

1 GULF OF MEXICO FISHERY MANAGEMENT COUNCIL

2  
3 HABITAT PROTECTION AND RESTORATION COMMITTEE

4  
5 Crowne Plaza @Bell Towers Shops Fort Myers, Florida

6  
7 June 21, 2022

8  
9 **VOTING MEMBERS**

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- 11 Patrick Banks.....Louisiana
- 12 Susan Boggs.....Alabama
- 13 Leann Bosarge.....Mississippi
- 14 Dave Donaldson.....GSMFC
- 15 Jonathan Dugas.....Louisiana
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4  
5 - - -  
6

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1 The Habitat Protection and Restoration Committee of the Gulf of  
2 Mexico Fishery Management Council convened at the Crowne Plaza  
3 @Bell Towers Shops in Fort Myers, Florida on Tuesday morning,  
4 June 21, 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 roll call is Mr. Banks,  
12 Ms. Boggs, Ms. Bosarge, Mr. Donaldson, Mr. Dugas, Dr. Shipp, Mr.  
13 Spraggins, and Dr. Stunz. We are all here.

14  
15 With that, Tab P is the location of the documents for this  
16 committee, and the first one is Number 1, Adoption of the  
17 Agenda, and does anyone have suggestions or changes to the  
18 agenda? Seeing none, any objection to adoption of the agenda as  
19 written? Seeing none, the agenda is adopted as written.

20  
21 Next, we move on to Tab P, Number 2, the Approval of the January  
22 2022 Minutes. Any comments or changes or suggestions on the  
23 minutes from January 2022? Seeing none, any objection to  
24 adoption of the minutes as written? Seeing none, the minutes  
25 are adopted as written.

26  
27 The Action Guide and Next Steps, Tab P, Number 3, Dr.  
28 Hollensead, if it would be all right, we'll do that on an item-  
29 by-item basis, and so if you would go ahead with that for the  
30 first item forthcoming.

31  
32 **ESSENTIAL FISH HABITAT GENERIC AMENDMENT**  
33

34 **DR. LISA HOLLENSEAD:** Thank you, Mr. Chair. The first agenda  
35 item that we have today is working through the Essential Fish  
36 Habitat Generic Amendment. I had hoped to have a web tool  
37 available for this meeting, and we have consolidated a lot of  
38 the data required to construct that tool, but we just haven't  
39 come up with a good way to illustrate it just yet, and so,  
40 rather than cause more confusion with a web tool that is  
41 supposed to move smoothly through -- We're still working on  
42 that, but the generation of that tool sort of came about because  
43 quite a few council members had some further questions.

44  
45 For example, this document brings in some sort of unique  
46 techniques, and so there were some questions of what have other  
47 councils done, and have they done something similar, and then  
48 there was also some questions about can we look at the

1 approaches a little bit more, as well as each of the methods and  
2 assumptions and things like that, and so that, in itself, is its  
3 own presentation, and so, while the web tool is being developed,  
4 I just wanted to present that information for you. Whenever  
5 you're ready, we can pull up that presentation.

6  
7 Just a little bit of background, and the council is mandated to  
8 describe and identify essential fish habitat, or EFH, for all  
9 fishery management plans by life stage, and those life stages  
10 are below, and they are eggs, larvae, post-larvae, early  
11 juvenile, late juvenile, adult, and spawning adult.

12  
13 Along with that, the council is also mandated to update those  
14 descriptions every five years, and, at the moment, staff is  
15 working on developing an amendment to address all of those  
16 requirements simultaneously, and, like I said, a couple of  
17 council members had asked more questions about the methods being  
18 considered, and so it is a good idea to probably look at that a  
19 little bit more, because that will be sort of the foundation for  
20 the rest of the document, and so to make sure that everybody  
21 understands and has the opportunity to ask any questions about  
22 those approaches as we go through.

23  
24 Here is what the draft options currently look like, and there  
25 are four alternatives, each using a little bit different  
26 methodologies. Alternative 1 would be a no action, and so it  
27 would retain the current descriptions and identifications of EFH  
28 in the Gulf of Mexico, as outlined in Generic Amendment 3.

29  
30 Now, this approach used what I will go through here in a little  
31 bit, but it currently uses data from the NOAA Habitat Atlas,  
32 which collected data from 1986, and so it's a bit outdated.  
33 Also, that generic amendment was implemented about twenty years  
34 ago, and so it's probably time to update that, and so that's  
35 what Alternative 2 would do. It would keep the same methodology  
36 as outlined in Alternative 1, but it would use more contemporary  
37 habitat data sources, as well as updates to the primary  
38 literature, in terms of species life stages.

39  
40 Alternative 3 instead says, well, I'm not going to necessarily  
41 think about too much of these linkages between habitat and  
42 species occurrence, because there's a lot that I may not know,  
43 and so I might just look at sort of the species occurrence and  
44 where does it occur at, and so this is going to use a non-  
45 parametric kernel density estimate approach, and it's going to  
46 use fishery-independent and dependent sources from the paper,  
47 which is available in your background materials, an approach for  
48 that alternative, a little further on in the presentation.

1  
2 Then, finally, we have an Alternative 4 that's going to use a  
3 boosted regression tree modeling approach, and this is going to  
4 say, hey, I actually know a little something about the  
5 occurrence of the species and, as well, something about the  
6 habitat, and I can actually then use the model to inform some of  
7 those outputs, and so those are what the draft options currently  
8 look like, and so the first methodology that I'm going to go  
9 would apply to Alternatives 1 and 2.

10  
11 What this approach does is it breaks the Gulf into these five  
12 ecoregions, as outlined here, and so it breaks it up into those  
13 first, and then it says, okay, we've got a list of habitat  
14 types, and it's everything from submerged aquatic vegetation,  
15 mangroves, and presence of reefs, these sorts of things, and so  
16 here is the twelve characterizations for habitat type, and so it  
17 says, sort of within these ecoregions, where do you find these  
18 types of habitats.

19  
20 Then, also, understanding that depth plays a role in fish  
21 habitat selection, it says, okay, then we're also going to break  
22 the Gulf further into these boundaries by depth contour, and so  
23 you have an estuarine boundary and a nearshore and an offshore  
24 boundary.

25  
26 Then there's the constructions of these life history tables, and  
27 this is an example for gag grouper. I just want you to pay  
28 attention to sort of those first four columns, and, just for an  
29 example, just to sort of break it down into this little piece  
30 here, say something like early juveniles, and, in Ecoregions 1  
31 and 2, and, if you recall, that's sort of more off just the  
32 coast of Florida. Then estuarine nearshore habitats are mostly  
33 associated with seagrass and mangroves, for example, and so you  
34 will put all of those pieces together, based on this life  
35 history table.

36  
37 These life history tables were constructed from the primary  
38 literature, and so what people have published and found, and we  
39 can use that to inform that, okay, we've got several papers out  
40 that suggest that juvenile gag grouper are associated with  
41 seagrasses, and so we begin to pull our seagrass maps, and our  
42 nearshore boundaries and things like that, and we start to look  
43 at where they may be, in terms of our description for EFH.

44  
45 We're going to take all of these elements, and, just  
46 conceptually, we're going to clip them together, and so where do  
47 they overlap, and then, from that, can we get an idea of what  
48 essential fish habitat would look like for juvenile through

1 adult gag grouper, and so you get a map that's constructed like  
2 this, and so this is an example of what that might look like.

3  
4 Some of the assumptions for using this methodology, it says that  
5 all species use this available habitat equally, and so, anywhere  
6 you're going to find seagrass, you're going to find, you know,  
7 juvenile gag grouper, for example, and we certainly know that's  
8 not the case, right, and they tend to aggregate in spaces, some  
9 more than others, even if seagrass is available.

10  
11 The species habitat selection is completely known and published,  
12 and so using primary literature here to inform these life  
13 history tables, and so that says, you know, we have completed  
14 lots of research, and we know exactly where some of these things  
15 are, and that's certainly a big assumption right there.

16  
17 There's no accounting for physiochemical variables, and so, for  
18 example, there's no water temperature, and salinity sort of goes  
19 into these determinations, and it's mostly focused on structure  
20 and habitat features. There is some water column features in  
21 the habitat, and that's when you end up with the very broad  
22 descriptions of EFH, where it's almost, you know, the complete  
23 EEZ, and so that's sort of a broad approach to it.

24  
25 The good thing about this approach is we do have at least some  
26 information for all of the species listed here, and so, even for  
27 a lot of species where we would like to use some more technical  
28 approaches, we just simply don't have the data, but, for these  
29 species, we do have at least something that will allow us to,  
30 you know, describe and identify EFH, and, in contrast, the next  
31 two approaches that I'm going to talk about, which will be used  
32 to inform potentially Alternative 3 and Alternative 4, these are  
33 the only species we have enough data to use.

34  
35 It's a really small subset of that larger list that I had just  
36 mentioned, and so Alternative 2 is largely going to have to be  
37 the only alternative that would be available for most of the  
38 species we manage here in the Gulf, and so the next two methods  
39 will only deal with these species that we have on the board  
40 here.

41  
42 The data sources being used here is this Gruss paper from 2018,  
43 and, again, it's available in your background materials. It's  
44 basically an aggregation of data from twenty-seven fishery-  
45 independent and seven fishery-dependent datasets throughout the  
46 Gulf of Mexico, data collected from 2000 to 2016, using a  
47 variety of methods listed down there below in that last bullet,  
48 and so these data are being used to inform the methods that I am

1 going to talk about next.

2  
3 First, I will talk about this non-parametric kernel density  
4 estimator, using a nearest neighbor approach and the presence  
5 only, and so I will call that presence only, and then the  
6 boosted regression tree model, which looks at presence-absence  
7 of the species, plus some habitat.

8  
9 First, going into the presence-only method, for species where  
10 you may observe that, okay, I've gone out with my vessel, and I  
11 have surveyed an area, and here is my observations of my  
12 critter, and, in this case, we're going to use gag grouper, and  
13 so this is where I have identified species as they happen, and  
14 so you can draw a large circle and say, okay, that's my area of  
15 extent here for the species distribution, and, back in the olden  
16 days, that is what they used to do, especially like in the avian  
17 literature, and it was nice, because it was fairly easy to do.

18  
19 It was very easy to compare between studies, or over time, but  
20 one of the things that is difficult about this is you see  
21 there's a lot of blank space there, and so there's a lot of area  
22 that, you know, is sort of overestimating the actual  
23 distribution that we were just looking at by area.

24  
25 What we can kind of do is try to break down this observation of  
26 occurrence here into ideas where we can get sort of, okay,  
27 what's my core area, and what might I be interested in  
28 conserving, for example, or identifying for essential fish  
29 habitat, and so that solid black line that circles sort of the  
30 highest occurrence, 50 percent occurrence, that we have in a  
31 very small area, to get that core area.

32  
33 As you go out to the dotted line, and the solid-blue line, you  
34 start to get more of an extent area, which is the larger range,  
35 but my focus of my study, or my question, or my conservation  
36 goal, might be more into that core area, and so that allows you  
37 to sort of differentiate that and sort of, you know, describe  
38 the distribution in a little bit different way.

39  
40 One of the ways that you can do this is you can use this  
41 analysis being performed in R, and there's a number of ways to  
42 sort of draw these circles, and how do you decide that, well,  
43 how am I going to draw my circle, and what is it going to look  
44 like, and examine isopleths, and how do I go through and do  
45 that?

46  
47 For a lot of species -- For example, if you draw like sort of  
48 big circles like that, you might encompass an area where you

1 know the animal isn't there, a canyon or something, or land, if  
2 you're thinking about fish, and so one of the things that  
3 they've come up with is using this nearest neighbor analysis,  
4 and so it says that I'm going to determine how I draw my circles  
5 around my observations by my observations.

6  
7 That way, you can sort of cut through areas where you know, for  
8 example, there is an island, or something like that, and so you  
9 can begin to draw your circle about your observances, using the  
10 nearest neighbor to do that, and so how you pick how many  
11 nearest neighbors the model is going to consider will affect  
12 your outcome, and so you need to have a little bit of an idea,  
13 during that decision point, of how confident do I feel that that  
14 was the correct thing to tell the model, in terms of I need you  
15 to think of this many neighbors, as you draw your isopleth, or  
16 your circle, around your observances.

17  
18 This R package is nice, in that it will allow you a little bit  
19 of a diagnostic plot, and so that top-left plot will give you an  
20 idea, and so what you want to see is something like this, like a  
21 plateau going all the way across, and so, on the X-axis, you  
22 have the number of nearest neighbors that you may want to  
23 consider, and then, on the Y-axis, you have your area, and so  
24 you want to see a line just like this, which you wouldn't want  
25 to see as some big spike, perhaps, in the middle, because that  
26 would tell you there is some outlier out there that's having a  
27 really strong influence on where you're drawing your circles  
28 about your observations and your area.

29  
30 You can think of it in a linear regression, you know that one  
31 point that is way out on the top-right of your graph, and so you  
32 don't necessarily want to see that, and so, for example, this is  
33 adult gag grouper, and so that looks pretty good, and then, on  
34 the bottom-right, this is giving you an idea of the edge-to-area  
35 ratio, and so, again, you have the nearest neighbor  
36 consideration on the X-axis and the edge-area ratio on the Y,  
37 and what you don't want to do here is you don't want your map to  
38 look like Swiss cheese.

39  
40 You don't want to overfit everything, and so when you've got,  
41 for example, that red line that's really high, and that spike  
42 sort of levels out, you wouldn't want to choose something in  
43 that fifty range, because you're overfitting things like that,  
44 and so you want to be able to smooth it out, so that you have a  
45 little bit more values of what you consider to be a nearest  
46 neighbor and to not overfit.

47  
48 The next slide, it will give you something like this, and so

1 this is adult gag grouper. Those areas in red symbolize sort of  
2 the core area of use, and so this is where you see some higher  
3 densities, and then that lighter blue would be the larger extent  
4 of the area.

5  
6 Some of the assumptions here is you don't have any habitat  
7 linkage, and so it says I know the animal is here, and I don't  
8 really understand why, but, if your conservation goal is to say  
9 that, well, I understand that -- I don't know these things, but  
10 I am really interested in this habitat that might be in use by  
11 my critter, and so this might be the goal for me.

12  
13 To give you an example, actually -- Or there's not a lot of  
14 habitat linkage, and so, for example, this similar approach is  
15 used by HMS, and so when you have a lot of water-column species,  
16 marlin and sharks and things like that, that aren't -- That  
17 don't seem to be selecting any kind of structured bottom,  
18 necessarily, and an approach like this might be helpful.

19  
20 This also says there is no major difference in sampling gear  
21 selectivity, and we know that's probably not the case, and that  
22 catchability is equal across habitat types, and, again, that's  
23 probably not the case, right, and so trolling over some sort of  
24 really high-structured rock or something, a reef, and you  
25 probably don't have the same catchability as over sand.

26  
27 Certainly an absence is a true zero that you're measuring  
28 presence only, truly, and it's not that the fish was there, and  
29 you just missed them, and so there's quite a few assumptions  
30 there. That was the presence only, the kernel density estimate,  
31 and that would be Alternative 3.

32  
33 This is now going into the approach that would be used to inform  
34 Alternative 4, and so this is a presence-absence, and so what  
35 this says is it says, okay, I have my sampling event, and one of  
36 two things happened. I caught my fish, or I didn't, and so it  
37 was either present or consider it absent, and then, while I was  
38 also sampling, I measured a suite of environmental variables,  
39 and so it tells the model that I have an idea of what the  
40 environment was like when I caught the critter, and I also have  
41 an idea of what the environment was like when I didn't catch the  
42 critter, and you can start to compare those, and that's what the  
43 model output will let you know.

44  
45 I am not going to go too deeply into this, but what it basically  
46 means, conceptually -- What's nice about these models is it sort  
47 of uses this hierarchy to say, okay, I've got all these  
48 variables that I am interested in environmentally, and I'm going

1 to sort of boost it out in this classification tree, but what's  
2 nice about this is it can say something to you, and so, if  
3 you're running a model, for example, on water temperature, and  
4 it comes out as explaining most of the variability and when you  
5 see the critter and when you don't.

6  
7 Now that say, hey, water temperature seems to be important, it  
8 will let you know, like along that continuum, where that  
9 inflection point is, where you maybe saw what's a good water  
10 temperature and what is a bad water temperature, and what did  
11 they seem to be selecting to, and did they seem to be avoiding a  
12 -- What water temperature that actually is, what value, which is  
13 nice, because something like dissolved oxygen is going to have a  
14 domed relationship. Generally, they're going to like that sort  
15 of medium dissolved oxygen. They don't like the really low, and  
16 they may not necessarily like the really high, and so this model  
17 can handle that.

18  
19 Then, after it makes that determination, it will then move down  
20 to the other suite of variables, and we kind of move down this  
21 tree, and so you create these trees, and you've got these  
22 bifurcations of where I see the critter and where I don't.

23  
24 **MS. LEANN BOSARGE:** I didn't know if you wanted questions during  
25 or after, and so you made the comment that, with this model, you  
26 have -- You go out and you do some sampling, and so you've  
27 caught the fish, right, and, in that sampling, you also have  
28 some other information, like what was the habitat like and I  
29 guess maybe what was the water temperature there like, and so my  
30 question is, that data that you're pairing up with that specific  
31 sample, is that truly observed data for that individual catch,  
32 or is it modeled data? Like, generally speaking, we're modeling  
33 the habitat, and you caught this fish here, and so the model  
34 says the habitat would look like that, and which one is it? Is  
35 it an observed data, or is it a modeled data that is being  
36 paired with the actual samples?

37  
38 **DR. HOLLENSHAD:** It's the observed, the first scenario that you  
39 mentioned, and so I'm on the water, and I bring the fish up, and  
40 I'm also taking those environmental information.

41  
42 This model gives you some -- Here, for example, are some of the  
43 outputs, and this is, again, for adult gag grouper, and,  
44 unsurprisingly, gear comes out pretty quickly, and then bottom  
45 depth, bottom temperature, and, as I said, this is just a  
46 general example, but you'll get graphs that come out like this,  
47 so that you've got an idea of the relative influence of how that  
48 measured variable is influencing presence and absence.

1  
2 Then you get these charts like this, and this is sort of what I  
3 was talking about, and the axis titles are a little small on  
4 those, but, for example, bottom temperature and how you might  
5 read that, and anything along zero says there's sort of no  
6 selection, no preference. Anything above zero, it seems to be  
7 that the animal is selecting for that, and that seems to be  
8 driving, you know, where you're seeing your observations, and  
9 then, anything below that, it's almost as if the fish is  
10 avoiding it. Above zero, they seem to be selecting for those,  
11 and, at zero, they seem to be avoiding it.

12  
13 Anyway, you can get some plots that come out like this and get  
14 an idea and get a better understanding. It certainly helps when  
15 you're interpreting the results a little bit, so that you can  
16 get an idea of what exactly the data is trying to tell you.

17  
18 This is sort of the outputs, the visual outputs, from this sort  
19 of modeling, and, again, this is adult gag grouper, and those  
20 sort of warmer yellow colors lets you know that, hey, this is  
21 where you're seeing most of your occurrences, and then that  
22 would be your sort of focus for you describing your EFH.

23  
24 Again, there is quite a few assumptions here as well. You're  
25 assuming that your uncertainty is adequately captured and  
26 correctly quantified, and there are ways to get an idea of just  
27 sort of how uncertain it can be, and so this modeling approach  
28 is nice, in that at least you can have some determination of  
29 what that might look like, and you're also assuming that all  
30 appropriate model variables are included and independent, and  
31 now we can go through and look at some of those variables, and,  
32 any ones that are really highly correlated, you can decide which  
33 ones you may look at and run a suite of various things, until we  
34 get an idea of what we think is perhaps the best model approach,  
35 but, again, that's the assumption, and, again, that the absence  
36 is a true zero.

37  
38 Just to review, the EFH descriptions, for most species, will  
39 have to use habitat association tables, use that approach, and  
40 so, as you recall, that other table that I had, that had that  
41 list of lots of the managed species, Alternative 2 is going to  
42 be the only viable alternative there, because we just don't have  
43 enough data, and so a few species do have data available for  
44 some of these more technical approaches that I just went  
45 through.

46  
47 All three of these approaches have a number of assumptions, and  
48 so depending on what sort of our EFH description goals are, and

1 so, again, we're working on the web tool to hopefully, you know,  
2 lay this out and be able to do some comparative analysis, but,  
3 as of right now, I do have the habitat spatial layers metadata,  
4 and so, especially for the habitat layers, that we could use in  
5 Alternative 2, and it's in the background materials, as well as  
6 the research paper that was used to inform Alternatives 3 and 4.

7  
8 The EFH methods that are used in other regions, to sort of  
9 compare, hey, what are they doing, and like, for example, the  
10 Mid-Atlantic and the Pacific do sort of have sort of a la carte,  
11 what species -- They may use a different methodology for  
12 describing EFH, and they don't have one that's just across-the-  
13 board for everything, and so some regional councils do things a  
14 little differently, and so those are all available as  
15 background.

16  
17 The next step would be to complete that web tool, to help  
18 visualize things, so I don't have to do as much talking, and as  
19 well as keep those raw spatial data layers, and so we'll have  
20 the raw data layers that everyone can look at and then see, for  
21 each method, or each alternative, what those maps would look  
22 like, so you can get a better idea of how they would be  
23 different between the alternatives.

24  
25 Then present that web tool to the SSC, to get their  
26 recommendation on it, and their input as well, and then, I guess  
27 for today's meeting, I've got a copy of the document that we can  
28 look over. Because we've been working on -- Like I said, it is  
29 important to -- This is the foundation of these various  
30 approaches, and we've been working a lot on that, and so the IPT  
31 hasn't really met to go over the document yet, because we wanted  
32 to make sure the SSC, and the council, was amenable to these  
33 approaches, if we were going to potentially write them up.

34  
35 The document hasn't really changed. Mr. Chair, you had  
36 suggested some language for the purpose and need, and I do have  
37 that in there, just a little holding place for that, so the IPT  
38 can review it, but that's the only thing that has really changed  
39 in there, but we can certainly pull up the document if you want.

40  
41 One of the questions, I guess, that I would pose to the  
42 committee -- We've got David Dale on the line as well, and he is  
43 from the Habitat Division there at the SERO office, and so he  
44 could perhaps provide some insight, if you would like to call on  
45 him, Mr. Chair, but one of the questions that I guess I just  
46 wanted to consider is certainly we do have these other  
47 approaches that we could use, but the committee is not  
48 necessarily bound to those.

1  
2 If the committee was interested in just updating -- Using the  
3 same methodology that we have in Generic Amendment 3, which was  
4 that Alternative 2, that is something that we could -- It's a  
5 viable option that we could go with, and it works for most of  
6 the species, and it would streamline the document a bit.

7  
8 When I presented this information to the SSC, they were  
9 interested in, well, if you've got the data, it would be  
10 interesting to see different approaches, and certainly, when it  
11 gets to the policy portion and writing up the document, it gets  
12 a little bit more complicated, but I'm happy to take any input  
13 that the committee may have, in terms of that document, or any  
14 other questions that they have about the approaches. I would be  
15 happy to take any questions at this point, Mr. Chair.

16  
17 **CHAIRMAN GILL:** Thank you, Dr. Hollensead. Are there questions  
18 or comments? Patrick.

19  
20 **MR. PATRICK BANKS:** Thank you, Mr. Chair. This is really  
21 interesting to me, and you mentioned other councils, and what  
22 are the examples of other councils that have used each of these  
23 approaches?

24  
25 **DR. HOLLENSEAD:** I don't know of any councils that use  
26 necessarily all three, and like, for example, the North Pacific  
27 -- They can use something like the boosted regression tree  
28 model, and they use a max entropy model, and so it's like the  
29 Ferrari of models kind of thing, but they have got a lot of  
30 really good groundfish data, and things like that, that they can  
31 really use, and we're a little limited, in the Gulf, on what we  
32 can do.

33  
34 As I mentioned, HMS uses that kernel density estimator, and then  
35 you've got all the way to like -- I believe the South Atlantic  
36 and the Caribbean use more, and David Dale can certainly correct  
37 me if I've got this wrong, but they use more of like a depth  
38 stratum, and so it's very qualitative, and so the councils do  
39 things very differently, depending, and, Bernie, if you wouldn't  
40 mind pulling up that background document for me, and it's Tab P,  
41 Number 4(e).

42  
43 I tried to put it together in a table, what the various council  
44 uses and which alternative in the document being considered  
45 today would be -- In the Gulf, that it would be sort of  
46 analogous to, and then I've got the weblinks available to each  
47 of their habitat pages, if you wanted to read a little bit more  
48 about their methodology, but every region does it a little

1 different, and so it's interesting.

2

3 **CHAIRMAN GILL:** Dr. Stunz.

4

5 **DR. GREG STUNZ:** Thanks, Dr. Hollensead. That was a very  
6 informative and very thorough presentation, I thought, and one  
7 you had mentioned -- This wasn't my original question, but you  
8 just mentioned about going ahead and updating what we have,  
9 using the current methodology, which I think is a good thing,  
10 because that's the easiest, and we can just move forward, but I  
11 certainly would, in there -- With the approaches that you've  
12 got, whether it's the kernel density or the boosted regression  
13 tree, and like you presented this with the draft options, but  
14 are those mutually exclusive? I mean, do you have to do one  
15 method or the other, or can all of these methods inform EFH, at  
16 the end of the day?

17

18 **DR. HOLLENSEAD:** You could, and so each species -- If you have  
19 the data, and, for each of the subset of species that we had,  
20 all the shrimp species, you could either use Alternatives 2, 3,  
21 or 4, and so I don't think that I would use Number 3 or Number 4  
22 for one species. Now, there are some species that, in that  
23 larger table that I pulled up, as well as red snapper I think,  
24 that you can only use Alternative 2, and Alternatives 3 and 4  
25 would not be available.

26

27 **DR. STUNZ:** Right, and so I'm saying you would just choose -- In  
28 other words, you would just choose whatever method is  
29 appropriate for that particular species, and I thought we were  
30 saying, okay, well, you've got to use Alternative 4 for  
31 everything, and you have the flexibility to --

32

33 **DR. HOLLENSEAD:** Correct. Yes.

34

35 **CHAIRMAN GILL:** Dr. Froeschke.

36

37 **DR. JOHN FROESCHKE:** Just to maybe clarify it, for all of the  
38 species we have enough information to execute Alternative 2.  
39 For some of the species, we have enough information to do  
40 Alternative 3, which really requires information about the  
41 distribution of the animals, but not necessarily the  
42 corresponding environmental information at the time of sampling  
43 or capture.

44

45 Alternative 4 requires both the information about the  
46 distribution and the presence and/or absence, as well as the  
47 complementary environmental information, and so, as you go  
48 further down, you require more information for the species and

1 life stage, and so there's a smaller subset of the data for  
2 species that we could actually do that for, and so the question  
3 is do we -- For the species that we have that available, do you  
4 want us to try to attempt those models and provide that  
5 analysis, or do you want to use something like Alternative 3,  
6 that we have the data for everything?

7  
8 The benefit to that would be we could remove those other ones,  
9 perhaps, but you may not be using the full extent of the data  
10 that we have available for the species that we have, and that's  
11 what we're trying to get some information on.

12  
13 **CHAIRMAN GILL:** Dr. Hollensead.

14  
15 **DR. HOLLENSEAD:** Just to follow-up on John's, the subset of  
16 species that we do have information for, that's just for the  
17 juvenile and the adult life stages, too. For example, for red  
18 snapper, we would have to use Alternative 2, and so, when you  
19 start breaking it down by life stages, you realize you've got  
20 very limited data.

21  
22 **CHAIRMAN GILL:** Patrick.

23  
24 **MR. BANKS:** That may have answered my question, and I guess I  
25 was listening to Dr. Froeschke talk about having the presence-  
26 absence information, and then something about the environment as  
27 well, for Alternative 4, but isn't Alternative 2 based on the  
28 scientific literature that showed those things in a particular  
29 habitat? I thought I remembered hearing something that Dr.  
30 Hollensead said about Alternative 2 is based on the habitat  
31 where the literature shows that we found these animals before.

32  
33 **CHAIRMAN GILL:** Dr. Froeschke, to that point?

34  
35 **DR. FROESCHKE:** Yes, I'll try, and so Alternative 2 -- The way  
36 that it works, and so there are tables. Based on the literature  
37 for a given species, say red drum, and, through a series of  
38 expert evaluations and life stages, we say, okay, adult red  
39 drum, essential fish habitat types, of which there are  
40 recognized habitat types, and they are submerged aquatic  
41 vegetation, oysters, hardbottom, those kinds of things, and so  
42 then we would look to -- Then there are I think five ecoregions,  
43 ranging from Florida to the western Gulf, and so, within those -  
44 - So, for example, red drum might be categorized as Ecoregions 4  
45 and 5, habitats as SAV and oyster, and I'm guessing there's  
46 probably more than that, and so then you would -- That's how you  
47 would generate -- You would look at Ecoregions 4 and 5, and you  
48 would identify the map regions of SAV and oysters, and that

1 would be the EFH.

2  
3 There wasn't any specific sampling, whereas the Alternative 4  
4 would rely on, for example, scientific surveys, SEAMAP or other  
5 things, where they have actually done sampling, and so you went  
6 out with a boat, with a gear type, and said, yes, there are fish  
7 here, or there are not.

8  
9 **CHAIRMAN GILL:** To that point, Patrick?

10  
11 **MR. BANKS:** Yes, and so the difference then -- I think what I'm  
12 hearing is, under Alternative 2, if you have SAV, for example  
13 the Chandeleur Islands in Louisiana, and there's lot of SAV  
14 there, but it was not shown as habitat for juvenile gag, but had  
15 it actually been sampled there, then that would be data included  
16 in Alternative 4, and is that the difference?

17  
18 **DR. FROESCHKE:** In that particular example, for gag, it probably  
19 wouldn't show, because that ecoregion with the Chandeleur  
20 Islands is probably not recognized as the EFH, because gag don't  
21 really just biographically occur in that region. The sampling,  
22 there really isn't a linkage between biological sampling of --  
23 Really, Alternative 2 is based on historical distribution and  
24 abundance codes of common or absent and things like that, and  
25 it's much more crude, but it casts a wider net, and so, if you  
26 used Alternative 4, and you went there and you actually sampled,  
27 you could perhaps include that in there.

28  
29 **CHAIRMAN GILL:** Susan.

30  
31 **MS. SUSAN BOGGS:** I was thinking about the question that Greg  
32 asked, and I had to pull it up and look, and so you have a  
33 different -- For Alternative 2, you can do all those species,  
34 and, if you pull gag grouper, red grouper, red snapper out, and  
35 do like Alternative 3 or 4 -- Okay, and so you can separate  
36 them? Okay. Thank you. Just clarifying.

37  
38 **CHAIRMAN GILL:** Dr. Stunz.

39  
40 **DR. STUNZ:** Dr. Froeschke and Dr. Hollensead, and so were you  
41 all asking, from the committee, like your advice of what to do  
42 when you have more data for some of these? Okay, and so I think  
43 my advice would be that you -- Whatever you have the data and  
44 you have the analytical tools that gives us the best picture for  
45 essential habitat, that's what we should do.

46  
47 That's me saying that as a council member, and, me saying that  
48 as a scientist, and I know that these are a heck of a lot of

1 work, and so I don't know what distribution of workload and that  
2 kind of thing -- How much time and effort that takes, and, I  
3 mean, obviously, if we're asking you to do something that's  
4 going to be a lot of work, I don't know.

5  
6 The last quick thing, related to that, is that I would assume  
7 that, once you get the perfect EFH description, all of this  
8 informs the web tool, in one way or the other, and, I mean, I  
9 would not want that to -- I mean, I think the web tool can be  
10 very useful and good, and that's just informed by whatever  
11 modeling approach you take.

12  
13 **CHAIRMAN GILL:** Dr. Froeschke.

14  
15 **DR. FROESCHKE:** To the first, we're very lazy programmers, and  
16 so we'll automate this, and so, once we get it working, we'll  
17 make it work for whatever species that comes up after that that  
18 we have identified, and, yes, we will try to incorporate this,  
19 and we kind of talked about it.

20  
21 Essentially, we will go through and visualize, okay, Alternative  
22 2, and you can visualize, or select, the number of species and  
23 life stages that we have data available, which in fact is all of  
24 them. Then you look at Alternative 3, and it's going to be a  
25 smaller set, and Alternative 4, and so, eventually,  
26 theoretically, you can say, for Species X, Y, and Z, in each  
27 life stage, we want to use Alternative 4. For these other ones,  
28 Alternative 3, and the remainder Alternative 2, or something to  
29 that effect.

30  
31 **CHAIRMAN GILL:** Kevin.

32  
33 **MR. KEVIN ANSON:** I'm not on your committee, and thank you for  
34 recognizing me. Just to follow-up a little bit, or carry on  
35 that conversation, the question that Patrick had, I'm just  
36 trying to understand a little bit more about the model and the  
37 process for Alternative 2 and having the presentation, the  
38 slide, that describes that, and it's presence only, and the  
39 assumption is there's no habitat linkage, but I find that -- I  
40 heard what you said, and I'm just, you know, trying to reconcile  
41 that with the charge at-hand, which is try to identify which  
42 species is associated with a habitat, essential fish habitat,  
43 and so, essentially, we're still trying to use -- There is a  
44 link there to habitat. Thank you.

45  
46 **CHAIRMAN GILL:** Dr. Hollensead.

47  
48 **DR. HOLLENSEAD:** You can probably blame that on my poor

1 PowerPoint skills, and it should have been more not as much  
2 focus, I guess, and so I mentioned before that HMS will use it,  
3 and so it's not that they're saying there is no linkage, but  
4 it's just saying, for these water-column-associated species,  
5 it's really difficult to pin down, you know, some of these  
6 things.

7  
8 You've got such an extent of water temperatures and things like  
9 that that it's hard to really hone-in, and so they use this  
10 Alternative 3, this presence only, as a way to describe their  
11 EFH, and so it's not that there is no habitat linkage, and there  
12 certainly is. It's just that the model, in order to describe  
13 it, doesn't account for it as much relative to some of the  
14 others, would be a better way to put it.

15  
16 **CHAIRMAN GILL:** A question that I have -- Well, I have several,  
17 but, Dr. Hollensead, you said that you had presented this to the  
18 SSC, and did they provide any feedback, in terms of direction,  
19 in which they suggested that the focus would be variable, or did  
20 they just put in a more generalized good work and keep on going,  
21 or how did that come out?

22  
23 **DR. HOLLENSEAD:** They sort of recommended the avenue that Dr.  
24 Stunz had mentioned, that, if you have it available, and you  
25 would like to pursue that -- Quite a few members mentioned that  
26 they are interested in more refined descriptions of EFH. A lot  
27 of times, that other alternative being suggested for Alternative  
28 2 is really broad descriptions of EFH, and so, if you have the  
29 whole EEZ listed as EFH, it's not particularly helpful, and so,  
30 if the data was available, they suggested that.

31  
32 **CHAIRMAN GILL:** Thank you, and the other thought is, relative to  
33 Dr. Stunz's comment about workload versus inclusion or not, my  
34 take is that workload isn't really the issue, because what that  
35 will drive is the extent of the process and how long it will  
36 take, but that's not the strong driver here. The driver here is  
37 to define EFH in a sufficiently-adequate manner, given the state  
38 that we are, and is that correct?

39  
40 **DR. HOLLENSEAD:** Yes, that's correct, and most of the work for  
41 Alternative 3 certainly can be -- For Alternative 2, we've got  
42 all the layers, and so that shouldn't take much time.  
43 Alternative 4 does take a little bit more time, and there are  
44 some diagnostics, and there are some things that we want to  
45 double-check before we run the model and those sorts of things.

46  
47 **MS. BOSARGE:** Just a question about Alternative 4 and the actual  
48 sampling and the work involved in trying to piece this together,

1 and so, in Alternative 4, you use a real samples, and it has a  
2 habitat associated with that sampling, and so, essentially, are  
3 we going to be taking like all the historic SEAMAP tows for --  
4 We only have five species, I think, that we can do that for.

5  
6 We can do it for gag grouper, red grouper, red snapper, shrimp,  
7 and Spanish mackerel, and, for those, we're going to pull out  
8 any SEAMAP tows that caught one of those species, and we're  
9 going to pull the rest of the data stream that goes with that  
10 particular SEAMAP tow, the location and the habitat type,  
11 whatever else they took, and you're going to have to do that for  
12 the life history of SEAMAP, and then what other data streams are  
13 we going to be using for that, where we're actually going into  
14 individual tows, with the limited data?

15  
16 **CHAIRMAN GILL:** Dr. Hollensead.

17  
18 **DR. HOLLENSEAD:** Not off the top of my head, but there is a  
19 table in the Gruss paper that goes through every single one of  
20 the surveys, the fishery-independent and the fishery-dependent,  
21 and there is quite a few of them, and I can pull it up, but it  
22 would be from all of those.

23  
24 **CHAIRMAN GILL:** Leann.

25  
26 **MS. BOSARGE:** So I'm thinking about workload, and so that's  
27 going to all -- If we go this route, then the Science Center is  
28 going to have to aggregate all that data for each species and  
29 get it into a usable format, or who is pulling all that, on a  
30 tow-level basis?

31  
32 **DR. FROESCHKE:** We've already done. We had to do all of that in  
33 order to get this, and so we worked directly with Dr. Gruss, who  
34 provided the data, and we formatted it for our needs and have  
35 that available, and so, to me, the question isn't necessarily  
36 the workload, because we pretty much have done the groundwork  
37 for that, and it's more of a policy consideration, in that are  
38 you comfortable with perhaps a mismatch of different kinds of  
39 information for different species, and the consequence might be,  
40 of that, is, for some species that you know more about, you  
41 might have a much more geographically-refined EFH, as compared  
42 to something that is very broad for other species.

43  
44 This might be an opportunity for David Dale to weigh-in on that.  
45 In terms of providing EFH consultations and things, there are  
46 perhaps benefits to having a more broad geographic footprint of  
47 EFH, versus the scientific nexus to refine and make smaller, and  
48 that's sort of what refining is, and I'm just kind of trying to

1 visualize, in my head, where you might have two species that  
2 have similar life history, one you know a lot about, and one you  
3 know less about, and so, if you use the one with Alternative 2,  
4 the geographic footprint of EFH might be quite large. For  
5 something you know more about, it might be much smaller, even  
6 though it looks at where the species might be relative to life  
7 history and distribution.

8  
9 **CHAIRMAN GILL:** I have a couple of questions. One is is eDNA  
10 being used as part of the determination of presence? Is it  
11 envisioned to be utilized, since that's basically what tells --

12  
13 **DR. HOLLENSHAD:** I know they're attempting some looking at eDNA  
14 for some species, and like oceanic whitetip I believe there's a  
15 new project going on to try to do that, and it's difficult in  
16 large portions of the ocean, and it's mostly used in river  
17 tributaries or things like that.

18  
19 I think that work is beginning, in terms of if it can be used in  
20 a broader sort of sense like that, and, like I said, the oceanic  
21 whitetip is the one that comes to mind, but, right now, for this  
22 document, no.

23  
24 **CHAIRMAN GILL:** So that says the presence data is survey, catch  
25 data, and I'm probably missing something, but that's largely it,  
26 correct? So the presence determination doesn't distinguish  
27 between residual and transitory, and is that correct as well?  
28 Dr. Froeschke.

29  
30 **DR. FROESCHKE:** Are you talking about something that's a  
31 resident, versus something that's migratory? If you went to a  
32 given spot on one day and sampled king mackerel, and they were  
33 there, but, next Tuesday, they may not be there?

34  
35 **CHAIRMAN GILL:** Yes.

36  
37 **DR. FROESCHKE:** That's kind of one of things -- If you think  
38 about Alternative 3 and kernel density, and so the rationale for  
39 HMS, when they use that, is the habitat -- The relationship of  
40 why animals are at a particular place at a point in time is  
41 certainly related to habitat, but it may not be to benthic  
42 habitat features, and it might dynamic variables, like sea  
43 surface temperature or fronts or eddy's or currents and things,  
44 and so the mechanistic relationship isn't readily visualized in  
45 a map.

46  
47 You can't map a current that's not static in time that's  
48 associated, and that's why they tried to use that and said these

1 are the areas that, on balance, that tend to be used more  
2 frequently, although we don't have the nature of that  
3 relationship mechanistically defined, but here it is, and so,  
4 for dynamic species, like king mackerel or something, it might  
5 be more appropriate to do that type.

6  
7 **CHAIRMAN GILL:** Thank you. Dr. Hollensead.

8  
9 **DR. HOLLENSEAD:** Mr. Chair, I was going to let you know too that  
10 David Dale, from the Habitat Division, has got his hand up, and  
11 he may be able to elucidate some of the things that Dr.  
12 Froeschke was asking about.

13  
14 **CHAIRMAN GILL:** Thank you for that. I hadn't noticed. David  
15 Dale, please.

16  
17 **MR. DAVID DALE:** Good morning. This is David Dale at the  
18 Habitat Conservation Division Southeast. John was asking if it  
19 was -- I've heard a couple of people ask the question of if it's  
20 okay if we use different methods for identifying and describing  
21 EFH, and I absolutely think it is absolutely okay for us to use  
22 different methods.

23  
24 The EFH regulations and National Standards direct us to use the  
25 best available, and so, if we have different methods that  
26 constitute the best available, we should use those, and the EFH  
27 regulations encourage us to use higher levels of information for  
28 identifying and describing EFH, when that information exists,  
29 and it actually encourages us not to designate EFH, if we don't  
30 have the information, or it can't be inferred by other methods,  
31 and so that question is relatively easy to answer.

32  
33 I heard some concern that, if we use different methods, we might  
34 refine EFH, and, by "refine", I think I hear our EFH  
35 identifications and descriptions might result in a smaller  
36 geographic area being identified and described as EFH, and I  
37 think that's okay too, because our regulations actually  
38 encourage us to focus EFH on those habitats, and it provides us  
39 some regulatory definitions of waters and substrates necessary  
40 for spawning, feeding, breeding, and growth to maturity for the  
41 major life stages of a fish. There's a lot in the EFH  
42 regulations that tell us to hone-in on the most habitats and  
43 areas that are actually necessary.

44  
45 **CHAIRMAN GILL:** Thank you, Mr. Dale. Kevin.

46  
47 **MR. ANSON:** Thank you, again, for recognizing me, and so it  
48 might be for Mr. Dale, this question, and so I'm curious then as

1 to, going forward, as we review this document, and the  
2 Alternative 3 and Alternative 4 that's currently in the document  
3 -- They provide a range of various metrics, based on the  
4 results, and so, relative to the way my understanding is, it  
5 would kind of lean more towards the conservative, if you will,  
6 or trying to throw a wider net over what would be classified as  
7 EFH.

8  
9 I guess, you know, just because, statistically, they do produce  
10 these values, or you can use these ranges, versus the other way,  
11 it's just kind of a there or it's not there, presence or  
12 absence, as to what kind of guidance we might, you know, want to  
13 receive, or additional information we might want to see, in a  
14 future discussion, if that's in fact where we go, when we have  
15 more time to maybe try to evaluate that, because it is -- I  
16 think it would very much constrict, if you were to choose like  
17 Option a in the two alternatives, versus where we are today, I  
18 think. Thank you.

19  
20 **CHAIRMAN GILL:** Thank you, and so my sense of the committee is  
21 that proceeding by including Alternative 3 and 4 is where we  
22 want to go, and do I see any objections to that approach? Not  
23 seeing any, is there any other further comment or questions  
24 about the generic amendment and the document? Susan.

25  
26 **MS. BOGGS:** I understand the workload, but it would not be  
27 easier, if we're trying to streamline this document, to stick  
28 with Alternative 2, for those species that we know, and then to  
29 pick Alternative 3 or 4 for the other species, to have the data  
30 available, and then further develop this document, down the  
31 road, because we talk about getting bogged down and not moving  
32 ahead, and at least we could move forward with this document,  
33 but continue to look at other methods for these other species,  
34 in an attempt for proceeding with trying to, I don't know, grow  
35 into Alternatives 3 or 4, with those other species.

36  
37 **CHAIRMAN GILL:** My understanding is that's exactly what the plan  
38 is, going forward, particularly given the amount of information  
39 we currently have, and, as was expressed, utilize it for 3 and 4  
40 where you can, and Alternative 2 then becomes the default for  
41 everything else. Susan, did you have a follow-up?

42  
43 **MS. BOGGS:** I guess that's not how I understood it, and that's  
44 why I was --

45  
46 **CHAIRMAN GILL:** Leann.

47  
48 **MS. BOSARGE:** I was thinking, maybe for the next time that we

1 see this, and so you showed us, I guess, the outputs from either  
2 Alternative 3 or 4, and I think Alternative 4 for gag grouper,  
3 and is that what you showed us? Okay. Alternative 4.

4  
5 Maybe if we could see what Alternative 2 looks like for gag  
6 grouper, then we could kind of compare the two. Like let's see  
7 how much we really refined it, right, to see how much bang for  
8 our buck we're going to get by going through, you know, the in-  
9 depth analysis, and do we need the Cadillac, or do we just, you  
10 know, need the bicycle, and I don't know, and so that would help  
11 me, I think, compare.

12  
13 I would also like to see shrimp, and we have a lot of finfish,  
14 and shrimp is a little different, and especially when you get  
15 into habitat. You know, there's a lot of the Gulf of Mexico  
16 that has not been mapped to that degree, you know the habitat  
17 for shrimp, and we have lots of coral that we haven't mapped at  
18 this point, much less mud bottom and sand bottom and limestone  
19 bottom and things like that, and so I think I would like to see  
20 what that output looks like for shrimp when you put in -- I  
21 guess you're putting in every single observer tow from the last  
22 fifteen years, individual tows, and the location and the shrimp  
23 and the type of bottom for that particular tow, and every SEAMAP  
24 tow, right, and I'm surprised that that data was that easy to  
25 pull together.

26  
27 I mean, because we have these conversations when we talk about  
28 stock assessments, and how long it's going to take just to pull  
29 the data for one particular species, and so I'm just really  
30 surprised that we have tow-level data, by individual species,  
31 ready to go into these models, with all those other supporting  
32 things, especially with SEAMAP being carried out by the state  
33 partners and this and that, and, I don't know, and it's  
34 surprising, but, anyway, I would like to see shrimp, and I would  
35 like to see what the difference is in Alternative 2 versus  
36 Alternative 3 and 4 for shrimp.

37  
38 If it's only just -- You know, if Alternative 2 has curved  
39 edges, and Alternative 3 was a little more refined around the  
40 edges, I'm not sure it's worth the workload for staff and  
41 everybody else involved to go to those lengths, but I won't know  
42 until I see it, right?

43  
44 **CHAIRMAN GILL:** Dr. Hollensead.

45  
46 **DR. HOLLENSEAD:** Thank you for that input. That's what the web  
47 tool -- What we would like to achieve. Right now, we do have it  
48 all in one place, but we would have to like click through, and

1 it's not organized the way we would like, so that you can bop  
2 right between, and so that's what we're working on, but we  
3 didn't want to pull it out yet, because it wasn't quite ready  
4 for primetime.

5  
6 **CHAIRMAN GILL:** I am looking to close this action out. Mara.

7  
8 **MS. MARA LEVY:** I can't let you close it yet. Well, just to  
9 that point, I think, in the document right now, there is gag for  
10 each of the alternatives, right, and it shows -- There is maps  
11 in there that shows the results for gag, for Alternative 1, 2,  
12 and 3, so you can see that, and then I would just say that I  
13 have no problem with looking at the results of all the different  
14 alternatives, because I think that's what you're going to do  
15 anyway, but then to say, after you've looked at the results,  
16 that you might not pick something because it's not much more  
17 refined -- I mean, we use the best available data you have, and,  
18 if you decide you're not going to do that, then there needs to  
19 be some sort of record and explanation for that, when you get  
20 down the road.

21  
22 I just encourage you to move forward with this, because it has  
23 taken a lot of work, and it is going to take a lot of time, and,  
24 the more we can progress on this, the better, because it's kind  
25 of been lagging, with everything else that's been going on as  
26 well.

27  
28 **CHAIRMAN GILL:** Thank you, and so any final input on the generic  
29 amendment, before we move on? Seeing none, thank you, and so,  
30 Dr. Hollensead, if you would provide the action guide for the  
31 develop the Aquaculture Opportunity Area Atlas for the Gulf of  
32 Mexico, plus, if you would, the DEIS for the AOA.

33  
34 **RESULTS OF THE AQUACULTURE OPPORTUNITY AREA ATLAS FOR THE GULF**  
35 **OF MEXICO**  
36

37 **DR. HOLLENSEAD:** Thanks, Mr. Chair. We will have a couple of  
38 presentations by Mr. Andrew Richard, who is in the room with us,  
39 I believe, and so we appreciate having him here, and he's got  
40 quite a few presentations to go through.

41  
42 NMFS and SERO will provide an overview presentation of the  
43 results of the Aquaculture Opportunity Area Atlas for the Gulf  
44 of Mexico, and this atlas was developed by the National Centers  
45 for Coastal and Ocean Science, and so it uses the spatial  
46 suitability model and incorporates multiple data layers that  
47 result in identification of those potential options for those  
48 AOAs.

1  
2 Then, following that, Mr. Richard will also provide a  
3 presentation on the publishing of the Notice of Intent to  
4 prepare for the Programmatic Environmental Impact Statement for  
5 the Gulf of Mexico AOAs, as well as a public scoping period, and  
6 so the committee and council are encouraged to ask any  
7 questions, provide feedback and comments to Mr. Richard, and,  
8 should the committee decide to request that staff draft a more  
9 formal comment letter on the behalf of the council, a motion  
10 would be needed.

11  
12 **CHAIRMAN GILL:** Thank you, Dr. Hollensead. The atlas is Tab B,  
13 Number 5, and the DEIS for the Aquaculture Opportunity Areas is  
14 Tab B, Number 6, and there are multiple parts to that as  
15 background. Mr. Andrew Richard, welcome, and thank you, sir.  
16 You have the floor.

17  
18 **MR. ANDREW RICHARD:** Good morning. Thank you, Mr. Chair, and  
19 thank you for the opportunity to talk about some of our  
20 aquaculture work that we have ongoing in the Gulf of Mexico. I  
21 am really excited to be here today, and it's my first council  
22 meeting, and so we're excited to present and be here in person,  
23 and so thank you, again, for that opportunity.

24  
25 My name is Andrew Richard, and I'm the Regional Aquaculture  
26 Coordinator for NOAA Fisheries Southeast Regional Office. I am  
27 onboard in May of 2020, and so I've been working virtually, and  
28 so, again, it's great to be here in person and be able to  
29 present to you.

30  
31 Today, I will be presenting a couple of presentations on our  
32 aquaculture work, including the effort to identify aquaculture  
33 opportunity areas in the Gulf of Mexico, as well as provide an  
34 update on some aquaculture projects and interests in the Gulf of  
35 Mexico.

36  
37 My first presentation will be presenting the results of the  
38 Aquaculture Opportunity Atlas for the U.S. Gulf of Mexico, and I  
39 will be presenting today on behalf of Dr. Ken Riley, from the  
40 National Center for Coastal Ocean Science, who, unfortunately,  
41 could not be with us here today, and so I'm going to do his  
42 work, and the work of his team to develop this atlas justice,  
43 and I hopefully will be able to answer any questions that you  
44 have, but I believe that Dr. Riley is also calling in, and so he  
45 may be able to answer any questions that I may not be able to.

46  
47 For a little bit of background, and really the driver for the  
48 development of this Aquaculture Opportunity Atlas for the Gulf

1 of Mexico, as well as the effort to identify aquaculture  
2 opportunity areas, in May of 2020, the Executive Order Promoting  
3 American Seafood Competitiveness and Economic Growth was issued,  
4 and, under Section 7, NOAA Fisheries was directed to identify  
5 geographic areas that may be suitable for commercial aquaculture  
6 development as well as develop programmatic environmental impact  
7 statements to assess the impact of siting aquaculture in those  
8 locations.

9  
10 The Executive Order called for a total of ten aquaculture  
11 opportunity areas to be identified over the course of seven  
12 years, and those locations could be identified in state or  
13 federal waters, or, for this first round, we're looking  
14 exclusively for areas in federal waters. In future rounds, if a  
15 state expresses interest in having aquaculture opportunity areas  
16 identified in their state waters, and that's something that  
17 would be able to be considered.

18  
19 The efforts identify aquaculture opportunity areas as a planning  
20 exercise, combined with marine spatial planning as well as  
21 environmental review. It does not change any of the permitting  
22 or regulatory requirements that permit offshore aquaculture, and  
23 it is purely a planning effort.

24  
25 In November of 2022, the Aquaculture Opportunity Atlas for the  
26 Gulf of Mexico was published. With this publication, it is the  
27 most comprehensive marine spatial planning effort ever conducted  
28 in U.S. federal waters for any ocean industry. It contains more  
29 than 200 different data layers and four sub-models that feed  
30 into the spatial analysis that is used to look for areas that  
31 are suitable for potential aquaculture areas.

32  
33 It contains over 150 maps that tell the story of how the ocean  
34 is used in the Gulf of Mexico, and it is informed by  
35 comprehensive stakeholder engagement, and many of you were part  
36 of that stakeholder engagement and the development of that  
37 Aquaculture Opportunity Atlas. We had over 150 stakeholder  
38 meetings, specific to the Gulf of Mexico, to help on this work.

39  
40 The Aquaculture Opportunity Atlas is also a great blueprint  
41 framework for future aquaculture opportunity area initiatives in  
42 other regions, as well as informing other ocean pioneering  
43 industries, and so a significant component of this Aquaculture  
44 Opportunity Atlas is that it is a peer-reviewed, stand-alone  
45 technical memorandum from the National Center for Coastal Ocean  
46 Science.

47  
48 They utilized the Center for Independent Experts, which is often

1 used for fisheries management work and stock assessments, and it  
2 also complies with MSA Standard 2 for scientific integrity. The  
3 reviewers were highly skilled in marine spatial science and were  
4 located outside of the U.S., and these are the institutions that  
5 they were associated with at the bottom of that slide.

6  
7 The reviewers provided over 300 specific comments, and they  
8 didn't identify any major flaws with the work of the Aquaculture  
9 Opportunity Atlas. They characterized the work as robust and  
10 state-of-the-art, and they did have some recommendations there,  
11 as you can see in the bottom-right-hand corner of that slide,  
12 and that was information and comments that were incorporated  
13 into the atlas.

14  
15 As you can see here on the screen, this is the initial study  
16 area for the Aquaculture Opportunity Atlas for the Gulf of  
17 Mexico. As I noted in a previous slide, the area that was  
18 initially looked at for identifying aquaculture opportunity  
19 areas was the federal waters of the Gulf of Mexico. Through  
20 stakeholder engagement, we were able to sort of narrow down that  
21 framework of where we would look for aquaculture opportunity  
22 areas.

23  
24 The aquaculture industry indicated that they need a minimum  
25 depth of at least fifty meters, to be able to survive storms,  
26 and that any locations in excess of 150 meters would greatly  
27 increase the cost and engineering requirements for projects  
28 outside of those areas, and so that band that you see there in  
29 the Gulf of Mexico is largely driven by that depth parameter of  
30 fifty to 150 meters in depth.

31  
32 There was no maximum or minimum distance from shore, and that  
33 was identified through stakeholder engagement, and the areas  
34 that we are looking for in the Gulf of Mexico are suitable for  
35 all types of aquaculture, be in finfish, shellfish, or seaweed  
36 aquaculture, and the work of this planning effort was to  
37 identify geographic areas that could support three to five  
38 commercial-scale aquaculture farms, and so we're looking for  
39 areas between 500 to 2,000 acres, which, in the Gulf of Mexico,  
40 is a pretty small area.

41  
42 Here we have a list of the data inventory that was included in  
43 the Aquaculture Opportunity Atlas. Southern California is also  
44 another region where aquaculture opportunity areas are being  
45 identified, and so you can see the comparison of the data that  
46 was utilized to help inform the work of the atlas. As you can  
47 see under the data layer section, those are actually the four  
48 sub-models that went into the spatial suitability modeling, like

1 national security, natural resources, industry navigation, and  
2 transportation of both fishing and aquaculture.

3  
4 As you can see, for most of those categories, the Gulf of Mexico  
5 does have more data layers, and we are dealing with a larger  
6 space. The one difference you might see, and might be of note,  
7 is toward the bottom, where you see the difference between the  
8 fishing and aquaculture data layers, where southern California  
9 has a significant number more, and that was largely driven by  
10 the fact that, in the Gulf of Mexico, there are multiple species  
11 management plans, and so approximately the same number of  
12 species were considered, fisheries were considered, but, because  
13 they're combined in the Gulf of Mexico, that number might be a  
14 little bit lower.

15  
16 I'm not going to get into a ton of detail on exactly how the  
17 suitability model works, but, essentially, that study area that  
18 I showed you in that last slide there is overlaid with a grid of  
19 -- A hexagonal grid that is approximately equivalent to ten  
20 acres in size, and that area is overlaid for each of those  
21 suitability models, and the different data layers are  
22 incorporated there, and each data layer is given a score,  
23 depending on the type of data, ranging between zero and one, one  
24 being the most suitable for aquaculture development and zero  
25 being the least suitable.

26  
27 Once those sub-models are overlaid on top of one another, you  
28 end up with a suitability model there, like in that picture with  
29 the red, the orange, and the green, and so the areas that are  
30 red are areas that are not suitable for aquaculture development,  
31 and so those are areas like submarine cable and oil and gas  
32 infrastructure, and those are areas that get zeroed-out in those  
33 suitable models, and so, when one of those layers has a data  
34 layer that incorporates that zero into the model, it zeroes it  
35 out for the entire suitability model.

36  
37 As you can see there, there are other uses that are kind of  
38 pointed out in that graphic there, and you can see that there is  
39 increased fisheries-related work there, and this is off of  
40 southern California, as an example, and so that color is not  
41 red, but it is also not green or blue, which are the more  
42 suitable areas, and it just denotes that it is a busy ocean  
43 space, and there's a lot of activity that's occurring in that  
44 area, making it less suitable than areas where there is not that  
45 sort of activity.

46  
47 This is the final suitability results for the Gulf of Mexico,  
48 and so you can see there that red are areas that are unsuitable,

1 based on the work of the atlas, and, if you look closely, in the  
2 west study, the central study area, as well as the east study  
3 area, you can find some areas of blue, and so those sixty  
4 clusters, that are kind of difficult to discern in those maps,  
5 show the areas that are highly suitable for aquaculture  
6 development.

7  
8 As you can see, the southeast study area is completely and  
9 entirely red, and that was due to some consultation with the  
10 Department of Defense, who identified that aquaculture isn't  
11 compatible with the Department of Defense work that was  
12 occurring in that southeast area.

13  
14 I mentioned that there were sixty clusters of highly-suitable  
15 area that were identified in the work of the atlas, and those  
16 sixty clusters actually totaled about 1.1 million acres and  
17 provided approximately 30,000 potential aquaculture opportunity  
18 options. Only the top nine options were brought forward,  
19 through the work of the atlas, and there was an additional  
20 dispersion rule that was applied in identifying these potential  
21 aquaculture opportunity options, and so we end up with three  
22 potential options in the west region, three in the central  
23 region, and three in the east region, and so we have two 2,000-  
24 acre and one 500-acre site for each of those areas.

25  
26 That just happened to be the way the data worked out, and it  
27 wasn't done by design, and it just kind of shaped up that way,  
28 and I will talk a little bit more about those areas in my  
29 presentation of the programmatic environmental impact statement.

30  
31 These are the potential aquaculture opportunity area options  
32 that the atlas identified, and, as you can see, there is three  
33 off of Texas, three off of Louisiana, and three off of the Gulf  
34 coast of Florida. The closest location to shore out of these  
35 options is Location C-13, and that's approximately five nautical  
36 miles from shore, and the furthest is C-3, which is about  
37 seventy-two nautical miles from shore, and so the majority of  
38 those are between forty and sixty nautical miles offshore,  
39 throughout the Gulf.

40  
41 The atlas told a bunch of really, really important stories, and  
42 one of those stories, that I know that Dr. Riley likes to talk  
43 about, is a strong collaboration with our Sustainable Fisheries  
44 Division, with the councils, with our fishing industry, to help  
45 tell the story of the fishing data that was incorporated into  
46 the Aquaculture Opportunity Atlas, and so it's just a really  
47 important piece of the puzzle, and it was really a great  
48 opportunity to tell the story about where and how we're

1 utilizing the space in the Gulf of Mexico for fishing, and we  
2 hope that the Aquaculture Opportunity Atlas can be used as a  
3 tool, and a blueprint, for other future planning initiatives for  
4 aquaculture, as well as other ocean industries.  
5

6 I know Dr. Riley also likes to end this to show the team that he  
7 was working with to develop that document, and it's a very  
8 comprehensive document, and it was a multiyear process to  
9 collect data and to develop the Aquaculture Opportunity Atlas,  
10 and it's something that couldn't be done without his team, as  
11 well as all the stakeholder input that we've received from the  
12 council, and the industry as well, and so I'm happy to take any  
13 questions that anybody might have about the results, and I think  
14 we may have Dr. Riley online as well.  
15

16 **CHAIRMAN GILL:** Thank you, Mr. Richard. That was very  
17 interesting. It's one of those things that we'll be seeing more  
18 of this as time goes along. Are there questions from the  
19 committee of Mr. Richard? You all need some more coffee. Mr.  
20 Chairman.  
21

22 **MR. DIAZ:** I've had my coffee, I promise. Mr. Richard, I just  
23 want to make a comment, and I see C-13, that you've got off the  
24 mouth of the Mississippi River, is the closest one to shore,  
25 but, when I think of that area, as far as a dockside facility to  
26 work out of, I'm not sure it's closer than some of the other  
27 ones, but it may be, and I don't know, and I think Venice would  
28 be the first place that people could get to to, you know, have  
29 some dockside area to work. Anyway, I was just wondering if you  
30 could speak to that, if you consider the distance from port, and  
31 is it still the closest one?  
32

33 **MR. RICHARD:** The atlas does make note of the distance from  
34 shore, as well as the point of closest infrastructure that could  
35 support those aquaculture opportunity areas. I am not sure if  
36 it is the closest to potential infrastructure from that point  
37 specifically, compared to some of the other ones, and that may  
38 be the same approximate distance from shore and infrastructure,  
39 but the atlas, I know, does discuss that detail.  
40

41 **CHAIRMAN GILL:** Other questions from the committee? Leann.  
42

43 **MS. BOSARGE:** No, and I just wanted to commend you and your  
44 whole crew. I mean, I think you all did an amazing job, and I  
45 think that the tool that you created, this mapping tool, your  
46 atlas, I think it can be used for a host of different things,  
47 and you've really put all the hard work into it, to make it very  
48 simple for other people to piggyback and use that, and I can see

1 where it would be extremely helpful in the planning for wind  
2 energy.

3  
4 I mean, you have all the layers there that are vital, that are  
5 the other users of the sea, and you can, you know, with the  
6 click of a button, see what your impact may be, or not be, and I  
7 just wanted to say thanks for all your hard work, especially  
8 your work with the shrimp industry. We appreciate that.

9  
10 I would be remiss if I didn't point out that I think it was C-11  
11 that, during that Shrimp AP meeting in December, we had a couple  
12 of members of the AP that said, you know, those are some of my  
13 pretty important shrimp grounds, in one little piece of that C-  
14 11 that you had, and I don't know if you went back and maybe  
15 revised the box at all for C-11, and moved it a little bit, in  
16 one direction or the other, and can you speak to that, or if  
17 it's still that original area, as you had it proposed?

18  
19 **MR. RICHARD:** The locations that were presented at the Shrimp  
20 Advisory Panel back in December are the same locations that you  
21 see on the map here. We did take note that there were some  
22 comments that were received that identified some potential  
23 conflict with the fishing grounds that are in that area,  
24 shrimping grounds in particular, and so that's information that  
25 could be brought forward into consideration during our  
26 programmatic environmental impact statement of those areas, and  
27 we're also open to receiving comment during that programmatic  
28 environmental impact statement noting that information,  
29 regarding locations of where aquaculture opportunity areas are  
30 identified.

31  
32 **CHAIRMAN GILL:** Leann, to that point?

33  
34 **MS. BOSARGE:** So can you consider that my comment at that point  
35 and put it on the file, so I don't have to go to another meeting  
36 and give it to you? Thanks.

37  
38 **MR. RICHARD:** You got it. Thank you.

39  
40 **CHAIRMAN GILL:** Dr. Froeschke.

41  
42 **DR. FROESCHKE:** My question for the areas, for example Area W-4,  
43 where wind energy may also be planned in that area, in the event  
44 that both of them were considered suitable in a given area, who  
45 wins, and/or how does that work?

46  
47 **MR. RICHARD:** I will make note that the locations that are off  
48 of Texas there, within that W-1, W-4, and W-8, are not located

1 in any of those wind planning areas, and that was something that  
2 was looked at and considered, and I will speak to how we're  
3 making sure we consider that in the programmatic environmental  
4 impact statement as well, as far as our cooperating agencies  
5 working with us.

6  
7 The effort to identify aquaculture opportunity areas is a  
8 planning process, and so, ideally, when a project, a physical  
9 project, is proposed, it would happen right away, at least from  
10 our perspective, but, with those areas that are off of Texas,  
11 they don't overlap the planning area.

12

13 **CHAIRMAN GILL:** Patrick.

14

15 **MR. BANKS:** Back to Leann's point, and, just to confirm though,  
16 you all did consider the shrimp effort data in your planning of  
17 C-11, correct?

18

19 **MR. RICHARD:** That's correct. The shrimp electronic logbook  
20 data was incorporated into the atlas.

21

22 **CHAIRMAN GILL:** To that point, Leann?

23

24 **MS. BOSARGE:** Patrick, they really did a great job of trying to  
25 avoid some of those areas, and what they did for the Shrimp AP  
26 was to actually bring us some zoomed-in, which was really nice.  
27 Like we're getting the thirty-thousand-foot view here, but they  
28 brought us zoomed-in pictures of each one of those sites, and we  
29 kind of went through each one of them with the shrimpers in the  
30 room, and that one off of your state down there, that's a pretty  
31 vital area for the shrimpers, and I'm sure for Louisiana, and  
32 most definitely from the Gulf in general, and so we do hope  
33 that, as we continue this process, that maybe we will be able to  
34 go back and take that particular site and tweak it just a little  
35 bit, to get it out of those shrimp grounds.

36

37 It just seems sort of silly, and it's all about, you know,  
38 providing food to the country, right, and so, if we're already  
39 providing food to the country from that area, we want to push  
40 out the wild fleet, the wild-caught fleet, in order to grow fish  
41 there, and, you know, that's a tough one for me to stomach,  
42 because it seems kind of contrary to the goal here, and so I  
43 hope we can adjust that.

44

45 **CHAIRMAN GILL:** To that point, Patrick?

46

47 **MR. BANKS:** Leann, if they considered the shrimp data that comes  
48 from NMFS, why -- Where is the disconnect between they

1 considered it and said this was a good opportunity area, but  
2 then you heard from shrimpers saying this is not a good area,  
3 because we shrimp like crazy in here?  
4

5 **MS. BOSARGE:** Well, I think that comes into the weighting, and  
6 so they consider it, but, just because there's shrimping there,  
7 it doesn't mean that they say we won't do aquaculture there, all  
8 right, and everything gets a weighting factor, and so I'm sure  
9 like national defense things -- That's a no-go, if we're doing  
10 something, but shrimp -- We've got some wiggle room, right, and  
11 so, just because we're shrimping there, it didn't mean that they  
12 wouldn't necessarily put aquaculture there, but they really did  
13 do a very good job of trying not to do that, and that was the  
14 only site, really, I believe, that we found where they -- It's  
15 not the whole acreage, and it was just a little portion up there  
16 that might be an issue, and so I'm hoping we can work with them  
17 on that one site.  
18

19 **CHAIRMAN GILL:** Robin.  
20

21 **MR. RIECHERS:** When you were talking about the interaction  
22 between the wind farms and aquaculture, and you basically -- I  
23 think you alluded to the fact that you all were making sure they  
24 weren't in the same area, and is there any specific reasons,  
25 biologically, infrastructure-wise, that you wouldn't necessarily  
26 site those two in the same area? In some respects, there might  
27 be even some possibilities of using up less overall area in  
28 siting consecutively or near one another.  
29

30 **MR. RICHARD:** I will say with those areas, off of Texas in  
31 particular, there's just different depth requirements, and the  
32 depth is a real driver on why there's not sort of an overlap, or  
33 a compatibility, but I will say that there are projects  
34 currently being funded by the Atlantic States Marine Fisheries  
35 Commission to look at co-location of aquaculture with wind  
36 infrastructure off of -- I believe off of New York and Virginia  
37 and a bunch of different locations off the east coast.  
38

39 **MR. RIECHERS:** Isn't the depth issue really one of anchoring  
40 though? I mean, there are different anchoring methods, aren't  
41 there, and it's just some are more costly than others, as I'm  
42 recalling?  
43

44 **MR. RICHARD:** Yes, that's correct, and that study that I was  
45 referencing there is actually looking at shellfish, which has a  
46 different rigging and anchoring system.  
47

48 **CHAIRMAN GILL:** C.J.

1  
2 **DR. C.J. SWEETMAN:** Thank you for recognizing me, Mr. Chair.  
3 I'm not on your committee, but I'm just curious. In the Gulf of  
4 Mexico model, we talk about shrimping, and what other fisheries  
5 were included in there? You mentioned six fisheries.  
6

7 **MR. RICHARD:** I would have to look specifically at the list. I  
8 can't recall them off the top of my head, but, you know, all the  
9 major -- I know reef fishing fisheries management, and I know  
10 reef fishing was definitely included in there, but I can't speak  
11 to the other ones.  
12

13 **CHAIRMAN GILL:** Dr. Frazer.  
14

15 **DR. TOM FRAZER:** Thanks, Mr. Chair. Right before this, we had a  
16 presentation of essential fish habitat for gag, for example,  
17 and, when I look at the figure that was provided, using one of  
18 the alternative approaches to that, it seems to straddle this E-  
19 4, or E-1, E-3, and E-4, I guess, and so to what degree was the  
20 essential fish habitat information considered in the process, as  
21 opposed to just fishing?  
22

23 **MR. RICHARD:** All the essential fish habitat data was included  
24 in the work of the atlas. In addition to that, there was both  
25 observed and modeled hardbottom that was considered as part of  
26 the data analysis that was incorporated in the atlas, and an  
27 additional thousand-meter buffer from any of those observed core  
28 model areas, and that's a requirement in the Gulf of Mexico for  
29 siting aquaculture, and it's an EPA regulation that generally  
30 relates to oil and gas infrastructure, and it's also applied to  
31 aquaculture, and so these areas are buffered away from that, in  
32 addition to considering that data in the atlas.  
33

34 **DR. FRAZER:** Thank you.  
35

36 **CHAIRMAN GILL:** Are there further questions or comments from the  
37 committee? Seeing none, thank you, Mr. Richard. That was most  
38 informative, and I'm sure we will be seeing more in the future,  
39 and so, if you would go on to the DEIS, I would appreciate it.  
40 Sorry. Leann.  
41

42 **MS. BOSARGE:** It's not for Mr. Richard, and I was just  
43 wondering, in general, and so, if we're also considering state  
44 waters for some of this siting, what, I guess, level of  
45 analysis, for these same types of layers, is happening in state  
46 waters, or is that being carried out by your group, too?  
47

48 **MR. RICHARD:** Because this first round of aquaculture

1 opportunity areas was focused on federal waters, there is not an  
2 ongoing sort of state waters analysis that is occurring specific  
3 to aquaculture opportunity areas, but I do know that there are  
4 several states that are looking at doing their own sort of  
5 approach modeled after the atlas work to look at that, Florida  
6 being one of those states.

7  
8 **MS. BOSARGE:** Does your atlas actually flow over into state  
9 waters, or did you only do federal waters? Do you have those  
10 layers for state waters?

11  
12 **MR. RICHARD:** There are layers available for state waters, but  
13 the focus of the atlas was restricted to federal waters.

14  
15 **CHAIRMAN GILL:** All right, sir. On to the DEIS.

16  
17 **NOTICE OF INTENT TO PREPARE A PROGRAMMATIC ENVIRONMENTAL IMPACT**  
18 **STATEMENT FOR AQUACULTURE OPPORTUNITY AREAS IN THE GULF OF**  
19 **MEXICO**

20  
21 **MR. RICHARD:** All right, and so the Executive Order on American  
22 Seafood Competitiveness and Economic Growth, under that Section  
23 7 that directed NOAA Fisheries to identify aquaculture  
24 opportunity areas, it really can be broken down into two areas,  
25 and so there is the effort to identify geographic locations  
26 suitable for aquaculture, and then there is the directive to  
27 develop a programmatic environmental impact statement that  
28 assesses the impacts of siting aquaculture in those locations,  
29 and so you can kind of look at it as phase one is the atlas and  
30 phase two is this programmatic environmental impact statement.

31  
32 I am going to present information on the notice of intent to  
33 prepare this programmatic environmental impact statement, as  
34 well as the scoping process, which was initiated on June 1 of  
35 this year, to support the development of that programmatic  
36 environmental impact statement.

37  
38 As I noted, on Wednesday, June 1, NOAA Fisheries published, in  
39 the Federal Register, a Notice of Intent to prepare a  
40 Programmatic Environmental Impact Statement to identify  
41 aquaculture opportunity areas as well as to initiate public  
42 scoping. A notice of intent gives information, obviously, on  
43 our purpose and need, preliminary alternatives, expected  
44 impacts, as well as the timeline and information on our  
45 cooperating agencies that we would be working with.

46  
47 That notice of intent kicked off a sixty-day public scoping  
48 period that will conclude on Monday, August 1. We've had two

1 virtual scoping meetings so far, where we've received public and  
2 stakeholder input, and that was on June 6, and well as June 16,  
3 and we do have an upcoming virtual scoping meeting, which will  
4 be on Tuesday, June 12, and so that's upcoming as well.

5  
6 As I indicated that we would providing information on our  
7 cooperating agencies, and the agencies that we're working with  
8 collaboratively, to develop this programmatic environmental  
9 impact statement. The Gulf of Mexico is a vast area, and  
10 there's a lot of federal agencies with jurisdiction on  
11 aquaculture, as well as also using that space out there in the  
12 Gulf of Mexico, and so, for this programmatic environmental  
13 impact statement, we've invited the U.S. Army Corps of  
14 Engineers, the EPA, and BOEM, as well as the U.S. Air Force, to  
15 participate as cooperating agencies in the development of this  
16 programmatic environmental impact statement.

17  
18 We have all regions and districts of the Corps and EPA  
19 represented on our cooperating team, our cooperating interagency  
20 team, and the U.S. Air Force is represented, of course, as well,  
21 and I noted some questions regarding wind planning, as well as  
22 aquaculture development, and that was also one of the drivers  
23 for including BOEM in that conversation as well, to make sure  
24 that the information we're including in our programmatic  
25 environmental impact statement considers the most up-to-date  
26 information regarding wind planning and development.

27  
28 We're also using with the U.S. Fish and Wildlife, as well as the  
29 U.S. Coast Guard, in a lesser role with those participating  
30 agencies in the document, given their role in regulating and  
31 authorizing aquaculture. Our interagency team consists of over  
32 twenty-six members, and it seems to be a constantly growing  
33 team, but we're very welcoming and excited to have  
34 representation from all these federal agencies with us working  
35 on this programmatic environmental impact statement.

36  
37 The goal of this programmatic environmental impact statement is  
38 to help it -- Help make sure that it informs future permitting  
39 and environmental review processes for future aquaculture  
40 projects, just to make sure that we're planning for the future  
41 of aquaculture development in the Gulf.

42  
43 Our proposed action is to consider identifying one or more  
44 aquaculture opportunity areas in the federal waters of the Gulf  
45 of Mexico and to evaluate the impacts of siting aquaculture in  
46 those potential locations. Again, I would like to emphasize  
47 that this is a planning process, and there are no specific  
48 aquaculture activities that are being permitted or proposed or

1 evaluated, and this is merely a planning exercise to assess the  
2 potential impacts of siting aquaculture in these locations.

3  
4 The idea is that potential aquaculture projects proposed at a  
5 later date and sited within these aquaculture opportunity areas  
6 would benefit from the upfront analysis that was conducted in  
7 this programmatic environmental impact statement, and so that  
8 would create efficiencies for them in their permitting process,  
9 as we know a lot more information about these locations.

10  
11 The purpose and need for our proposed action is, obviously, one  
12 of the significant drivers for that was the Executive Order on  
13 American Seafood Competitiveness and Economic Growth, and it's  
14 also to utilize a scientific approach to inform offshore marine  
15 aquaculture planning. We're looking to find areas that could be  
16 suitable for multiple offshore aquaculture projects, as well as  
17 to address the interest and concerns regarding offshore  
18 aquaculture and siting.

19  
20 The purpose of this also addresses the need and the increasing  
21 demand for seafood, as well as promoting American seafood  
22 competitiveness, food security, and economic growth, while  
23 sustaining and conserving marine resources.

24  
25 Public comment involvement is extremely important to this  
26 process. As I noted, on June 1, we kicked off our sixty-day  
27 public scoping period, and that will conclude on August 1.  
28 Following the conclusion of the scoping period, we will publish  
29 a scoping summary, and we will post that through our Aquaculture  
30 Opportunity Area DEIS website, and so that's publicly available  
31 for all to review. After that, we will begin working with our  
32 interagency team to start developing the programmatic  
33 environmental impact statement.

34  
35 Once that draft programmatic environmental impact statement is  
36 made available to the public, through a notice of availability,  
37 that will kick off at least a forty-day public comment period,  
38 where we will solicit, or seek, comment towards the development  
39 of that draft programmatic environmental impact statement.  
40 Following that public comment period, we will consider, as well  
41 as respond to, those public comments, and that will be done in  
42 the final programmatic environmental impact statement, and,  
43 again, one of the main takeaways from this is that this is a  
44 planning document, and the stakeholder feedback that we receive  
45 during these scoping periods will be extremely important in  
46 helping to inform the development of this programmatic  
47 environmental impact statement.

48

1 Here's just a timeline that kind of shows what that process  
2 looks like overall, and, as you can see, it is a two-year  
3 process, and that's directed under the Executive Order, that we  
4 complete each programmatic environmental impact statement in two  
5 years, as well as the regulations, and so we are kicking off our  
6 public scoping period here in the summer of 2022.

7  
8 By fall of 2023, we expect, and anticipate, having a draft  
9 programmatic environmental impact statement that will publish  
10 with a notice of availability, and that will kick off that  
11 forty-day public comment period. After incorporating any  
12 revisions that might need to be made into that draft  
13 programmatic environmental impact statement, we expect to  
14 publish the final programmatic environmental impact statement in  
15 the spring of 2024, with a record of decision potentially being  
16 published in the summer of 2024.

17  
18 Two years is definitely a very ambitious timeline for doing this  
19 work, and the Executive Order did not come with any additional  
20 resources for us to carry out this work, but I think we're well  
21 positioned to be able to really take a good shot at getting this  
22 accomplished within the two-year timeline of the Executive  
23 Order.

24  
25 Some preliminary ideas we had for the alternatives to consider  
26 in the programmatic environmental impact statement are focused  
27 around the locations, or the aquaculture opportunity options,  
28 identified in the atlas, and so we are considering identifying  
29 one or more of these locations as aquaculture opportunity areas  
30 in the programmatic environmental impact statement, and so NMFS  
31 will determine the number and scope of alternatives that are  
32 explored in the programmatic environmental impact statement, and  
33 that will obviously be informed by stakeholders, as well as our  
34 cooperating agency and interagency team that we're working with  
35 to develop this programmatic environmental impact statement.

36  
37 As this is a programmatic environmental impact statement, it  
38 will also contain a no action alternative, which would consider  
39 the effect of not doing and not carrying forward this planning  
40 process, to help inform future aquaculture development in the  
41 Gulf.

42  
43 Now I'll talk real quickly about the different sites, and this  
44 is -- If you're really interested in diving into each of these  
45 locations, I highly recommend checking out the Aquaculture  
46 Opportunity Atlas. There is just a wealth of information about  
47 each of these locations, and they're broken down individually  
48 within that work, but this is just kind of a general depiction

1 of the areas that are there.

2  
3 W-1 is a 2,000-acre site about thirty-five nautical miles east  
4 of Port Mansfield, Texas. W-4 is about -- It's a 2,000-acre  
5 site fifty nautical miles southeast of Port Aransas. W-8 is a  
6 500-acre site, fifty-eight nautical miles southeast of Freeport,  
7 Texas.

8  
9 C-3 is depicted as a 2,000-acre site, approximately seventy-two  
10 nautical miles from Pecan Island, and Morgan City is the closest  
11 point of infrastructure. As I noted in my comments earlier, the  
12 atlas does identify these significant points of infrastructure.  
13 C-11 is a 2,000-acre site forty-one nautical miles off of Port  
14 Fourchon. C-13 is a 500-acre site about five nautical miles  
15 south of South Pass in Louisiana.

16  
17 E-4 is a 2,000-acre site about fifty-eight nautical miles off of  
18 Clearwater Pass. E-3 is a 2,000-acre site forty-nine nautical  
19 miles southwest of Tampa, Florida. E-1 is a 500-acre site  
20 that's fifty-six to fifty-eight nautical miles from Fort Myers.  
21 Again, if you're interested in kind of diving into the details  
22 about those locations, the Aquaculture Opportunity Area Atlas is  
23 a great resource for that, and we also have links through our  
24 aquaculture opportunity area website.

25  
26 **CHAIRMAN GILL:** Mr. Richard, we have a question from Leann.

27  
28 **MS. BOSARGE:** If you could go back to that last slide, and so,  
29 staff, I think you have a slide that you could pull up for us  
30 for that C-11, and just before -- I won't be here in August,  
31 okay, when you come back, and so I just kind of wanted to  
32 visualize that for people around this table, when we say that  
33 it's a fairly significant shrimping area.

34  
35 We actually have the shrimp effort slide for that that is  
36 overlaid on your potential area there, and sometimes a picture  
37 is worth a thousand words, and so, staff, if you could pull that  
38 up, and I think it was emailed to you, just real quick, if  
39 that's okay, Mr. Chairman. I can tell you it's important all  
40 day long, but I think, when you see it, you will go, oh, that's  
41 important.

42  
43 **CHAIRMAN GILL:** Leann, how about if we continue on with the  
44 discussion and bring this up later, while that bring that up?  
45 Thank you. Mr. Richard, back to you. I stand corrected.

46  
47 **MS. BOSARGE:** Then if you can zoom-in on that C-11 option for  
48 us, please, ma'am. It's on the screen, and you just have to

1 zoom-in. There you go. There's the little square box that is  
2 the proposed area, C-11, and that's the little square box that  
3 you see in that red area, and that red area is intense shrimp  
4 trawl grounds, and so it is very important, because that's kind  
5 of like a heatmap that you're looking at, and so the red areas  
6 are extremely heavily trawled, and that's right off of  
7 Louisiana, and, boy, they can get crazy down there, and so I  
8 don't know if we might want to adjust that one.

9  
10 **CHAIRMAN GILL:** Thank you, Leann. Bernie, if we could go back  
11 to the presentation.

12  
13 **MR. RICHARD:** All right, and so our notice of intent also  
14 contains what we are calling prompts, and so these are pieces of  
15 information and feedback of opinions and data and analyses on  
16 information that we're looking for stakeholders to provide -- To  
17 help inform the development of this programmatic environmental  
18 impact statement.

19  
20 I am not going to read through all of them, but, if you're  
21 interested, we have them posted up on our website, as well as  
22 the notice of intent, and so maybe you can look through those,  
23 and so, obviously, we're looking for information that can help  
24 inform the scope and the reasonable range of alternatives that  
25 we propose in the programmatic environmental impact statement,  
26 the type of aquaculture we analyze, as well as suitable species,  
27 gear, regulatory and monitoring and reporting requirements and  
28 things like that.

29  
30 We are also interested in potential adverse, beneficial,  
31 neutral, or cumulative impacts for the biological and physical  
32 environment, as well as impacts, social impacts, economic  
33 impacts, impacts to the cultural environment. We're also  
34 looking for information on the promotion of environmental  
35 justice, diversity, inclusion, and considering the alternative  
36 locations proposed in the notice of intent, as well as impacts  
37 to underserved communities, both beneficial and adverse.

38  
39 We're also looking for impacts, information and impacts, on  
40 climate change on aquaculture and the siting of aquaculture, as  
41 well as other activities that might be planned, including things  
42 like wind planning, and areas highlighted within the notice.  
43 Additionally, any other information that stakeholders might feel  
44 is pertinent to helping us develop this programmatic  
45 environmental impact statement.

46  
47 I'm sure I don't have to explain too much to the group here how  
48 to provide comments, but we are accepting comments via mail and

1 electronically, and so there's some instructions and information  
2 on where to do that, and then we also are, additionally, having  
3 a virtual public comment meeting on July 12, is our next one, is  
4 our third and final virtual public scoping, and there is the  
5 information for that, and I will just note that, if you are  
6 planning on calling and listening in, the audio is necessary  
7 through the phone line, to get access to that.

8  
9 That concludes the information on the programmatic environmental  
10 impact statement and the notice of intent, and I'm happy to  
11 answer any questions that anyone might have.

12  
13 **CHAIRMAN GILL:** Thank you, Mr. Richard. Are there questions or  
14 comments from the committee? Kevin.

15  
16 **MR. ANSON:** Thank you, Mr. Chair. I'm wondering -- So some of  
17 the data layers that were used could potentially change over  
18 time, and so have you all given much thought as to when the next  
19 reevaluation, or analysis, of those data layers could occur,  
20 which would maybe alter the footprint, if you will, going  
21 forward on trying to address the issue of improving, or  
22 increasing, domestic supply of seafood through aquaculture, and,  
23 specifically, I guess, I take that the existing infrastructure  
24 for oil and gas platforms -- If a platform exists, or a  
25 structure or pipeline or such exists there, that would probably  
26 exclude that, or give it a very low score, but they are supposed  
27 to remove those after a certain period of time, and so, again,  
28 the landscape will change, and have you all given much thought  
29 to that?

30  
31 **MR. RICHARD:** The work that is developed within the Aquaculture  
32 Opportunity Atlases are a static document, and they are a  
33 snapshot in time. I will acknowledge, however, that, any time  
34 an aquaculture project is proposed in the Gulf of Mexico, there  
35 is siting analysis, but it's done in the National Center for  
36 Coastal Ocean Science, and it helps to support and inform sort  
37 of those spatial planning and spatial siting components to that,  
38 and so the information is considered at a later date, when those  
39 projects are proposed, and so that information is included, but  
40 acknowledging that the atlases are sort of a snapshot in time,  
41 based on that information that is available, the best available  
42 science at the time.

43  
44 **CHAIRMAN GILL:** Patrick.

45  
46 **MR. BANKS:** Just a quick question. Going to what Kevin had  
47 asked, and it brought the question to my mind, and, if there's  
48 an oil and gas platform -- If it's not a producing oil and gas

1 platform, was that a positive score for an aquaculture  
2 opportunity area or a negative? I know that some folks feel  
3 like some of these decommissioned oil and gas platforms have  
4 some potential for aquaculture, and so did you guys look at that  
5 as a positive or a negative?  
6

7 **MR. RICHARD:** I'm not sure if it was looked at as a positive or  
8 a negative, but the idea was that these aquaculture opportunity  
9 areas, the options that were identified in the atlas, were  
10 capable of supporting three to five commercial-scale farms, and  
11 so, if there is existing infrastructure surrounding those oil  
12 and gas pieces of infrastructure, like, you know, pipelines and  
13 things like that, that might have excluded some, but maybe not  
14 all, and I can certainly follow-up with Dr. Riley and find out  
15 exactly how it was handled though and get back to you.  
16

17 **CHAIRMAN GILL:** Other questions or comments? Kevin.  
18

19 **MR. ANSON:** Patrick asked a similar question, but he got a  
20 little bit different answer, and so the reason I asked my  
21 question was for the issue of conflict of interest, in that,  
22 yes, they may want to be retained there for habitat for reef  
23 fish species, for instance, but there are some issues with  
24 maintenance and navigation and those types of things, and so,  
25 for those areas that otherwise would score, you know, favorably  
26 for aquaculture, but they currently have a structure there, at  
27 some point in time, that structure will be removed, and so they  
28 could, just because, or just so that they wouldn't impact other  
29 fisheries, for instance -- They could be used, I guess, as a  
30 good candidate for aquaculture, because they're already out of  
31 that, you know, use, if you will, for other competing uses.  
32

33 **CHAIRMAN GILL:** Other questions from the committee? I have one,  
34 Andrew, and that is that, prior to the Executive Order, the  
35 agency was involved in something, and I don't remember the  
36 nomenclature, but one-stop permitting for aquaculture, and,  
37 today, is that still ongoing, and, two, is that integrated into  
38 whatever work was done, or is being done, and integrated into  
39 the current process?  
40

41 **MR. RICHARD:** I am not familiar with that work, and I did come  
42 onboard in May of 2020, and so there are some things that do  
43 predate me, and, you know, obviously, with the court ruling on  
44 the aquaculture fishery management plan, there is no regulatory  
45 authority that we have over aquaculture in the Gulf of Mexico,  
46 but I can certainly check on that and follow-up.  
47

48 **CHAIRMAN GILL:** I appreciate it. Thank you. Further questions

1 from the committee? Seeing none, Mr. Chairman, I would  
2 recommend that we take a fifteen-minute break at this time, in  
3 accordance with the agenda.

4  
5 **MR. DIAZ:** I agree. Let's take a fifteen-minute break and start  
6 back at 10:15. Thank you, Mr. Chairman.

7  
8 (Whereupon, a brief recess was taken.)

9  
10 **CHAIRMAN GILL:** Dr. Hollensead, if you would give us the next  
11 action guide item for the Ocean Era and Manna Farms Update.

12  
13 **UPDATE ON OCEAN ERA AND MANNA FISH FARMS PROJECTS IN THE GULF OF**  
14 **MEXICO**

15  
16 **DR. HOLLENSEAD:** Thank you, Mr. Chair. Again, we'll have Mr.  
17 Richard that is going to provide a presentation, giving that  
18 update for the Ocean Era and Manna Fish Farms projects. The  
19 committee is encouraged to ask him questions and provide  
20 comments related to those projects, as it relates to the ongoing  
21 efforts discussed in relation to the previous agenda items.

22  
23 **CHAIRMAN GILL:** Mr. Richard.

24  
25 **MR. RICHARD:** Thank you, Mr. Chair. All right, and so, while I  
26 was here, I definitely wanted to make sure that I took the  
27 opportunity to provide an update on a couple of aquaculture  
28 projects in the Gulf of Mexico that I know are of interest to  
29 some of you in this group.

30  
31 I wanted to provide an update on the Ocean Era project, the  
32 Manna Fish Farms project, and also a new and emerging integrated  
33 multitrophic project in state waters, and so I'll be happy to  
34 provide an update on those projects.

35  
36 I will start with the Ocean Era/Veilella Epsilon project, and so,  
37 for those of you who aren't familiar with this project, it's a  
38 single submersible cage finfish aquaculture pilot project that's  
39 proposed about forty-five nautical miles southwest of Sarasota,  
40 Florida. They plan on raising almaco jack, of the F1 variety,  
41 and that cage is capable of holding about 2,000 fish.

42  
43 They are looking to complete one cycle of production, which  
44 should take approximately twelve months, and it should yield  
45 about 80,000 pounds of production, in total. The project  
46 requires federal permits from the U.S. Army Corps of Engineers  
47 and their Section 10 permit, as well as the EPA --

48

1 **CHAIRMAN GILL:** For those that are out in the audience  
2 virtually, we've got a technical difficulty, and we'll get it  
3 corrected and be back online shortly.

4  
5 (Whereupon, a brief recess was taken.)  
6

7 **CHAIRMAN GILL:** All right, Mr. Richard. It looks like we're  
8 back to operation here, and if you would continue, please, sir.  
9

10 **MR. RICHARD:** Thank you, Mr. Chair. That was exciting. I did  
11 note here that the federal permits that are required for the  
12 Ocean Era/Velella Epsilon project are an Army Corps of Engineers  
13 Section 10 permit, as well as a U.S. EPA NPDES permit, and those  
14 applications were both submitted back in November of 2018.  
15

16 As I noted, those applications were submitted back in November  
17 of 2018. In September of 2020, the EPA issued the NPDES permit,  
18 or the discharge permit, for the project. In October of 2022,  
19 that permit was --  
20

21 **CHAIRMAN GILL:** Look on it as a challenge, Mr. Richard. Please  
22 proceed, sir, as best you can.  
23

24 **MR. RICHARD:** I will give it a try, and so, as I noted, in  
25 September of 2020, the EPA issued their NPDES permit for the  
26 project. In October of 2020, that permit was petitioned for  
27 review by a group of environmental organizations. The EPA's  
28 Environmental Review Board was tasked with overseeing that  
29 review process, and the claims that were made during that permit  
30 issuance was that it violated the Clean Water Act, NEPA, ESA,  
31 and that an MMPA authorization was needed for the project to  
32 proceed.  
33

34 More than a year after that, on December 9, 2021, the EPA's  
35 Environmental Appeals Board held oral arguments for the issuance  
36 of that permit, and, on May 6 of 2020, the Environmental Review  
37 Board issued their finding, denying the review in part and  
38 remanding the permit in part, and so denying the review in part  
39 found that the claims of the permit issuance violating the Clean  
40 Water Act, NEPA, ESA, and that the Marine Mammal Protection Act  
41 authorization were needed were not founded.  
42

43 However, they did remand the permit in part, and what the  
44 Environmental Appeals Board asked the EPA to do was to provide  
45 clarification on the statement that was made within the permit  
46 language that said that no unreasonable degradation of the  
47 environment would occur, and there was a conflicting statement  
48 that said that that unreasonable degradation was not likely to

1 occur, and so the Environmental Appeals Board wanted the EPA to  
2 work to clarify what their position was on that, as a statement  
3 is needed to justify that NPDES permit, that issuance, and the  
4 ocean discharge criteria that the project cannot create  
5 unreasonable degradation of the environment.

6  
7 The slide that I have here is actually out-of-date, because  
8 there was a recent update, last week, in that case, and so the  
9 EPA remedied that remand, and they clarified their position, and  
10 they actually reissued the discharge permit for the project, and  
11 so the EPA has issued that permit. In thirty days, that permit  
12 will become effective for the project.

13  
14 The U.S. Army Corps of Engineers is still working on issuing  
15 that Section 10 permit, and we expect that that is something  
16 that could occur within the next month or so, and, more  
17 recently, the project proponents indicated that, within four to  
18 six months following the issuance of that permit, that they  
19 would be prepared to stock the cages out in the Gulf of Mexico.

20  
21 Another project in federal waters of the Gulf of Mexico that is  
22 just starting to get underway is the Manna Fish Farms project,  
23 and this project is proposing a submersible net pen system,  
24 culturing finfish aquaculture, about twenty-three nautical miles  
25 southeast of Pensacola, Florida. The project will aim to  
26 culture red drum, Fl red drum, and a full-scale production would  
27 produce somewhere around 3.9 million pounds of annual  
28 production, and that's with all twelve cages functional.

29  
30 The federal permits required for this permit are similar to the  
31 Ocean Era project, in that an Army Corps Section 10, as well as  
32 a U.S. EPA NPDES permit would be required, and so, recently, the  
33 project submitted both the Army Corps Section 10 permit  
34 application, as well as the EPA's NPDES permit application, and  
35 that occurred in April.

36  
37 The EPA deemed that the permit application was complete in May  
38 of 2020, and the Army Corps does not issue an equivalent sort of  
39 determination for the project, although they have indicated that  
40 the information they need is there to proceed.

41  
42 We are anticipating that this project could require an  
43 environmental impact statement, as there may be impacts that are  
44 significant in nature, and it doesn't necessarily guarantee that  
45 there would be, but there might be some that would be  
46 appropriate for an environmental impact statement to potentially  
47 be conducted for this project.

1 If it is an environmental impact statement that's required to  
2 assess the impacts of the project and permit issuance, NMFS  
3 would be the lead agency, under a separate section of the  
4 Executive Order, under Section 6, which directs NOAA, NOAA  
5 Fisheries, to lead the environmental review process for projects  
6 that require an environmental impact statement for projects that  
7 are in federal waters and also require two or more federal  
8 permits or authorizations, and so, in this instance, if it was  
9 an environmental impact statement, it would trigger NMFS being  
10 the lead on the NEPA for that project.

11  
12 That formal NEPA determination will be made in the near future,  
13 working with the cooperating agencies and the interagency team,  
14 which consists of NOAA Fisheries, the EPA, and the U.S. Army  
15 Corps, and we anticipate that public scoping would likely take  
16 place for this project sometime in the fall.

17  
18 Then a newer project that's come onto the radar, and it is in  
19 state waters, but it may be of interest to this group as well,  
20 is the Integrated Multitrophic Aquaculture Demonstration  
21 Project, and this was an RFP that was put out by the Gulf States  
22 Marine Fisheries Commission in the fall of 2021, and it is an  
23 award of about \$1.8 million to support the culture of native  
24 finfish, bivalve mollusks, and macroalgae within an integrated  
25 multitrophic aquaculture system.

26  
27 The focus of that project is to involve -- To undertake  
28 research, training, and education involving students, fishermen,  
29 and farmers, as well as regulators, to help inform the industry,  
30 regulators, and the public on IMTA methods and systems in warm-  
31 water environments, and so traditional and existing projects  
32 utilizing integrated multitrophic aquaculture in the U.S. and in  
33 state waters have been focused more on cold-water environments,  
34 and there's a couple of projects off of Maine and New Hampshire  
35 that utilize this method, and this would be adapted to sort of  
36 the more warmer-water environment of the Gulf of Mexico, with  
37 selection of varying species.

38  
39 As I noted, this project would be in state waters of the Gulf of  
40 Mexico, and it would also explore economic viability of the  
41 project, as well as monitor environmental data throughout the  
42 iteration of the project.

43  
44 The Dauphin Island Sea Lab was awarded that funding, and they're  
45 working cooperatively with the University of Southern  
46 Mississippi, the University of New Hampshire, Mississippi-  
47 Alabama Sea Grant, as well as Mississippi and Alabama Aquariums,  
48 and so it is a wide coalition of groups that are working on this

1 project together.

2  
3 It is a multiyear project. As you saw on the slide regarding  
4 the permitting for the Ocean Era project, they take a couple of  
5 years to move through the permitting process for that, and we're  
6 hoping that this will be something that moves a little bit  
7 quicker through that process, but it will be a multiyear effort.

8  
9 The project will implement and utilize the AquaFort IMTA system.  
10 As I indicated, this is a system that was developed by the  
11 University of New Hampshire, and there's actually some  
12 operational platforms, up in the Northeast, culturing steelhead  
13 as well as blue mussels, and so it's a currently a system that's  
14 already in use, and it will be adapted to being utilized within  
15 the Gulf of Mexico, in the state waters.

16  
17 They're working with NCCOS on some of the preliminary siting.  
18 They are looking for areas of water between fifteen and eighteen  
19 meters in depth, in state waters of Mississippi and Alabama, and  
20 so it is on the outer edge of those state water boundaries where  
21 they're looking, but that's the general area that they're  
22 considering for this project, and they do have stakeholder  
23 outreach planned for this project in the future, and the project  
24 still is in its early and planning phases, and so there's more  
25 information that will be learned as we kind of move through that  
26 process and meet with the team on that.

27  
28 This is just an example of what that looks like, and it's a  
29 pretty small setup. It's about thirty-foot-wide-by-about-fifty-  
30 foot long, and, as you can see, the kind of poles in the center  
31 there are the cages where the finfish are raised, and then on  
32 the perimeter is where you would have shellfish species, as well  
33 as any sort of seafood species that's raised as well, and the  
34 idea is that the waste from the higher-trophic-level species  
35 within this system would help to feed the additional downstream  
36 lower-trophic species within that project, and so that's just an  
37 example of what that looks like. I am happy to stop there and  
38 answer any questions about any of these projects that anyone  
39 might have.

40  
41 **CHAIRMAN GILL:** Thank you, Mr. Richard. That was a very  
42 interesting presentation. Are there comments or questions from  
43 the committee? Leann.

44  
45 **MS. BOSARGE:** No, and there's no comments on that, and I had one  
46 just in regard to aquaculture, before we leave aquaculture.

47  
48 **CHAIRMAN GILL:** Go ahead.

1  
2 **MS. BOSARGE:** I was thinking back to the in-depth picture that  
3 we pulled up, right, and that had to do with shrimp. That  
4 overlaid the shrimp trawling on the Aquaculture Atlas areas, but  
5 have we presented those in-depth drawings to like our longline  
6 fishermen, our reef fish fishermen, and overlaid their effort  
7 and gotten their feedback? I think -- It seems like hook-and-  
8 line gear -- That's going to maybe be okay, and that actually  
9 might be good for them, possibly, but I think, with longline,  
10 that may be in the same category as shrimp, where they're kind  
11 of mutually exclusive.

12  
13 If you put a whole host of aquaculture pens there, I'm not sure  
14 you're going to be able to longline right there anymore, and so  
15 I was wondering, and have we presented that to those fishermen  
16 yet, or can we do that in the future, before they get too far  
17 down the EIS path?

18  
19 **CHAIRMAN GILL:** Dr. Hollensead, do you have an answer to that?  
20 Have we done it yet?

21  
22 **DR. HOLLENSEAD:** I do not believe we have done it yet, no, and I  
23 am looking over to Dr. Froeschke, but I don't think we have.

24  
25 **CHAIRMAN GILL:** Are there plans to do so?

26  
27 **DR. FROESCHKE:** Not yet, but we certainly could try to make that  
28 happen.

29  
30 **CHAIRMAN GILL:** It does seem like a good idea, to be inclusive  
31 and appraise them of the information, so that they could provide  
32 whatever feedback may be germane. Leann, it looks like you have  
33 another question?

34  
35 **MS. BOSARGE:** Well, I was just going to throw out a comment,  
36 that -- So I don't know if our Reef Fish has a whole lot of  
37 membership from the -- I was thinking some of those eastern Gulf  
38 longliners, and it seems like we don't have a lot of membership  
39 there, and so we just -- I think we should be cognizant. We  
40 have zero, and is that what you're saying?

41  
42 When we put this in front of our APs, maybe the IFQ AP, the ad  
43 hoc one, might have some representation on it, but it might be  
44 good to go before both groups and extend a special invitation to  
45 those longliners, to just come and be in the room, and we have  
46 public comment at every one of those, and, you know, get some  
47 good feedback on the record there.

48

1 **CHAIRMAN GILL:** Good idea. Thank you, Leann. Dave.

2  
3 **MR. DAVE DONALDSON:** Thank you, Mr. Chair. Thank you, Andrew,  
4 and I appreciate the presentation, and you mentioned, with the  
5 Ocean Era project, that they submitted their permits in 2018, I  
6 believe, and it's now 2022, and I know that -- I know that there  
7 were some issues with the initial permitting and whatnot, but  
8 that seems like an extraordinary amount of time to get through  
9 the permitting process, and did COVID play a role in delaying  
10 that, because it seems even longer, and it shouldn't take that  
11 long, and it just seems like an inordinate amount of time to get  
12 things going.

13  
14 **MR. RICHARD:** Yes, a four-year process is typically a pretty  
15 extensive timeline to be able to permit something that requires  
16 an environmental assessment, which means that it has no  
17 significant impacts that were found for that proposed project.  
18 COVID definitely had a role in delaying sort of that latter half  
19 of the process, kind of drawing that out, and it was just very  
20 difficult to have sort of the required information put together  
21 to kind of move through that process, but, generally, a year, or  
22 two years, to develop an environmental assessment, or to really  
23 thoroughly analyze the effects of a project, and it could take  
24 around that time, and so COVID definitely played a role in kind  
25 of delaying that process.

26  
27 **CHAIRMAN GILL:** If there is no further questions -- Dr. Frazer.

28  
29 **DR. FRAZER:** Thank you. The slide before this one, if you could  
30 go back one, or maybe not, and that's okay, and it was a  
31 reference to an integrated system in the Northeast, right, and I  
32 noticed that the species involved there was steelhead trout,  
33 which isn't native to that, and one of the kind of criteria for  
34 the Gulf of Mexico projects has been that they are not  
35 introducing potentially -- Or non-native species, and how did  
36 that happen? Any idea?

37  
38 **MR. RICHARD:** There is a lot of steelhead production that has  
39 historically occurred in the areas of the Northeast, and, as you  
40 indicated, in the Gulf of Mexico, the use of native species is  
41 something that all the industry applicants that I've talked to  
42 so far have been interested in utilizing, and the IMTA project,  
43 as it's proposed, will be using native species, like redfish, or  
44 possibly some other species there, but, because of the  
45 historical use of that aquaculture species up in the Northeast,  
46 it's something that is authorized in that region.

47  
48 **DR. FRAZER:** As a quick follow-up, if there's an event in the

1 Gulf of Mexico, for example, whether it's a red tide or  
2 something like that, how does that figure into the planning and  
3 the permitting process here? Is there a plan for those types of  
4 events?  
5

6 **MR. RICHARD:** Yes, and so every aquaculture project that is  
7 proposed undergoes an environmental review process, whether  
8 that's an environmental impact statement or whether that's an  
9 environmental assessment that occurs, and so the impacts of red  
10 tide to the aquaculture project, as well as the aquaculture  
11 project to red tide, potentially, are something that is  
12 considered during that environmental review process.  
13

14 In addition to that, under the EPA's NPDES permit program, there  
15 are different plans that aquaculture operations are required to  
16 develop, and some of those are, you know, emergency action  
17 plans, best management practices, and things like that that  
18 speak to and address how those sort of issues are handled. If  
19 there was let's say a red tide bloom near an aquaculture  
20 project, how they would react, and so that's all information  
21 that is considered upfront through that environmental review  
22 process and is implemented by the farm.  
23

24 **CHAIRMAN GILL:** Thank you. Susan.  
25

26 **MS. BOGGS:** Well, I have a different question, but, to follow-up  
27 with Tom, I'm assuming all of this information is available to  
28 the public?  
29

30 **MR. RICHARD:** Yes, and so all the environmental review process  
31 for the Ocean Era project -- The EPA actually has a really well-  
32 designed website that lays all that information out. As we move  
33 forward with the Manna Fish Farms project, if it's determined to  
34 be an environmental impact statement that's required for that  
35 project, NOAA Fisheries is also directed, under the Executive  
36 Order, to develop a website that publicly posts all the  
37 information about the project, so the public has an opportunity  
38 to review and inspect that.  
39

40 **MS. BOGGS:** Yes, because I'm thinking about tropical occurrences  
41 and things like that, but what I was going to ask, and I'm  
42 probably getting in the weeds, and I know, but just food for  
43 thought, and so you don't have to answer, and we talk about  
44 these areas, these AOAs, and how they're going to be developed,  
45 but what happens once these fish are raised?  
46

47 I mean, do we know what the steps are? I mean, what are they  
48 going to do? Do they come out, and are they tested, or make

1 sure that they're viable to go out on the market? I mean, who  
2 markets them, and is the Manna Fish Farms now considered a  
3 commercial fisherman, where they take those fish to the market?  
4 I mean, what happens after this process? I mean, how do we know  
5 that these fish are good fish?  
6

7 **MR. RICHARD:** Speaking to the health of the fish when they are  
8 stocked, when they go into those pens, they are going to require  
9 health certifications, to make sure that those fish are healthy  
10 when they are stocked into a project. Speaking to where those  
11 products could potentially be sold, those are market-level  
12 decisions that are made by individual applicants, and those are  
13 things that are also analyzed as potential impacts in any sort  
14 of environmental review document that is developed, and so  
15 depending on where they plan on selling their products.  
16

17 I will have to look and see what exactly the health requirements  
18 would be for testing seafood that's being landed, and those are  
19 seafood that are domestically produced in U.S. federal waters of  
20 the EEZ, and so I would have to look to see if there's any sort  
21 of requirements that are in place that require any sort of food  
22 safety health testing for landing of seafood products.  
23

24 **MS. BOGGS:** So, as a follow-up to that, I mean, if these -- I  
25 don't know what to call the people that raise these fish in  
26 these aquaculture farms, but, when they are harvesting the fish  
27 from those farms, I'm assuming, and I don't know how else to say  
28 it, but do they have to meet all the requirements that a  
29 commercial fisherman has to meet, all the equipment and the  
30 things? I mean, do you see what I'm saying?  
31

32 There's a lot of things, in my mind, that -- I know I may have  
33 opened a Pandora's Box, but, you know, recreational fishermen  
34 have certain criteria, and the charter fishermen have certain  
35 criteria, and, I mean, what -- Why should they get more of a  
36 benefit -- Not a benefit, but not have to meet these other  
37 requirements that other -- Because I look at this as commercial  
38 fishing, I guess is where I'm going with it.  
39

40 **MR. RICHARD:** Mara.  
41

42 **MS. LEVY:** I will answer that by saying we did have a Gulf  
43 aquaculture plan, right, and the court decided that the agency  
44 doesn't have the authority to regulate fishing, and, so at least  
45 in the Gulf of Mexico, in the Fifth Circuit's jurisdiction, we  
46 don't have the authority to do that, under the Magnuson Act.  
47 This council does not have the authority to regulate aquaculture  
48 like it does commercial fishing.

1  
2 To the extent that there is interest in doing that, it's through  
3 legislation, right, something that, you know, would clarify that  
4 the agencies and the councils have that authority, at least in  
5 this area of the country.

6  
7 **MS. BOGGS:** You're right, Mara, and I had forgotten that, but I  
8 just -- So, really, this is just informational, and we have no  
9 jurisdiction over this, and so I guess --

10  
11 **CHAIRMAN GILL:** Leann.

12  
13 **MS. BOSARGE:** However, we did have a review. We had a  
14 presentation on those sorts of items that Susan was talking  
15 about, at least the part where it's post-harvest, or right  
16 before harvest, as far as the condition of the fish, you know,  
17 for human consumption. We had a presentation from someone, and  
18 I don't remember who, Susan, to this council, and we raised some  
19 of those questions, and they actually told us, you know, that's  
20 actually something we're working through right now, and we have  
21 to figure those types of things out, you know, because ranchers  
22 -- If they grow cattle, or anything else, there is testing  
23 protocols there, before you can put that into commerce for human  
24 consumption.

25  
26 Any seafood product that's imported into this country that is  
27 aquaculture, there is testing protocols, before you put it into  
28 commerce in this country, and so I think that is something that  
29 we could probably use some more feedback on. I assume it will  
30 fall under the USDA, or FDA, instead of NMFS and NOAA, but there  
31 has to be some sort of protocols there, before -- Other than  
32 just, well, it was good when we put it out there, but then we  
33 grow it for some period of time, and we need to know it's good  
34 again before we eat it.

35  
36 **CHAIRMAN GILL:** Kevin.

37  
38 **MR. ANSON:** Just to follow-up on Susan's question, since Andrew  
39 is here, I mean, to the extent that the agency can, you know,  
40 provide some guidance to those partners, the companies that are  
41 putting those structures in the water, when the Corps -- When  
42 they have to apply to the Corps for a permit to put said  
43 structures out, the agency has the opportunity to comment, based  
44 on the designs that are offered, relative to like MMPA and ESA-  
45 type issues, correct?

46  
47 **MR. RICHARD:** Yes, NOAA does have a role, under the Endangered  
48 Species Act, as well essential fish habitat provisions of MSA,

1 to consult on those aquaculture projects that are being  
2 proposed.

3  
4 **CHAIRMAN GILL:** I am going to wrap this section up, and Mr.  
5 Richard, will you be around Friday for Full Council, when we get  
6 back to this subject again?

7  
8 **MR. RICHARD:** I won't be physically here, but I can certainly  
9 listen in and be able to participate in that hybrid environment.

10  
11 **CHAIRMAN GILL:** If you would, I think that would be great, given  
12 all the questions and discussion we've had.

13  
14 **MR. RICHARD:** Sure.

15  
16 **CHAIRMAN GILL:** Thank you, sir.

17  
18 **MR. RICHARD:** Thank you, Mr. Chair.

19  
20 **CHAIRMAN GILL:** Dr. Hollensead, if you would get us the action  
21 guide on the next subject, America the Beautiful, Thirty-by-  
22 Thirty CCC Area-Based Management Sub-Committee Update.

23  
24 **AMERICA THE BEAUTIFUL THIRTY-BY-THIRTY CCC AREA-BASED MANAGEMENT**  
25 **SUB-COMMITTEE UPDATE**

26  
27 **DR. HOLLENSEAD:** Thank you, Mr. Chair. This is going to be an  
28 informational verbal report on the update for the evaluation of  
29 conservation areas in the U.S. EEZ, and that update will be  
30 provided by Dr. Froeschke. In your background material, the  
31 report has been made available for your review, and he is going  
32 to go through that and pull out some of the highlights.

33  
34 That committee continues to work on that report, as part of the  
35 CCC, that sub-committee, as requested for NOAA for additional  
36 GIS analysis necessary for this project, and so the committee  
37 plans to prepare a peer-reviewed journal article later this  
38 year, based on this report, and so I will hand it over to Dr.  
39 Froeschke.

40  
41 **DR. FROESCHKE:** All right, and so I just have a brief update on  
42 this, and just the background of this is this -- The Area-Based  
43 Management Committee, as well as the America the Beautiful  
44 report that preceded this, was part of the Executive Order  
45 14008, which as the Thirty-by-Thirty initiative, with the goal  
46 of to conserve 30 percent of the land and sea by 2030.

47  
48 The CCC, in their fall 2021 meeting, developed a committee to

1 provide some background work and inform this process for each of  
2 the respective regions, and so we formed a group of council  
3 staff, and we had some NMFS support, and so it was each of the  
4 eight regional management councils, and we worked  
5 collaboratively to evaluate the areas, management areas, in each  
6 of our respective regions and apply conservation metrics to  
7 them.

8  
9 The first kind of goal of this is we had to develop a  
10 definition, a working definition, of "conservation area", which  
11 we did, and it's in the report. We went through all of our  
12 areas, and I serve as the staff support in the Gulf, and we  
13 applied them to the various management regions, and there are  
14 maps in the report, kind of to summarize those findings.

15  
16 What we found, high-level, is that we need some additional GIS  
17 support, one to contribute to the atlas, and two to homogenize  
18 the various efforts.

19  
20 There's a lot of different components to the GIS work that seem  
21 to be beyond the capacity of any one region at this time, and so  
22 the CCC, in response to the report -- They approved a motion  
23 requesting special funding from NOAA Fisheries for the amount of  
24 \$50,000 for additional contracted GIS work to support this  
25 effort. To this point, we have not received the -- The CCC has  
26 not received a response from NMFS on that.

27  
28 The CCC approved a motion requesting that NOAA convene a meeting  
29 with the CEQ, to discuss the report and then include the  
30 Department of Interior as well, and so the sub-committee  
31 representatives will be Eric Reid and Dave Witherell and Mike  
32 Louisi. That's going to be coming.

33  
34 Since the most recent CCC in May, we continue to meet, and we  
35 had kind of a brief wrap-up on what happened there, and then  
36 we're going to have another meeting scheduled to work out two  
37 components.

38  
39 One, in the conclusion, or at least my perspective was that the  
40 application of the methods of the definition of "conservation"  
41 perhaps wasn't entirely consistent among the regions, and so I  
42 think we need some additional peer review and things, to make  
43 sure that we're all doing it in a compatible way, and that may  
44 lead to some slight revisions to the areas estimated for the  
45 regions, and so I think we're going to continue to work on that.

46  
47 Then we did commit to drafting a peer-reviewed manuscript for  
48 publication, based on this work, and so that's what we'll be

1 working towards for the October CCC meeting. That's all I have  
2 for now.

3  
4 **CHAIRMAN GILL:** Thank you, Dr. Froeschke. Any questions or  
5 comments on this topic? Mr. Chairman.

6  
7 **MR. DIAZ:** Thank you, Mr. Chair. Dr. Froeschke, you said that  
8 you all were using a working definition of conservation areas,  
9 and so that's the working definition that the CCC working group  
10 came up to, to actually move forward some work, and have you all  
11 ever received an official definition of conservation areas, or  
12 is that still something that is yet to be determined?

13  
14 **DR. FROESCHKE:** Thank you for the question. The short answer  
15 is, no, we have not. The guidance we've received is that was  
16 going to be a higher-level policy decision, and so we await that  
17 guidance, and so that's why we developed our own working  
18 definition that we could use to work through the process, for  
19 our purposes, because, otherwise, we were stuck.

20  
21 **CHAIRMAN GILL:** Patrick.

22  
23 **MR. BANKS:** I have made this comment before on this situation,  
24 but, in reading the definition that you guys came up with, an  
25 established geographically-defined area in the Gulf of Mexico  
26 that has plan management or regulation of environmentally-  
27 adverse fishing activities, we have that all over the Gulf of  
28 Mexico.

29  
30 Provides for the maintenance of biological productivity and  
31 biodiversity, yada, yada, yada, we have all that over the Gulf  
32 of Mexico. We have the entire Gulf of Mexico acreage that is a  
33 conservation area, and so I would vote that we've already got 30  
34 percent of our area done, because the entire Gulf fits that  
35 definition.

36  
37 **CHAIRMAN GILL:** Dr. Froeschke.

38  
39 **DR. FROESCHKE:** That same line of thinking was raised by myself,  
40 and perhaps others, throughout. I mean, we have limitations on  
41 catch limits, and, by definition, we have the 30 percent SPR and  
42 all these sorts of other things that are in place, and that's  
43 not been resolved at this point.

44  
45 **CHAIRMAN GILL:** Further questions or comments? Seeing none, the  
46 last item on the agenda is Other Business, and so does anyone  
47 have any other business that they would like to bring up at this  
48 time? Seeing none, we stand adjourned.

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2  
3  
4

(Whereupon, the meeting adjourned on June 21, 2022.)

- - -