempt to not double count take where properties are adjacent to one another. Certainly you have to divide take between accountable parties, but where there's overlap either in lights or cats or whatever, it seems that the overlap would be appropriate to account in the model if you have twice the light or twice the cats.
- MF The challenge there goes back to the definition of habitat as being equal and uniform in the take computation. From that point of view the take can't occur twice on the same property from the same cause. But I don't know if we open that up to multiple impacts, including the count, we'd still need to allocate responsibility for that impact. But you bring up a good point, if we're going to count twice the same stretch of beach being impacted by lights from an adjacent parcel, technically we can do it, I just thought in terms of how the law is set up, we shouldn't.
- BW Maybe that's a fundamental discussion that we should have about units of take. If they're going to be linear, and we decide that take is absolute, then yes, of course, you can't count take more than once for the same piece of property. I guess my impression was that it might not be absolute. But take could occur more than once on the same property. Is this something that was already settled and I missed it?
- DF I don't think it's really been discussed, at least with the Steering Committee.
- KD We talked around this before. We've had endless arguments about take is take is take, and it either occurs in an area or it doesn't. And for the purposes of calculating take, has there been take, it's a yes or no binary. When we get into degrees of take or magnitude of take, the Service doesn't evaluate it that way. They either say there's take or there's not take. So from that policy perspective, there's really only that one way to look at it. Then, when we get to how to we adequately address the impacts that are happening on the beach, then on the mitigation end you start getting into these sliding scale issues of how much light is there and how many cats are there. But I think in our conversations to this point we've been discussing radiations like that as coming into play when we start trying to decide mitigation.

GA Do you have to have take of a specific kind to mitigate for take? In other words, do you have to show lighting harm to mitigate for lighting harm?

TA You mean like on a one to one basis?

GA Right.

TA Well that's what I was going to bring up. I think the way that I came to the conclusion of how we were going to estimate take, I think we can reasonably estimate that there will be some level of take on pretty much every dry sandy beach in Florida. So either there will be a direct or an indirect effect. So the take estimate, that's what we'll likely be authorizing. We know what it's going to be. But what we're trying to do now, we're just trying to back track and do analysis of what those impacts are. And to get to your question, Gary, we oftentimes in our Biological Opinions say we cannot quantify, because it's just very difficult to do so because we just don't have that information. But I think in activities it's just we can't quantify what lights are in this stretch of beach, it's going to be a combination of cumulative effects. So maybe looking at it from the perspective of what's the biggest issue with lighting – maybe it's enforcement or lack of implementation of a good lighting plan– we'll creatively think of ways to minimize that threat, and we'll negotiate between DEP and the Service of what's going to be practicable.

GA That's kind of why I was asking this question. Do you actually have to do that analysis on lighting? Aren't there so many unknowns, that we can even take that out of the analysis. You didn't consider what local governments do. You can try to project what kind of impact you'll have in a parcel, but unless you overlay local ordinances, your data isn't going to be reflective of what we need to be doing or the direction we need to be going.

TA We also have to make sure, even though practically we know some of these end answers are, but we have to show our work and explain and defend how we came up with our measures. And it has to be reasonable, because that's where we get sued a lot in out HCPs, because we didn't show our logic in how we reached our conclusions on take. The Working Group will still be talking about this, but I think at least we can show we've thought about this and can show in our administrative record why we're omitting this or including that.

MF I shared some of Gary's concerns, his was lights and mine was cats because cats aren't something the control line regulates. So I'm curious as to how that's going to factor into the take determination.

TA It's an indirect effect. So that analysis has to be there even though DEP does not have direct authority over them, but maybe the counties do. So that's going to be another discussion that we're going to be having in the Work Group – how to bring in counties into this plan. I think we can identify some of these threats that if we partner right, we

could get some of these measures in place, and we recognize it's not on DEPs shoulders because it's outside their jurisdiction, but at the same time it's still an impact as a result of a CCCL permitted activity – it's the but for.

GA The but for I understand. But if cats have an impact zone the size of a football field, there isn't a but for because even if it's landward of the CCCL where the State has no jurisdiction, what happens within the CCCL is much more minimized in terms of cats because they're going to be there anyway, if they're impacting an area as big as a football field. There seems to be way too much focus on data that could make the take computation much larger than it actually needs to be. That was my concern.

DF For the sake of time, I think we can say that there's still a lot of concern regarding take computation. So Working Group, please consider the Steering Committee's concerns and feedback for future iterations of this. For cats, hopefully you'll use a Florida ratio as far as cats per home, to try to keep it as relevant to the State as possible. I don't think we've parked any comments.

KD Folks on the phone, any comments, questions for us?

Adjourned 1:00pm.