

GULF OF MEXICO FISHERY MANAGEMENT COUNCIL  
 HABITAT PROTECTION AND RESTORATION COMMITTEE

Beau Rivage Resort & Casino Biloxi, Mississippi

October 24, 2022

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1 The Habitat Protection and Restoration Committee of the Gulf of  
2 Mexico Fishery Management Council convened at the Beau Rivage  
3 Resort & Casino in Biloxi, Mississippi on Monday morning,  
4 October 24, 2022, and was called to order by Chairman Bob Gill.

5  
6 **ADOPTION OF AGENDA**  
7 **APPROVAL OF MINUTES**  
8 **ACTION GUIDE AND NEXT STEPS**  
9

10 **CHAIRMAN BOB GILL:** I would like to call the Habitat Protection  
11 and Restoration Committee to order. The current members are Dr.  
12 Shipp is Vice Chair, Mr. Schieble, Ms. Boggs, Mr. Donaldson, Dr.  
13 Frazer, Mr. McDermott, Joe Spraggins, Andy, and Troy Williamson.

14  
15 The first item on the agenda is Tab P, Number 1. Are there any  
16 changes or corrections made to the agenda? Seeing none, is  
17 there any objection to adopting the agenda as written? Seeing  
18 none, the agenda, as written, is adopted.

19  
20 The next item is Tab P, Number 2, Approval of the June 2022  
21 Minutes. Are there any corrections or additions made to the  
22 minutes for the June 2022 meeting of this committee? Seeing  
23 none, is there any objection to approval of the June 2022  
24 minutes? Seeing none, the minutes stand approved. Dr.  
25 Hollensead will provide the action guide, and, if you would, if  
26 you would pause after you do that and then just slide right into  
27 your presentation on the essential fish habitat.

28  
29 **DRAFT GENERIC ESSENTIAL FISH HABITAT (EFH) AMENDMENT**  
30

31 **DR. LISA HOLLENSHAD:** Yes, sir. Thank you, Mr. Chair. We've  
32 got one item on the docket here for the Habitat Committee. As  
33 many of you know, we are working on developing an amendment to  
34 update the council's descriptions and identification of  
35 essential fish habitat, or EFH, as I'm going to say throughout  
36 the rest of the presentation.

37  
38 This presentation is going to focus on the creation of some maps  
39 that were made. Previously, we've been talking through this  
40 document without that visualization, and that can make it  
41 difficult. The best way to do this is really to develop a  
42 webtool, which would allow, you know, anybody that's interested  
43 to be able to pull up maps and do some comparison analyses and  
44 things like that, and so that's what we've been working on.

45  
46 In the process of doing that, that takes a lot of time to  
47 develop all of those maps, because, for each of the amendment  
48 considerations, you have to create a map, and so it comes out to

1 be about 270 or maps or so that we've got right now, and so it  
2 takes a little time to build it out, but the interesting thing  
3 is, as we began to build these things out, using sort of the  
4 decision criteria for the descriptions that we've currently got  
5 on the books, we realized there were some errors, or some  
6 misleading visualizations, that came to our attention.

7  
8 Upon realizing this, council staff thought it best to present  
9 some of this information to the SSC, to get their thoughts and  
10 recommendations on that, and so we have done that, at the last  
11 SSC meeting, and so the presentation that I will be giving you  
12 will be a very similar presentation as to what I gave to the  
13 SSC, and certainly Dr. Powers is here, and he can fill in  
14 anything that I may have missed, in terms of their  
15 recommendations, but, long story short, there are a lot of  
16 things going on with Alternative 2.

17  
18 That's going to need to be addressed, probably through the  
19 process of going through each one of those individual maps, and  
20 the decision rationale that was used to develop those maps is  
21 going to have to be looked at by a number of experts, and so  
22 council staff would probably engage those folks, state agency  
23 folks, federal agency folks, and get that well documented, not  
24 only to have some rationale to allow the council to move forward  
25 with this document, as it's been developed, for also for future  
26 five-year reviews, to have solid documentation of why does this  
27 look the way that it does, why was this changed, so that anybody  
28 could pick up this ball and run with it.

29  
30 That's the hope here, moving forward with this, and so, if  
31 there's no other questions about that, I'll just get right into  
32 the presentation, and that's going to be Tab P, Number 4(a).

33  
34 Again, just a little quick update on the presentation outline,  
35 and I'm going to review some of the EFH description methods that  
36 are outlined in Alternative 2 and 3. I'm not going to go into  
37 Alternative 4 for this presentation, just for the sake of time,  
38 and this was also the main focus of the SSC meeting.

39  
40 I'm going to introduce the EFH webtool, and this constructed  
41 using the Shiny application, the R Shiny application, and I'm  
42 going to go through it by component, and so the ecoregions, the  
43 depth zones, the habitat spatial layers, and the EFH  
44 descriptions for the two alternatives we're considering today.  
45 I'm going to report some of these example observations and then  
46 propose some next steps and get the committee's feedback on  
47 that.

48

1 Just for anybody who is unaware, what is EFH, and it has a legal  
2 definition that was developed through the Sustainable Fishery  
3 Act of 1996, and it is those waters and substrates necessary to  
4 fish for spawning, breeding, feeding, and growth maturity. Now,  
5 the council does have a Generic EFH Amendment, and that was  
6 completed in 2004, and so this is for all managed species by  
7 life stage.

8  
9 This current amendment being developed would be considering  
10 finfish and shrimp species that are managed by the council, and  
11 those life stages are broken into these life history  
12 categorizations of eggs, larvae, post-larvae, early juvenile,  
13 late juvenile, adult, and spawning adult, and, again, as I  
14 mentioned, the council is also obligated to create these five-  
15 year reviews that will update literature tables and those sorts  
16 of things and then present those to the agency.

17  
18 We are due for one. However, given that this is such a large  
19 amendment to tackle, we've been in talks with the Southeast  
20 Regional Office that they understand that this is going to take  
21 a little bit more time, to not only develop, or update, the  
22 current descriptions, but also incorporate what's required for  
23 the five-year review, and so we'll be getting a little more time  
24 to do that.

25  
26 Currently, what we have on the books and what we do is we break  
27 the Gulf up into these ecoregions, and here is the  
28 characterizations for those outlined in the table, and there are  
29 five of them, and here's a visualization of those ecoregions,  
30 and so these are broken out into general regions across the  
31 Gulf.

32  
33 Additionally, it's taken into account -- These habitat layers  
34 are taken into account for depth zone, and so you'll have an  
35 offshore boundary, a nearshore boundary, and an estuarine  
36 boundary, and I'll go into what those descriptions are in a  
37 moment.

38  
39 Again, we developed this webtool, the idea that it's fairly easy  
40 for folks to sort of toggle through and move through these  
41 layers, see how they interact, and see how they actually create  
42 the EFH descriptions.

43  
44 I'm going to focus first on these depth zones and ecoregions,  
45 and these are sort of the easiest to conceptually understand,  
46 and so the text there, at the top, indicates buttons which can  
47 be pushed and then engage those spatial layers one-by-one, and  
48 so you can turn them all off, or you can turn off one, and have

1 a better look at whatever detail you would like.

2  
3 For example, here on the webtool, here is all of those depth  
4 zones that have been selected, and so now they are visualized on  
5 the map, and so we can look at the estuarine layer, which is  
6 those inside barrier islands and estuaries, the nearshore area,  
7 which is less than sixty feet deep, and then the offshore area,  
8 which is categorized as more than sixty feet deep.

9  
10 Then here's our ecoregions, and so we were able to get -- All of  
11 these clicked right now, 1 through 5, and so this was sort of a  
12 simple example, but it shows that, okay, our R Shiny app can  
13 correctly draw the layers that we've uploaded from our ArcGIS  
14 server, and we're able to get our ArcGIS server to talk to R,  
15 and that was a little bit of a pain, but now we've got that  
16 figured out, and that was a big step, and that these individual  
17 layers can be toggled on and off for the comparison analysis.

18  
19 The next step is to work on some of the aesthetics and the user  
20 interface and functionality, to make sure that the tool is  
21 appropriate for support and evaluation of the EFH document.

22  
23 What the council currently does is the council takes those  
24 ecoregions and depth zones that I have just talked about, but it  
25 also takes into consideration some of these habitat  
26 characterizations, and so all the ones that are listed on that  
27 table is what they currently look like.

28  
29 We also wanted to make sure that people could sort of look at  
30 this, for lack of a better term, raw habitat data, and so we  
31 also have this incorporated in the webtool, and you'll be able  
32 to select on the button that says "habitat", and it would pull  
33 up those available benthic habitat layers for which we have  
34 spatial information, and you can toggle those on and off, to get  
35 a better idea of how these descriptions are being constructed,  
36 and so it sort of gives you some of that raw information as  
37 well. We've got the depth zones, the ecoregions, and then the  
38 habitat.

39  
40 The next two tables show -- For example, this is gag grouper  
41 here, and so one of the things the council also does is it  
42 takes, okay, here is all of these, you know, depth ranges,  
43 ecoregions, and habitat types, and now I have to insert some  
44 information about the critter that I am interested in, and, in  
45 this case, this is gag grouper, and so it looks through the  
46 primary literature, and looks through some of the gray  
47 literature, or technical memos, and so look through all of that,  
48 do an extensive literature review for habitat uses and

1 associations for that species by each of these life stages.

2  
3 It will let you know, for example, eggs for gag grouper are in  
4 Ecoregions 1 and 2, and, generally, those are offshore and  
5 associated -- That's water-column associated, and so then you  
6 would begin to then piece those bits of the information, and,  
7 okay, this is what the literature tells me, and this is my  
8 categorization for those larger categories, through my spatial  
9 data, and so then I'm going to put these together and get my  
10 description of EFH that way.

11  
12 It's a qualitative way to do it, but it's fairly quick and easy  
13 to do, to take some of these habitat layers and put them through  
14 here, and so it works for the purposes, and that's what the  
15 council currently uses. That's the method they currently use.

16  
17 In order to visualize all of that, the webtool also has what we  
18 call an EFH button, and so this will allow you to then select a  
19 species that you're interested in, go through and look at all of  
20 the life stages for that species, you know, what the EFH  
21 description for that is, and, if you're also interested in  
22 comparing, you two, species across each other, we want to allow  
23 for that as well, and so it can pull up a lot of layers pretty  
24 quickly, and get complicated quickly, but it certainly allows  
25 the user to look at just about anything that they would like to  
26 look at.

27  
28 I will give an example of how this works, and so using red  
29 grouper adult as an example, and so the EFH description for this  
30 says Ecoregions 1, 2, 3, and 4, and that's going to be those  
31 hardbottom and reef habitats that are found nearshore and  
32 offshore, and you get something that looks like this, and that's  
33 how this would go across.

34  
35 Now, when I was presenting this to the SSC, several members  
36 brought up that I don't know if I necessarily agree that this is  
37 the best description for adult red grouper EFH, and there may be  
38 some things missing on here, and that spurred a discussion of  
39 where we can find some better, you know, habitat layers,  
40 especially for something like hardbottom or reef, you know,  
41 something that provides a visualization of the Florida Middle  
42 Grounds better, these sorts of things, and so we're starting to  
43 identify, as we put these things together and look, that there  
44 are definitely some gaps in our spatial habitat data layers.

45  
46 Also, we've continued to run into a little bit of a challenge,  
47 in that not all habitat characteristics are available to map,  
48 necessarily, and drifting algae, or sargassum, is a more dynamic

1 habitat feature, and so even a static image of that that's going  
2 to be visualized is likely not going to be accurate, and so, you  
3 know, what might be the best way to handle that.

4  
5 Additionally, banks and shoals aren't included, and then water  
6 column association would just be the larger Gulf, and there's  
7 probably some way which we could indicate that through the map,  
8 but we'll have to sit down and talk with some folks about the  
9 best way to do that, but we can run into some problems.

10  
11 For example, gray triggerfish early juvenile, its habitat  
12 characteristics say Ecoregions 1 through 5, mangroves,  
13 associated with mangroves, and so, across the Gulf, you know,  
14 mangrove association, but then also drifting algae, but, with  
15 the data layers that I have available, if I go to visualize  
16 that, since I don't have the sargassum, or drifting algae,  
17 layer, it's just going to look like that raw mangrove habitat  
18 layer, and that's not totally accurate, and so there's got to be  
19 some better way to come up with that, and so that's some of the  
20 things that I think would be good to sit down with some habitat  
21 experts and get an idea of how to hammer that out.

22  
23 Additionally, we do have an IPT for this document, and we do  
24 have some technical folks that sit on that IPT, and so we got  
25 together with those technical folks, and we gave them the data  
26 layers that we had, and they recommended combining sand, mud,  
27 clay, and silt as all one soft-bottom layer, for example. When  
28 you start to tease those things out, you start to miss some  
29 things, and they also thought that it would cause some confusion  
30 for folks, and so they recommended combining all of those things  
31 for the webtool, which is what we did.

32  
33 In doing that, there potentially might be some utility in  
34 combining some of these other habitat layers. For example,  
35 should this be done for hardbottom and reefs as well? Should  
36 those data layers be combined, and perhaps that would give a  
37 more appropriate description for gray triggerfish late juvenile,  
38 for example.

39  
40 Here's gray triggerfish late juvenile, and so this description  
41 says that it's Ecoregions 1 through 5, and so throughout the  
42 Gulf, nearshore and offshore, you know, drifting algae, and  
43 mangrove and reef through here. You can see it encompasses most  
44 of the Gulf. However, when you look at Ecoregions 1 through 5,  
45 and we say, okay, well, I want those reefs that are nearshore  
46 and offshore, you get this small description, and you can't  
47 actually see that we do have some of the reefs off of Texas and  
48 things like that, but, right now, all it's visualizing is off

1 there in the Keys, and that is likely not correct.

2  
3 That just has to go with sort of the division, or the decision,  
4 hierarchy, that's made through clicking the layers and what you  
5 end up with, and so, for example here, for the gray triggerfish  
6 late juvenile, we don't have drifting algae as a habitat layer,  
7 and so we're left with the nearshore and offshore habitat, and  
8 so it's like this large, encompassing description.

9  
10 Then, when you do have a little information, like, okay, they  
11 seem reef associated, you get these smaller descriptions of EFH,  
12 which is likely not accurate, and it's almost like you're  
13 working from behind. Like, if you didn't have a whole lot of  
14 information, you wouldn't have an EFH description, and you would  
15 build yourself out, and that's how you might think, but that's  
16 not what the council wants to do, and they want to have  
17 descriptions for everything, and so it's almost this odd case  
18 where, when you have less information, you get a broader  
19 description of EFH, and, when you have some information, you get  
20 a smaller one, and that may not be appropriate.

21  
22 Some of those decision points need to be discussed by some  
23 habitat experts, or, certainly, if there is a deviation from the  
24 way that -- You know, we may have a hierarchy for decision-  
25 making that works well for most species, but, when we come  
26 across an anomaly, that needs to be documented of why we may  
27 have moved away from something like that, why we decided to do  
28 something different, based on another bit of literature or  
29 something like that, to provide some rationale, and so that's  
30 what I mean when it starts to look like you're going to have to  
31 go through each layer and figure out what you would like to do.

32  
33 We have made some metadata available for these habitat layers.  
34 After speaking with the SSC, they had some recommendations of  
35 some folks that we can talk to, and so I imagine that metadata  
36 will change, and, once we have that more solidified, I can bring  
37 that before the council review.

38  
39 Again, not all habitat layers have spatialization, and so that  
40 makes things a little different, in terms of the visualization,  
41 and perhaps we can combine some of those habitat layers, or  
42 perhaps even combine some of the life stages.

43  
44 I haven't found a good definition of, you know, where is an  
45 early juvenile or late juvenile cutoff, by each species, for  
46 example, and so perhaps things like that could be combined, and  
47 that might help with these descriptions, and, again, we just  
48 need to explore some of the logic flow, because it results fine

1 for some species and life stage combinations, but not all, and  
2 so where those deviations occur need to be documented.

3  
4 Again, we probably need to reconvene the IPT, maybe even the  
5 broader level ones, to get them up-to-date, and, again, touch  
6 base with some of the technical folks we have working on there,  
7 and we'll rework the tool to be a little more user-friendly and  
8 continue to identify those anomalies, and so these are just the  
9 ones that, you know, were really glaring to me, as I was putting  
10 them together, and there's likely more.

11  
12 The good news is the increased utility for comparison analysis,  
13 and the webtool can be updated quickly. Since, in our ArcGIS  
14 server, I made a URL for each one of these maps, in the future,  
15 should things need to be updated, the tool will be seamless, and  
16 we'll be able to just upload that map through that URL, and the  
17 tool should be able to run no problem, and so the user wouldn't  
18 notice really that anything had been updated, and they will just  
19 get the most accurate information.

20  
21 That's everything for Alternative 2, and I might pause here,  
22 and, if anybody has any questions about this, I would be happy  
23 to take them. I know it's a lot of information.

24  
25 **CHAIRMAN GILL:** Are there questions or comments from the  
26 committee? Dave.

27  
28 **MR. DAVE DONALDSON:** Thank you, Mr. Chair. Just a comment. I  
29 was looking on Slide 13, when you had the hardbottom areas  
30 identified, and, apparently, back in 2005, they identified an  
31 area off of San Antonio Bay in Texas, and it's hard to see on  
32 that slide, because it's Gulf-wide, but, if you could zoom-in,  
33 you could see that there's an area that's identified as  
34 hardbottom. Well, apparently that was misclassified, and they  
35 identified that in a 2010 revision, and apparently the latest  
36 tool is using an old data layer, and so if you could just check  
37 that, to make sure that that is updated.

38  
39 **DR. HOLLENSSEAD:** Yes, and I think that's what we're intending  
40 to, and, well, I guess I can put my plea out now. I think what  
41 we would like to do is engage, down to the state level, those  
42 folks, and there are habitat divisions that have the real boots  
43 on the ground that understand some of this.

44  
45 During the SSC meeting, we also got a comment about the  
46 Louisiana marsh layer, that that was likely, you know, out-of-  
47 date, and did not reflect what was current, and so we want to  
48 make sure that we engage those partners, so that we can have a

1 better understanding of their datasets.

2  
3 These habitat layers were used for the five-year review. I  
4 think, for that purpose, they worked well, and they were sort of  
5 broad and encompassing, and it provided what it needed to for  
6 the five-year review. However, if the council wants to update  
7 its description, it's to going to need to take a deeper dive for  
8 things like you have just mentioned and pointed out, and so I  
9 appreciate you letting us know, so that we can make sure that we  
10 have the most accurate information, or at least contemporary,  
11 right?

12  
13 The webtool is neat, and it's neat to go through, but, if the  
14 maps don't have the accurate data, then it won't be helpful, and  
15 so that's what we're working towards. Thank you.

16  
17 **CHAIRMAN GILL:** Other questions or comments? Dr. Frazer.

18  
19 **DR. TOM FRAZER:** Thank you, Mr. Chair, and thanks, Lisa, for  
20 walking through this, and so just, in that same section that  
21 Dave Donaldson was talking about, and so he had a question about  
22 hardbottom and reef, right, and so, in my mind, I am envisioning  
23 that reefs was always intended to be coral reefs, and is that --  
24 Is hardbottom like just non-coral-reef structural habitat?

25  
26 **DR. HOLLENSSEAD:** Correct.

27  
28 **DR. FRAZER:** I mean, for clarification, it seems like you would  
29 just say coral reefs, right, and then the other one would just  
30 be non-coral-reef structural habitat.

31  
32 **DR. HOLLENSSEAD:** Yes, and that's currently -- Or live rock, or  
33 something like that, is what they would have. Unfortunately,  
34 like I said, it was done in 2004, and so it was a while ago, and  
35 there might be somebody from there that can tell me why that was  
36 broken out, or why it was broken out the way it was, but I  
37 haven't found any documentation as to why that decision was  
38 made, but I think it's something worth revisiting, whether we  
39 want to categorize it a certain way, whether we want it to be  
40 combined, but certainly that's not something I unilaterally want  
41 to do, and I think it would be good to get together with some  
42 habitat folks and get their input on it.

43  
44 **CHAIRMAN GILL:** Other questions? I have one. Relative to  
45 updating, it seems, to me, as complex, and as thorough, as all  
46 this is, that could be a continuous, all-the-time project,  
47 which, obviously, resource limitations prevent, and so what is  
48 your thinking, in terms of updating?

1  
2 On ad hoc basis, when there's a need, for example, for a review,  
3 or a specific item that is coming up on an assessment schedule,  
4 or what are your thoughts, in terms of updating and making it  
5 useful? If it's accessible on the web, folks are going to be  
6 looking at it, and, if they're looking at the wrong thing, then  
7 that's less than helpful.

8  
9 **DR. HOLLENSEAD:** My initial thought would be whenever this is a  
10 five-year review, or given staff time, but certainly I think it  
11 would be -- For a five-year review, absolutely I would say that,  
12 and Dr. Froeschke may have some information on when we could do  
13 it quicker than that, but certainly, for the tool, it could  
14 happen very quickly, but it would take staff time to go through  
15 and look on that, and so I think that would be your limiting  
16 factor.

17  
18 **DR. JOHN FROESCHKE:** So just a bit of additional information,  
19 and, the way that this EFH used, it's primarily in the  
20 consultation process, and there are two parts of this. There is  
21 the written description of what is EFH, and so, for a given  
22 species or life stage, for example, a species was identified as  
23 EFH in Ecoregions 1 through 3, and say the habitat is  
24 hardbottom, and we may have a map of that, but, if there are  
25 hardbottom that are known that are not included in that map,  
26 they would still be subject to that, and so it's the textual  
27 description that is the real thing, and so, if new hardbottom  
28 were discovered or something, that would automatically be  
29 identified as EFH, through the textual description, even if our  
30 ability to update the maps was somewhat lagging.

31  
32 **CHAIRMAN GILL:** Dr. Hollensead, if you would proceed on your  
33 presentation.

34  
35 **DR. HOLLENSEAD:** Okay. Now we're getting into Alternative 3,  
36 and so, just very briefly, Alternative 3 is going to use a  
37 kernel density estimation, and what that's going to do is it  
38 says, okay, I recognize that I don't have a good understanding  
39 between where my animal is and the habitat, and I don't  
40 understand that linkage very well, but I do know where the  
41 animal is, based on, you know, a fishery-independent survey, or  
42 a fishery-dependent survey, these sorts of things, and I can at  
43 least tell you the fish is there.

44  
45 I don't necessarily know why, but I know the fish is there, and  
46 so I would like to make some inference about that, and so what  
47 it's basically going to do is it's going to look at core areas  
48 of use and broader extent distribution of use.

1  
2 Currently, in the document, we have that broken out by, for  
3 example, 50 percent occurrence, and so that's going to be that  
4 small, tight circle, and so that's going to tell you that my  
5 area is small, but I've got, you know, a high density of fish  
6 here, and so that might be of interest for describing EFH as a  
7 core area of use for my animal, and then, as you move out, you  
8 may have fewer occurrence of the species there, but you  
9 encapsulate 95 percent of that distribution, and so maybe, if  
10 you would like a more conservative description of EFH, you might  
11 use that 95 percent, or that solid blue line.

12  
13 We have incorporated some of these into the webtool, and we're  
14 having a little problem with the utilization and making sure  
15 that layers overlap correctly, so that that 95 percent layer  
16 doesn't encapsulate all of your 50 percent, and it just looks  
17 like it's not there, and so we're going to have to make those  
18 show up, and so we're still working through that.

19  
20 Here's an example of what this would look like for adult gag  
21 grouper, for example, and so, again, that pink area is going to  
22 be your core area of use, and that's where your highest density  
23 is going to be, and then, as you move out into that green --  
24 We're also going to work on the aesthetics, so it doesn't look  
25 like somebody ate too much cotton candy and got sick there in  
26 the eastern Gulf, but so this is how this would work out. When  
27 you do this modeling approach, this is the description of EFH  
28 that you would get for adult gag grouper.

29  
30 You can see how these two methods, and so that Alternative 2 is,  
31 again, taking these ecoregions, these depth contours, and our  
32 spatial identifications here for our benthic habitat, and that's  
33 what you would get for adult gag grouper in Alternative 2, and,  
34 in Alternative 3, you would get what's on the bottom right  
35 there, which we just looked at, and so they're quite different  
36 in what you would get.

37  
38 This gets back to some of the issue that, if you've got the data  
39 for it, you might be able to get, you know, where sort of the  
40 end goal is more refined EFH, whereas you might get sort of  
41 broader descriptions, because the Alternative 2 was just saying,  
42 hey, I know that the habitat is here, and, whether the animal is  
43 there or not, I don't know, but I know the habitat is there,  
44 whereas Alternative 3 says I know the critter is there, and so  
45 that's what I'm interested in having my description be informed  
46 by.

47  
48 It does take a little bit more data to do that kernel density

1 estimation, because you've got to know a little something about  
2 where the animal is, and so these are the species and life  
3 stages that we have the data available for in Alternative 3.  
4 All of this work has been done, and not all of it has gone up on  
5 the webtool just yet, and that's something that we're working  
6 on, but this is what we would have for Alternative 3, and these  
7 are the species and life stages that we would have available for  
8 that alternative. Everything else would have to be Alternative  
9 2, and so just take the methodology that we currently use, but  
10 with updated habitat layers.

11  
12 The next steps for the other alternatives, again, it would be  
13 nice -- What we also want to do is add the presence/absence for  
14 those species location data, and so one thing that I did not  
15 show is we've got a series of locational points that will tell  
16 you where the survey, you know, did a longline set, or something  
17 like that, and whether or not they encountered an adult gag  
18 grouper, so that you can see if that description of EFH, or that  
19 kernel density output, was a function of just a very  
20 constrained, you know, surveying effort or whether or not it was  
21 a broader effort, and you see the concentration of the animal  
22 there is a little more realized, and so just to give some  
23 context on that, and so that's the next thing that we want to  
24 do.

25  
26 There is an Alternative 4, which I don't have time to get into  
27 here just yet, but we are working on putting that together as  
28 well, and that uses a boosted regression tree method, which,  
29 again, I won't go through that, and hopefully all of that will  
30 be completed and we'll be able to go through that, and then  
31 we'll review these results with the IPT.

32  
33 Again, we would also like to be able to have, in the tool, just,  
34 like I said, toggling through those buttons, to have a whole  
35 dedicated section to the metadata for the habitat layers, so  
36 that people can get to discussions like, Dave, what you were  
37 talking about, is your habitat layer from 2004 and 2010, and you  
38 didn't make that correction, and so you would have some idea of  
39 what that case is, and so that needs to go in there too, or at  
40 least have a one-stop shop for anybody that is interested in  
41 using the tool.

42  
43 Then include the habitat association tables for Alternative 2 as  
44 well, and so what were those descriptions, where in the  
45 literature did that come from, and so, again, links to those  
46 papers, as they're available, to try to build on that, and a lot  
47 we have of that already, but we just don't have it uploaded in a  
48 table.

1  
2 Then, also, add a tab that product overview and links to the  
3 council EFH documents, and, as you can see, it was done  
4 previously, and the five-year reviews as well, and then we would  
5 present those finalized tools, with all those alternatives, to  
6 the SSC and the council for review, and so that's the next  
7 steps. I think that's it. I would be happy to take any  
8 questions, and Dr. Powers is here, if anybody would like to also  
9 ask, you know, the SSC's thoughts on things as well, but I guess  
10 I would just end with we might be reaching out.

11  
12 If any of the state agencies have a good contact for their  
13 habitat division folks, or their GIS analysts, we would be happy  
14 to go to you all's offices and meet with you and sit down and  
15 talk about what data you have available, make sure we can link  
16 it up appropriately with what other states might have, so that  
17 we get the most contemporary and updated data possible. Thank  
18 you.

19  
20 **CHAIRMAN GILL:** Thank you, Dr. Hollensead. That is, to me,  
21 rather amazing, and it's a couple of orders of magnitude above  
22 where we were in 2004, and it represents a huge amount of work,  
23 and so thank you. Excellent job, and I am trying to absorb all  
24 of that and understand that, oh, wow, how are we going to  
25 utilize this in the future, whereas, before, we had those broad  
26 -- The entire Gulf of Mexico is essential fish habitat, and now  
27 we're getting down to specificity, and I think that's amazing.

28  
29 Any questions of Dr. Hollensead at this point in this  
30 presentation? Seeing none, I would like to ask Dr. Powers if he  
31 would like to add anything from the SSC discussion that would be  
32 of interest.

33  
34 **DR. SEAN POWERS:** Thank you. I'm not sure that it will be of  
35 interest, but I can definitely add from my colleagues and I. We  
36 had the same reaction that you did, Bob, that this is leaps and  
37 bounds, compared, and so we're really supportive of this line of  
38 inquiry and the mapping aspects, and hopefully how user-friendly  
39 that will be.

40  
41 We reviewed those two alternatives that you just heard, and we  
42 were supportive. We didn't -- For Alternative 2, the real  
43 question, and Lisa alluded to it, is we didn't understand the  
44 decision hierarchy that was going in to some of those, and so,  
45 when we have that first -- When the maps are produced, and this  
46 one was talked about, because the Florida Middle Grounds wasn't  
47 showing up as potential habitat there, and so, when we looked at  
48 it, we couldn't figure out what the decision hierarchy was in

1 the app that was going through there, and so Lisa got that  
2 message, and they're going to look into that more and see how we  
3 can refine that decision hierarchy.

4  
5 This is the one that we talked about for red grouper, and the  
6 other point that came up, that Lisa mentioned, was we wanted to  
7 see more involvement from the states and regional agencies, and  
8 we thought that a lot of the issues of base maps and the issues  
9 of the most up-to-date information, and just looking at the maps  
10 and just seeing if it's realistic.

11  
12 Really, that got us to whether -- We liked the idea of narrowing  
13 the definition, and, obviously, "EFH" is such a broad term right  
14 now, and getting it more narrow, but then it seemed like we  
15 either have a very broad definition, that was probably too broad  
16 to be of significant use, or, when it got too narrow, it wasn't  
17 realistic to us, based on our limited experience on species  
18 distribution and those things, and so trying to get into the  
19 different tools and understanding how they are making those  
20 decisions, how they're defining those habitat associations, are  
21 important.

22  
23 The next slide is we did get a peek at a different way of doing  
24 this, and I think the idea behind this, and John Froeschke can  
25 tell us more, was to take the habitat maps, and then the  
26 fisheries data, or fisheries-independent data, and use those to  
27 construct associations using those data plus the physical and  
28 chemical data.

29  
30 This is much more of a quantitative approach than the other two,  
31 but, when we looked at some of the early versions of this, for  
32 adult for gag for example, it showed you a lot of habitat that  
33 we did not feel was gag, that would likely have gag in it, and  
34 so, I mean, the overall message is the same one that Lisa  
35 communicated, that we really like this approach, and we need to  
36 see what's under the hood on some of these models, and then we  
37 need to engage, or the staff needs to engage, the state resource  
38 agencies and the regional resource agencies, to look at what is  
39 realistic, once we start producing these more refined maps, and  
40 so that's it.

41  
42 **CHAIRMAN GILL:** Thank you, Dr. Powers. Any questions for Dr.  
43 Powers? Seeing none, thank you, sir. That leads us into the  
44 last item on the agenda, Other Business, and does any member of  
45 the committee have other business to bring before the committee?  
46 Seeing none, that concludes the actions of this committee.

47  
48 (Whereupon, the meeting adjourned on October 24, 2022.)