

GULF COUNCIL

ECOSYSTEM COMMITTEE

Golden Nugget Hotel and Casino & Virtual Biloxi, Mississippi

August 24, 2026

VOTING MEMBERS

Kevin Anson.....Alabama
Mike Allen.....Florida
Kesley Banks.....Texas
Billy Broussard.....Louisiana
Dakus Geeslin (designee for Robin Riechers).....Texas
Johnny Marquez.....Mississippi
Anthony Overton.....Alabama
John Sanchez.....Florida
Chris Schieble (designee for Ryan Montegut).....Louisiana
Andy Strelcheck.....NMFS
C.J. Sweetman (designee for Jessica McCawley).....Florida

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Dave Donaldson.....GSMFC
J.D. Dugas.....Louisiana
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Joe Spraggins.....Mississippi
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Nate Brugnone.....AL

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2	Frank Helies.....	NOAA
3	Judy Helmey.....	SAFMC
4	Steve Kasperski.....	AL
5	Mara Levy.....	NOAA GC
6	John Walter.....	SEFSC
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TABLE OF MOTIONS

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- - -

1 The Ecosystem Committee of the Gulf Council convened at the Golden
2 Nugget Hotel and Casino in Biloxi, Mississippi on Monday afternoon,
3 August 24, 2026, and was called to order by Chairman Kevin Anson.

4
5 **ADOPTION OF AGENDA**
6 **APPROVAL OF NOVEMBER 2025 MINUTES**
7 **ACTION GUIDE AND NEXT STEPS**
8

9 **CHAIRMAN KEVIN ANSON:** I would like to call the Ecosystem
10 Committee, and the members on it are myself, Dr. Allen, Dr. Banks,
11 Mr. Broussard, Mr. Marquez, Dr. Sweetman, Mr. Schieble, Dr.
12 Overton, Mr. Geeslin, Mr. Sanchez, and Mr. Strelcheck.

13
14 The first item on the agenda is the Adoption of the Agenda. Is
15 there anyone that has any additions or changes to the agenda? I'm
16 not seeing any. Is there -- Can I have a motion to adopt the
17 agenda? Dr. Overton made the motion. Can I get a second? Dr.
18 Sweetman seconds. Is there any opposition to the motion? Seeing
19 none, we'll move to Item Number II, Approval of November 2025
20 Minutes, Tab Q Number two.

21
22 Any changes that need to be made to the minutes? I have one. On
23 page 3, the first mention of Dr. Sweetman, I believe that should
24 be a continuation of my introduction to the meeting. That would
25 be my change. Are there any other changes that are needed? I'm
26 not seeing any. Do I have a motion to adopt the agenda, or adopt
27 the minutes, with the change? Dr. Sweetman makes the motion. Is
28 there a second to that motion? Second by Dr. Overton. Are there
29 any objections to accepting the minutes with the change? Not
30 seeing any, the minutes are approved. Next on the agenda is Number
31 III, the Action Guide and Next Steps, Tab Q, Number 3, and Dr.
32 Wang.

33
34 **IDENTIFICATION OF STAKEHOLDER-DRIVEN FISHERY ECOSYSTEM ISSUES**
35

36 **DR. VERENA WANG:** Thank you, Mr. Chair, and good afternoon,
37 everybody. We have one item on the agenda for ecosystem committee
38 today, and that is a presentation on the identification of
39 stakeholder-driven fishery ecosystem issues.

40
41 This is an interim report on a project that's being led by Dr.
42 Kelsi Furman, who we have in the room with us today, along with
43 Nate Brugnone and Steve Kasperski, who are both joining us online.
44 The project team is going to be presenting preliminary results for
45 work that was contracted by the council to identify fishery
46 ecosystem issues of concern to Gulf stakeholders using social

1 science approaches.

2
3 This is work that the council funded using its IRA funds to support
4 the first phase of operationalizing the Gulf fishery ecosystem
5 plan, which outlines a structured process for investigating
6 fishery ecosystem issues of concern and identifying potential
7 approaches for addressing these issues.

8
9 If you'll remember, the committee saw a draft of the fishery
10 ecosystem plan document in November. The ETC, the Ecosystem
11 Technical Committee, had a chance to review and provide feedback
12 on that draft fishery ecosystem plan document earlier this year,
13 and we finalized the fishery ecosystem plan for the Gulf in March.

14
15 We provided the final version of that fishery ecosystem plan in
16 the briefing book documents as background for you all, but, just
17 as a reminder, the fishery ecosystem plan document itself is more
18 of a process document talking about how we're going to be
19 investigating these fishery ecosystem issues, and this project is
20 really aimed at taking the first stab at kind of identifying what
21 the ecosystem issues actually are in the Gulf that are of most
22 concern to stakeholders right now.

23
24 The committee should discuss the work that's being presented and
25 provide feedback to the contractors on the approaches that are
26 being used and the fishery ecosystem issues that have been
27 identified so far, and so we are just past the halfway point on
28 this project.

29
30 At this point, we're not looking for the committee to like
31 necessarily select fishery ecosystem issues that you want staff to
32 start working on, but we're very interested in feedback on the
33 approaches that are being used, and the fishery ecosystem issues
34 that have been identified so far, just to get some guidance on
35 whether you think things are moving in the right direction.

36
37 After this presentation, staff and the project team will be working
38 with the ETC, as this project moves into its next phase to start
39 examining the impacts of fishery ecosystem issues and to develop
40 tools to support the prioritization and further scoping of FEIs,
41 and this work is going to be continuing through March of next year,
42 and that's all I have for the action guide. I'll turn it back
43 over to you, Mr. Chair, if there are any questions, and we have
44 Dr. Furman in the back, and she can come up.

45
46 **CHAIRMAN ANSON:** All right. Is there any questions for Dr. Wang

1 at this point? I'm not seeing any, and so, Dr. Furman, thank you
2 for being here.

3
4 **DR. KELSI FURMAN:** Thank you, Mr. Chair. Thank you, everyone, so
5 much for having me, and we're really excited to share an update on
6 this project. As Dr. Wang said, my name is Kelsi Furman from the
7 University of South Alabama. Today, I'm going to be giving you an
8 overview of the project, and kind of the structure of what we've
9 been doing, and then I'm going to go through most of Phase I.

10
11 Then I will turn it over to my colleague, Dr. Nate Brugnone, who
12 is joining us virtually. He is a computational social scientist,
13 and he will be sharing with you all the AI component of our Phase
14 I, and then we will conclude with our co-PI, Dr. Steve Kasperski,
15 giving an overview of our upcoming Phase II, which will conclude
16 the project next spring, in 2027.

17
18 Before I jump into the project, I just also want to give a shout
19 out to our other team members, PhD student Mahi Washim, who is in
20 the room as well, and council staff members, Dr. Wang and Dr.
21 Suitor, who have been really instrumental in getting this work
22 done.

23
24 I know you all are familiar with the outline of the Gulf Fishery
25 Ecosystem Plan, as Dr. Wang just outlined, but, just to give you
26 a quick refresher, the mission of the Fishery Ecosystem Plan is to
27 identify and address key fishery ecosystem issues and inform the
28 Gulf Council's decision-making for long-term ecological, social,
29 and economic sustainability of Gulf fishery resources.

30
31 Really, the crux of the Fishery Ecosystem Plan is what we've called
32 the fishery ecosystem issues, or the FEIs, which are concerns that
33 arise from on-the-water observations that impact fishery resources
34 in the Gulf region and extend beyond single-species management.

35
36 For this specific project and component of the Fishery Ecosystem
37 Plan development, our goal is to support the plan by using social
38 science-driven approaches to identify the universe of fishery
39 ecosystem issues of concern to Gulf stakeholders for the council
40 to consider.

41
42 To do that, we're following the Gulf Council Fishery Ecosystem
43 Issue Loop, or the FEI Loop, shown here, which I'm sure you all
44 are familiar with, but, just to quickly outline it for you, this
45 is a six-step loop, with the first step being the FEI scoping, to
46 understand where we are now.

1
2 Step 2 is then to develop a workplan to establish where we're going
3 next. Step 3 will be execution of the workplan. Step 4 will be
4 implementation, including a tradeoff analysis, followed by Steps
5 5 and 6, which will be recommendations and evaluation.

6
7 For our portion of the project, we're really focused on Step 1 of
8 the FEI Loop, highlighted here, to understand where we are now,
9 and so this begins with stakeholder involvement, which is really
10 the focus of the work we've been doing, to understand what the key
11 issues and areas of concern are according to the fishing industry,
12 what the dimensions of the problems are, what necessary data is
13 available, or not available, and what the council has authority to
14 actually address and what issues they can manage.

15
16 Here is our project outline for the year-and-a-half of the project.
17 We've been working on Phase I since the project started last
18 December of 2025, and, for Phase I, I've been leading a series of
19 participatory modeling workshops that we convened last spring,
20 spring of 2026.

21
22 We also have an AI component of the project that I mentioned, a
23 large language model analysis that Dr. Brugnone is leading, and
24 that is still ongoing. We plan to conclude that this fall. Like
25 I mentioned, Dr. Brugnone will be giving an update on that here
26 shortly, and then, once Phase I has completed, Dr. Kasperski will
27 lead Phase II, which is really an impact assessment and
28 prioritization of those fishery ecosystem issues that were
29 identified during Phase I.

30
31 For Phase I, our objectives were to communicate the goals and
32 expectations of the Fishery Ecosystem Plan to the fishing industry
33 and the Gulf stakeholders, then to identify and prioritize fishery
34 ecosystem issues for further social and economic impact
35 assessments, which will occur during Phase II, and produce social-
36 ecological models representing real-world dynamics to predict
37 fisheries, ecosystem, and management outcomes.

38
39 To do that, we ran a series of five participatory modeling
40 workshops this past spring, one for each Gulf state. We started
41 here in Gulfport, Mississippi, and then we went to Houma,
42 Louisiana, followed by Gulf Shores, Alabama, Fort Myers, Florida,
43 and Galveston, Texas.

44
45 At each workshop, we had kind of three overarching goals, which
46 were to map the system of key factors that affect Gulf fisheries,

1 identify concerns relative to the fishery ecosystem, and
2 understand how issues impact fisheries, businesses, and
3 communities, with, again, the ultimate overarching goal of
4 supporting a stakeholder-driven Gulf fishery ecosystem plan.

5
6 To start the organization of these workshops around the Gulf, we
7 utilized a stakeholder mapping framework shown here, which was
8 developed by Scyphers et al. back in 2021, in an earlier iteration
9 of the Fishery Ecosystem Plan development. We really specifically
10 wanted to focus on the recreational and commercial fishing sectors,
11 as well as seafood and fishing businesses in the Gulf.

12
13 We explicitly decided not to focus on fishery science and fisheries
14 management stakeholders in this framework for our invitations for
15 the workshop, but I do want to note that the workshops were open
16 to the public, per traditional council protocol, and so we did end
17 up having some scientists and practitioners attend the workshops,
18 and we do have that representation in our sample, but, for
19 invitation purposes, our focus was to recruit recreational,
20 commercial, and seafood business stakeholders.

21
22 Across the five stakeholder workshops, we ended up having fifty-
23 three participants attend the workshops, with the most
24 participants attending the Florida workshop in Fort Myers, with
25 twenty-two participants.

26
27 We did anticipate, when we first wrote this proposal back last
28 fall, the limitation of workshop recruitment. We know that there's
29 a lot of workshop interview and survey fatigue in the Gulf with
30 the fishing industry, and so that's why we developed the AI portion
31 of Phase I, which Dr. Brugnone will get into here shortly, and
32 then we also came up with some other ways to reach a broader sample
33 that I'll discuss at the end of the workshop portion, but we do
34 acknowledge that there is some limitations in our sample here.

35
36 We did try to get representation from every sector at every
37 workshop, but, as you can see, each workshop had about two of our
38 three primary target groups represented, and so, for example, in
39 Alabama, we had charter-for-hire participants attend, and
40 commercial participants attend, but we weren't able to get private
41 rec participants, but, again, we have some other methods involved
42 in our study that we'll share later to kind of try to get that
43 broader representation into our full sample.

44
45 Here's just an example of an agenda for each workshop, where we
46 replicated the same approach at each of the five workshops, and so

1 each workshop began with Dr. Wang giving a background on the
2 Fishery Ecosystem Plan, as part of our goal was to kind of
3 advertise the Fishery Ecosystem Plan to the fishing industry, and
4 then, once we had set the objectives with the participants, we
5 convened a full group discussion with all workshop participants to
6 identify a full suite of fishery ecosystem issues.

7
8 Then, after that initial discussion, we broke out into focus groups
9 that were sector-specific, so that we could build conceptual models
10 based on the sector-specific areas of concern, and really assess
11 how different sectors perceive these issues in different ways, and
12 are impacted in different ways by the ecosystem issues identified.

13
14 For that initial group discussion with all workshop participants,
15 we had four key questions that drove the conversation. We asked
16 participants to describe what the key ecosystem issues are
17 affecting federally-managed Gulf fisheries, and then we asked them
18 what the environmental impacts of those issues are, how those
19 ecosystem issues impact different fisheries, businesses, and
20 communities, and which issues they were most concerned about.

21
22 Then we broke out into those sector-specific focus groups that I
23 mentioned, and so, while we were in those focus groups, we used a
24 conceptual modeling tool shown here, which really is just a way
25 for us to conceptualize and draw how individuals see the system in
26 which they live, and so this figure here on the side of the center
27 is an example conceptual model from a different project, just to
28 give you an idea of what these conceptual models look like and
29 what they can do.

30
31 Really they're just -- They just consist of system components
32 described by the individuals in the focus group, and so, for
33 instance, in our focus groups, the key fishery ecosystem issues
34 that they described, and then we asked the participants to explain
35 how those system components are related to one another and how
36 they're impacting one another.

37
38 It was a really great tool for this project, because we're able to
39 concretely quantify how these ecosystem issues are impacting
40 social and ecological components of the system, and then really
41 the real reason why we like using these conceptual modeling tools
42 is because we can then run what we call what-if scenario
43 simulations, where we can propose a hypothetical scenario, for
44 example, if a stressor was to be added to a system, or maybe
45 mitigated out of a system, and we can see how stakeholders perceive
46 that stressor as impacting the other system components that they

1 described relative to one another.

2
3 Another great way to use this what-if scenario feature is to
4 propose a management intervention, and then we can simulate a
5 hypothetical increase in that management intervention in the
6 system and see how stakeholders perceive that management approach
7 as positively or negatively impacting the social-ecological
8 components of the system.

9
10 For this project, we built, again, sector-specific conceptual
11 models, and so we have conceptual models that are coming from the
12 commercial fishery sector, ones that are from the private rec
13 sector, and ones that are from the charter-for-hire sector.

14
15 Then what we can do, and what we'll do in Phase II, is we can merge
16 those sector-specific conceptual models into crowd models, or
17 group models, so we can get a full holistic perspective of Gulf
18 fishery stakeholders' concerns and issues, but then we can also
19 take a step back and look at how issues and perceptions vary by
20 sector or vary by state.

21
22 In each of these focus groups, we had a team member facilitate a
23 series of questions with the participants to, again, identify those
24 key fishery ecosystem issues, what they perceive to be driving
25 those ecosystem issues, and then how those ecosystem issues are
26 impacting them in different ways and impacting the environment
27 from their perspective in different ways.

28
29 Specifically in those focus groups, we asked participants what the
30 environmental impacts of the core fishery ecosystem issues were,
31 what the social and economic impacts were, what they perceived to
32 be causing the ecosystem issue, and then, finally, if there were
33 any management approaches that they thought could help mitigate
34 the ecosystem issues at-hand.

35
36 Then, finally, once we had gone through those questions, and we
37 had established all of the key fishery ecosystem issues and other
38 core social-ecological system components, we flushed out all of
39 the relationships between those system components.

40
41 Whenever an individual saw two system components as being related
42 to one another, we would ask them if that component was a positive
43 or negative relationship, and then we could ask them how strong
44 that relationship was relative to the other relationships drawn in
45 the conceptual model, and so, for example, we could ask them does
46 that have a low, medium, or high positive or negative impact, and

1 that's just a way for us to help quantify which system components
2 and corresponding relationships are really most central in driving
3 those system dynamics that they're describing.

4
5 I'm just going to run through a really brief schematic to show you
6 how this is done, and so, for example, we have a fishery ecosystem
7 issue. For example, depredation was one of the most highly-cited
8 ecosystem issue across all five workshops. Then we would ask them
9 to describe system components that are driving that ecosystem
10 issue, and, if they were negative, there would be an orange arrow
11 going from that system component into the issue.

12
13 Then we asked them what system components are being impacted by
14 the issue, and, if it was positive, for example, then it would be
15 a blue arrow coming out of issue into the other system component.

16
17 Then, finally, we ask them to describe all other interconnected
18 system relationships between all system components, and not just
19 coming to and from the fishery ecosystem issues, to get a more
20 holistic perspective of the social-ecological system dynamics.

21
22 Here's just one example focus group model. We had eleven focus
23 group models, conceptual models, come out of the five workshops,
24 like I mentioned earlier, but I'm not going to go through them
25 all, for the sake of time, because they're all still preliminary,
26 and the analysis will come more in Phase II, but I just wanted to
27 give you a little taste of what came out of the workshops.

28
29 Here's one example focus group model that came out of our
30 Galveston, Texas workshop, and it came from our charter-for-hire
31 captain focus group, and, as I mentioned earlier, all the blue
32 arrows mean that there's a positive relationship between two system
33 components, and an orange arrow means that there's a negative
34 relationship between two system components.

35
36 I'm just going to highlight one specific fishery ecosystem issue,
37 to kind show you some of the relationships that were discussed
38 here, and so dredging was a major issue that came up time and time
39 again, especially in Texas and in Louisiana.

40
41 When asked what they thought was driving dredging in the system,
42 participants talked about the shipping industry, and the
43 petrochemical oil and gas industry, as increasing dredging locally
44 in their area, and then, when asked what dredging is causing, and
45 what impacts it's having on the system, they talked about negative
46 impacts of dredging on the oyster and crab populations, on the

1 flounder fishery, and on general ecosystem productivity, and they
2 talked about dredging increasing the mixing of chemical pollutants
3 in the mud in the ecosystem.

4
5 After convening these five workshops, and building these
6 conceptual models that were sector-specific, we compiled all of
7 the system components across all eleven models, and we ended up
8 with 441 system components across those eleven models, and so we've
9 been working, this summer, on cleaning those system components,
10 removing redundancy, or any slight differences that were
11 mentioned, and now, currently, we're working on producing what we
12 call a qualitative thematic coding framework, which is really just
13 a way for us to identify themes and thin those 441 components down
14 into a much more reasonable number that we can manage an analysis
15 with.

16
17 Our tentative framework has twenty-seven bins, and, within that
18 framework, we've identified twelve fishery ecosystem issue topics,
19 which I'll go through here next.

20
21 Here are the twelve ecosystem issue topics that were identified.
22 Over the next twelve slides, I'm going to go through each of them
23 pretty quickly, and just give you a little taste of some of the
24 drivers and impacts that the stakeholders discussed around that
25 topic, as well as some listed community needs that might help
26 mitigate the ecosystem issue on the system, and just an example
27 quote, to give you a little taste of what was discussed during
28 these discussions.

29
30 The first fishery ecosystem issue, and I'll mention these are in
31 alphabetical order. They're not prioritized in any way. The first
32 ecosystem issue is climate and oceanographic trends. Community
33 members, or fishing industry members, talked a lot about warming
34 waters and climate unpredictability leading to an alteration of
35 species distribution and habitat.

36
37 Warming water temperature, tropicalization of local ecosystems,
38 salinity shifts, changes in flow, and changes in fish movement
39 were discussed frequently, and a really kind of high-level holistic
40 community need that was mentioned was more holistic management
41 between upstream and downstream systems, and so, for example, here
42 in Mississippi, a charter captain said king mackerel have basically
43 collapsed since Katrina. Nobody knows exactly why, but they're
44 just not here.

45
46 Another key topic, or fishery ecosystem issue, was coastal

1 development and industrial activity, which were linked to habitat
2 loss, water quality degradation, and a loss of working waterfront
3 access and habitat.

4
5 Fishing industry members really connected this to dredging-induced
6 sedimentation and siltation, saltwater intrusion, turbidity, ship
7 wakes from port development, land-based pollution, chronic oil and
8 gas damage, and just general displacement of working waterfronts,
9 and so they expressed needing a maintenance of fishing culture in
10 coastal communities. For example, a Florida commercial fisherman
11 said the working waterfront is disappearing. Younger people can't
12 afford to enter commercial fishing, and docks are being sold for
13 condos.

14
15 Depredation, as I mentioned earlier, was probably the most
16 frequently and consistently mentioned fishery ecosystem issue
17 across all sectors and states, specifically from dolphins and
18 sharks and, to a lesser extent, goliath groupers.

19
20 They talked a lot about increased discarding due to certain
21 regulations, as well as management and protection of those
22 predators, and so stakeholders expressed a need for more research
23 to quantify depredation, by specifically fishery and gear type, as
24 well as development of non-lethal mitigation strategies to disrupt
25 the predator learning cycle and commercial shark harvest. One
26 Alabama charter captain said that depredation is getting worse
27 every year. Sharks have figured out that, where there's a boat,
28 there's food, and they're being trained by the system.

29
30 Similarly, and parallel to depredation, discards and release
31 mortality was frequently identified as essential and often poorly-
32 estimated components of total mortality.

33
34 They talked a lot about limited data on release mortality rates,
35 regulatory discards, high-grading, again the connection between
36 discarding and depredation, and bycatch from less-selective gear,
37 and they expressed a need for better estimation of discards and
38 release mortality, more use of descending devices, increased
39 education, tagging limits, and other limited retention systems.
40 One Alabama charter captain said that we catch a fish, and it's
41 injured, and it gets eaten by a shark before it can swim away, and
42 we can't even keep it. That's the system we're managing under.

43
44 Extreme weather and storms was another issue mentioned fairly
45 frequently, and particularly hurricanes were repeatedly linked to
46 significant habitat decline and environmental changes, setting

1 back recovery and restoration efforts, alongside those direct
2 economic consequences and infrastructure challenges for working
3 waterfronts. Stakeholders talked about reef burial and sand
4 redistribution, seagrass and oyster damage, freshwater pulses,
5 increased turbidity, shifting fish distributions, stormwater
6 runoff, all being tied to this increase in extreme weather and
7 storms.

8
9 Then, again, they talked about the loss of coastal infrastructure
10 and reduced business stability when these hurricanes come through,
11 and so they expressed a need for disaster recovery programs and
12 consistent and quick infrastructure replacement post-disaster.
13 One Florida commercial fishermen said that, anytime there's a
14 hurricane, recovery is too slow. People move to other industries,
15 because it's too expensive to come back.

16
17 Along that theme of fisheries economics and operating costs in
18 general was another area of stress for the fishing industry.
19 Rising operating costs and economic strain impacted various
20 stakeholders. They talked about the cost of fuel, insurance, and
21 equipment repair all increasing, as well as concentration of quotas
22 and permits and a lack of dock and working waterfront
23 infrastructure and aging fleets.

24
25 They talked about needing affordable access to quota and licenses,
26 better coastal infrastructure, and stable fishing opportunity from
27 predictable regulations and stable level of catch. One Texas
28 commercial fishermen said the quota costs \$5 a pound to lease, and
29 we get \$1.90 back, and that's not a fishery. That's a system
30 designed to squeeze working fishermen out.

31
32 Freshwater and estuarine flows along the theme of water quality,
33 and this was one of our water-quality-themed issues that was
34 mentioned fairly frequently. Salinity changes, including
35 freshwater plumes and saltwater intrusion, were seen as critical
36 detriment of ecosystem health and fishery productivity.

37
38 Specifically, saltwater intrusion from reduced freshwater flow
39 from the Mississippi river was talked a lot about here in
40 Mississippi and Louisiana. Altered runoff patterns from land
41 conversion and diversions was mentioned very consistently here in
42 Mississippi and Louisiana, along with increased water demand and
43 new residential development.

44
45 Stakeholders talked about needing improved water quality
46 monitoring, restoration with attention to short-term fishery

1 impacts, and assessment of fishery impacts from those diversion
2 projects. One Mississippi charter captain said that Louisiana
3 decides when to open the spillway, and we get all the fresh water,
4 and have no say in it, and just the consequences.

5
6 Inshore and nursery habitat was another theme. Degradation of
7 these habitats was consistently identified as a universal concern
8 impacting the ecological foundation for Gulf fisheries. Similar
9 to other themes we've talked about, turbidity and sedimentation,
10 coastal erosion, storms, poor water quality, and this one really
11 is a consequence of some of the other themes and other ecosystem
12 issue topics that we've already gone through.

13
14 Dredging and port expansion and potential habitat damage from the
15 menhaden fishing operation were mentioned frequently as impacting
16 inshore and nursery habitat, and so the stakeholders talked about
17 meeting creation of new artificial reefs and restoration of natural
18 habitat. One workshop participant in Florida said that the
19 seagrass in Charlotte Harbor is disappearing in places where it
20 had recovered, and we were watching nursery habitat turned to muck.

21
22 Then, moving offshore, offshore and artificial habitat was
23 probably more frequently mentioned than inshore habitat. Removal
24 of artificial structures, specifically offshore oil rigs, was
25 discussed frequently and widely criticized for causing significant
26 habitat loss, impacting fish populations and forcing fishermen to
27 travel further offshore, increasing costs and effort, and
28 reemphasizing some of those other ecosystem issues that we just
29 talked through.

30
31 Implementation of artificial reefs also seemed to cause some
32 conflict between commercial industries, specifically shrimpers,
33 and the recreational sectors, and so this was really the primary
34 ecosystem issue, I would say, where there was some disagreement
35 across sectors on the impacts of this ecosystem issue and its
36 structure.

37
38 Stakeholders talked about regulatory pressures, including federal
39 removal mandates of rigs and permitting delays for artificial
40 reefs, limited oversight, and navigational clearance hazards for
41 shrimping boats when trawling through artificial reefs as being
42 some of the key drivers and impacts.

43
44 Some of the needs mentioned were stopping removal of those
45 decommissioned rigs, implementing strategic replacement, to avoid
46 reef sedimentation and burial, exploring rotating reef zones,

1 streamlining reef permitting processes, and conducting impact
2 assessments that involve all stakeholders across all sectors. One
3 Texas charter captain said that I cried when they took those rigs
4 away. That wasn't just structure, and that was a whole ecosystem
5 built over fifty years, and gone in a blast.

6
7 Poor water quality, pollution, and spills, and, again, this ties
8 into some of the other themes that we've already talked about, but
9 was an overarching theme across all states and sectors and was
10 described as pervasive and interconnected to those other threats,
11 like I just mentioned.

12
13 Oil and gas operations, dredging activities, and ship traffic were
14 named as the primary drivers causing these issues, and stakeholders
15 expressed a desire for collaboration between state and federal
16 entities, sufficient oversight, and increased monitoring to
17 mitigate some of these issues. One Louisiana commercial fisherman
18 said that the orphan wells are still leaking, and nobody is fixing
19 them. We fish around them, and see the sheens, but nothing gets
20 done.

21
22 Then, along those same lines, runoff, nutrients, and hypoxia was
23 a separate theme, but very interconnected to the last one, of
24 course, and another major water quality issue that was discussed
25 frequently. Excess nutrient loading, primarily nitrogen and
26 phosphorus, were perceived to be the fundamental drivers of that
27 water quality degradation.

28
29 Stakeholders talked about land-based and inland pollution sources,
30 stormwater, wastewater discharge, septic systems, and aging
31 infrastructure, and agricultural runoff all being major drivers
32 that then can lead to hypoxia and can lead to an increase in
33 harmful algal blooms and red tides.

34
35 Stakeholders talked about needing stronger wastewater management,
36 more accountability for those upstream polluters, and improved
37 monitoring. For example, one Louisiana commercial fisherman said
38 that management can only ask whether a stock is overfished. It
39 can't ask why the habitat is gone or the water is dead, and that's
40 the whole problem.

41
42 Then, finally, our last theme is seafood markets and global trade.
43 The Gulf seafood sector, as we all know, is grappling with
44 significant economic instability and complex market dynamics,
45 which raises concerns about the future of local livelihoods. We
46 heard, again, similar to a previous theme on cost, consistently

1 about rising cost of fuel, equipment, repairs, insurance,
2 corresponding with low dockside prices and import competition,
3 specifically with overseas aquaculture production, as well as low
4 bait supply and complicated IFQ and catch share dynamics.

5
6 Stakeholders expressed needing more access to working docks,
7 affordable access to quota, support for local seafood businesses,
8 and general consumer education and awareness.

9
10 For example, a Florida commercial fisherman said a story of a young
11 fisherman who hasn't been able to recover, a third-generation,
12 talented, knowledgeable fishermen getting out of the business,
13 moving away from the industry, because they can't make the money
14 they need to feed their families and grow.

15
16 That's just kind of a high-level, more qualitative summary of the
17 preliminary results from those five workshops. Our next steps
18 with these conceptual models I described is to clean them and
19 aggregate them into merged models, so that we can look at state
20 and sector-specific dynamics and do some comparisons, as well as
21 build a Gulf-wide model to look at a more holistic view.

22
23 Those group models will then be used for those what-if scenario
24 analysis that I described, to simulate the social and economic
25 impact of different ecosystem issues on those different sectors or
26 groups, and look at the effect of different management responses
27 or approaches to those issues.

28
29 Here's just an example scenario simulation, to show you what this
30 is going to look like in Phase II. This is coming from that same
31 example focus group model from the Galveston, Texas workshop with
32 the charter-for-hire captains, and, on the X-axis, we have a
33 handful of system components from their conceptual model, and, on
34 the Y-axis, we have the relative change or impact to those system
35 components, based on the given hypothetical scenario.

36
37 For this example, I simulated an increase in rig removals, which
38 I just mentioned was one of the primary concerns, specifically in
39 Texas, and, as you can see, the fishermen in that focus group
40 perceived rig removals to negatively impact kingfish and cobia
41 populations, as well as ecosystem productivity and the snapper
42 charter and rec fishery, and they perceived an increase in rig
43 removals to increase depredation, as well as fishing costs and
44 fuel costs.

45
46 That concludes the results from the workshop, the preliminary

1 results and methods from the workshop. Like I mentioned earlier,
2 we are aware that we have some limitations, in terms of the
3 representation of our sample based on who we were able to recruit
4 to attend those workshops, and so we have a couple other approaches
5 that we're using to collect further stakeholder perspective data
6 alongside the workshop data.

7
8 One of those is a Fisherman Feedback survey that Dr. Wang and
9 others at the Gulf Council helped us administer in May of 2026,
10 after our workshop series had concluded, and so we put this out to
11 the Gulf Council, and we asked participants to describe their
12 observations, or concerns, about the Gulf ecosystem and indicate
13 how they think it impacts our fisheries.

14
15 We had a pretty great response with this. In one month, we got
16 125 responses, and, as you can see in the figure on the left, most
17 of the responses were from the private rec industry, which is
18 great, because that was the sector that we had the least
19 representation for in our workshop series, and so we're pretty
20 happy with that response, and, as you can see in the figure on the
21 right, most of the responses were from Florida, but we did have
22 representation from all five Gulf states in the Fisherman Feedback
23 results.

24
25 Just to give you a little glimpse of the preliminary results from
26 this survey as well, this figure is showing the number of responses
27 mentioning a fishery ecosystem issue on the X-axis, and, on the Y-
28 axis, we have those same twelve FEI themes that we just went
29 through from the workshops.

30
31 As you can see, overall, survey results do mirror, to some extent,
32 the workshop findings, specifically with a re-emphasis on
33 depredation as being a primary concern, among others, but,
34 additionally, survey respondents from the Fisherman Feedback
35 survey did express dissatisfaction with regulatory processes, such
36 as stock assessment accuracy and biomass estimates, and they also
37 highlighted the increase in fishing pressure from technological
38 advances, and both of those were mentioned in the workshops, but
39 to a lesser extent, I would say, and so that appears to be
40 preliminarily more of a focus from the private rec industry.

41
42 Then, as I mentioned at the start of the presentation, our other
43 approach to getting a wider representation of perspectives in our
44 data collection is to use large language models, or AI, to capture
45 those broader perspectives, and so I'm going to turn it over now
46 to my colleague, Dr. Nate Brugnone, who is joining us virtually,

1 to go through the next handful of slides for us.

2
3 **DR. NATE BRUGNONE:** Thank you, Dr. Furman. Can you hear me all
4 right?

5
6 **DR. FURMAN:** You sound great to me.

7
8 **DR. BRUGNONE:** Awesome. Thank you. So, as Kelsi mentioned, we
9 developed this AI process to additionally capture fisherman
10 perspectives from the Gulf that did not appear in either the
11 Fisherman Feedback survey or in our workshops.

12
13 The process, just a high-level description of the process, and I'm
14 going to go over each point here, but the major steps are data
15 source identification, data collection, AI extraction of mental
16 models, or those conceptual models that you saw earlier that Dr.
17 Furman went through, and, finally, we do human and AI-based
18 validation of those models, and then, later, we will provide a
19 comparison of these conceptual models, or mental models, from the
20 workshops in the Fisherman Feedback survey.

21
22 Next slide, please, and we'll dive into the data source
23 identification, and so there were two major groups that helped us
24 identify potential data sources, and one was the Outreach and
25 Education Technical Committee. and the other was workshop
26 participants themselves.

27
28 Earlier this year, we met with the technical committee and did a
29 whiteboard session, and, on the right, this is the actual artifact
30 from that webinar, and so, as you can see, participants in that
31 webinar put their suggested sources here, and I'm not going to go
32 over all of these, but you can see Facebook groups here in the
33 middle, council pages, Louisiana Commercial Fisheries and Seafood,
34 Tampa Bay Fishing Club.

35
36 In the upper-right, in the red box, we see *Texas Saltwater Fishing*
37 *Magazine*, *Saltwater Angler Magazine*, and, finally, fishing forums
38 of *The Hull Truth*, *Fishin Franks*, and so, really, we saw a diverse
39 group of resources that came from everything from magazines to
40 discussion forums online, to even podcasts, and *Brown Water Banter*
41 is another one that came up, and so we compiled this list with the
42 O&E Technical Committee.

43
44 We had this in-hand, and we wanted to also get workshop
45 participants feedback in each of the five locations in the Gulf,
46 and, before we asked them to suggest data sources, we did present

1 the workflow that we're going through, and asked for their feedback
2 on it, and participants were very knowledgeable and positive of
3 the AI process here.

4
5 Here's some quotes that just kind of capture what we heard there,
6 and so AI is obviously not going away. We're just old salty guys,
7 and we're not reluctant to change though, and that was in Gulfport.
8 In Galveston, we heard everyone else is doing it, and that's what
9 everyone seems to be saying now, and then, finally, once we went
10 through the process, and we solicited their feedback, the
11 participants were, you know, open to share either sources that
12 they engage with online or others that they know where they might
13 go to find information or participate in talking about Gulf
14 fisheries.

15
16 So, again, we saw Facebook groups come up. The *Hull Truth*, again,
17 was a frequent one, and then a number of podcasts in different
18 places. Again, *Brown Water Banter* is there, but we compiled a
19 very large list from these participants and the O&E Technical
20 Committee.

21
22 While the feedback was broadly positive, some folks did share
23 concerns, and those concerns were a lot about sampling, and so
24 what the sample of online participation would look like, and that
25 could look like the loudest voices in the room getting most of the
26 attention, well-funded organizations dominating public comment,
27 and then, finally, commercial fishermen who, you know, don't post
28 online regularly, and maybe still use flip phones in some cases,
29 could potentially be underrepresented in these data sources.

30
31 There's a quote on the bottom that just sort of characterizes what
32 folks were talking about. It was sort of not necessarily critical
33 of AI, but definitely concerns that they wanted to voice.

34
35 Okay, and so the next step in the workflow, once we identified the
36 data sources, was to actually go out and collect that data, and,
37 again, the data sources ranged from blogs to discussion boards,
38 public comment, and also podcasts.

39
40 We used some open-source software packages, and we attempted to
41 scrape all the webpages that anyone shared, and so both from the
42 O&E Technical Committee and the workshop participants. For
43 podcasts, we transcribed them, and so, the ones that we could find,
44 we either downloaded the podcast and transcribed it from YouTube
45 or Spotify or from the podcast website itself.

1 We did run into some challenges. Facebook groups were very
2 difficult or impossible to access, and so that does -- While
3 there's a lot of participation there, there were a number of just
4 implementation roadblocks that didn't allow us to scrape every
5 source that everyone mentioned, and, finally, we scraped a very
6 large volume of data, and we filtered that data to keep those
7 comments to the text that was relevant to the Gulf and fishery
8 ecosystem issues.

9
10 Then this is a summary of what we found online, and so we'll say
11 on the right, the top -- This is only the top twenty-five sites,
12 and this is not all the sites that were retrieved. They're listed
13 in order of -- So the top has the most documents, or text data
14 points retrieved from it, and so, again, *The Hull Truth* we have
15 seen already, and you can go through the list, but *The Nature*
16 *Conservancy*, in the middle, *Florida Rambler*, *Undercurrent News*,
17 *Fish Talk Magazine*, *Fishcasting the Fishing Podcast*.

18
19 In the middle here, we see that we collected a total of over 3,000
20 text documents across all those data sources, and approximately
21 one-fifth of them were podcasts, and then the rest were blog forum-
22 type formats.

23
24 This slide shows the breakdown by state and by sector, the number
25 of documents, and then the proportion of documents from each of
26 those areas, and so, as expected, and we did hear this come up in
27 the workshop, recreational angler perspectives dominated, and we
28 also saw a lot of science media and sort of other -- We're calling
29 it other in this bottom-left-hand chart, other perspectives, and
30 we did find that the sources for Texas and Mississippi were lower,
31 while Florida and general Gulf Coast perspectives were the highest.

32
33 The lower-right, we can see, again, is just another breakdown.
34 Recreational, the number of documents retrieved was slightly over
35 a thousand, but we did get some from commercial, charter, NGOs,
36 and then, again, other, which is, you know, media science and other
37 sorts of perspectives that don't fall into those four categories.

38
39 Okay, and, finally, we just want to show that, if we had stuck to
40 blogs and forums, we would not have found these charter
41 perspectives, which were found in the podcasts.

42
43 Okay, and so now I'm going to discuss very briefly the process of
44 extracting these mental models, or conceptual models, from the
45 text. This is a very simplified version of the process, but it
46 captures all the main parts of it, and so we take all the texts

1 that we scraped and transcribed from the podcasts. We essentially
2 feed it to a large language model, almost like you would at home
3 if you're asking it for a recipe or anything else, and we ask it
4 specifically to extract those mental models and those causal
5 relations, and we call them concepts and causal relations, that
6 you saw earlier in the maps that Dr. Furman presented.

7
8 On the bottom here, we're just showing that we have a paper in
9 process where we went through and validated. Rather than, you
10 know, simply trusting the AI to do a good job and went through and
11 did extensive review of this process over hours of interview
12 transcripts.

13
14 Finally, we -- So, before we do any processing, we also do human
15 AI validation, which I'll discuss briefly here, and so, of course,
16 we know AI can sometimes give, you know, incorrect or partially
17 correct results, and so we wanted to ensure that this process was
18 faithful to the data, and so we took a sample of edges, edges of
19 causal relations, and we looked at those causal relations, which
20 are just those two concepts with an edge between either the orange
21 or the blue edge that Dr. Furman showed earlier.

22
23 We ask does the location represented in this causal relation, does
24 that match the actual data? Does the sector -- Is the sector
25 correctly noted, and so did it get charter, or did it get
26 recreational, or did it get any of the other perspectives correct,
27 and then, finally, is the causal relation itself faithful to this
28 text?

29
30 Like is that relation and coding what was said in the text, and so
31 we went through this process manually, and we saw very good
32 agreement across location and sector and faithfulness of the causal
33 relation to the text.

34
35 We are expanding this validation process to get a larger sample by
36 using an AI validation process, which is a method that is emerging
37 for doing so, and we're also looking at -- We're tracking inter-
38 validator reliability with humans, and so we're having humans
39 validate the AI validator to ensure that process is trustworthy,
40 too.

41
42 Okay, and so, finally, we are in the process of conducting -- In
43 Phase II, we'll focus on this, that Dr. Kasperski will talk about
44 in a bit, and Phase II will focus on the in-depth comparisons, but
45 we've begun a bit of comparisons to the workshop and Fishermen
46 Feedback survey models that were found.

1
2 Here's some preliminary results, and, just to give you a sense of
3 the scale, and so we recovered, retrieved, about 3,000 documents
4 from online sources. The AI discovered a little over 61,000 unique
5 concepts and over 65,000 unique causal relationships.

6
7 I'm going to, on the next two slides, provide a couple of examples
8 of what we saw in that data, and so, one, the first column are the
9 -- Is one concept, and then the effect is in the next, and then
10 the second concept is in the third column.

11
12 Finally, there's a summary of the original text that it was pulled
13 from, and then the sector, and so dolphins increased bay fishing
14 was pulled out of we'll return in September to try our luck again,
15 but we'll likely just work the bay bite, as we will tomorrow, as
16 Flipper will remain offshore, and so we see that the AI understands
17 Flipper is referring to dolphins, and bay bite is referring to bay
18 fishing.

19
20 Similarly, in the next row, we see winds and swells decrease
21 charters operating, and the original text is only three of the
22 billion charters here went out, as the winds from an offshore
23 squall line grazed us, and that was a charter perspective.

24
25 Okay, and on this -- So just two more examples. Again, the same
26 format as the last slide. Red tide decreases red drum populations.
27 The original text is "impacted by a prolonged red tide...the
28 approved changes will give these important fisheries additional
29 time to recover from red tide", and these important fisheries were
30 referenced in the previous sentence, and red drum was one of the
31 species there.

32
33 Finally, reef removal by federal agencies decreases artificial
34 reefs, and the original text is "A derrick site is at risk of being
35 removed by the feds", and the reference to artificial reefs
36 appeared in a previous sentence.

37
38 We took a sample of all of these concepts that we got, and so,
39 again, we had over 61,000, and we took a subset that was 17,000 of
40 those and compared them to the fishery ecosystem issues that Dr.
41 Furman discussed earlier, and so this graph shows a breakdown by
42 the number of nodes, or number of concepts, that were related to
43 that fishery ecosystem issue, and we had the original text to do
44 the validation of that.

45
46 We can see a large concentration of inshore and nursery habitat.

1 I won't go through all of these. You can look at the breakdown
2 more, but fishery economics and operating costs, poor water
3 quality, pollution, and soils. We had broad coverage across all
4 the fishery ecosystem issues that were identified through the
5 workshop, and I guess maybe just to point out the commercial folks
6 online were expressing concerns related to seafood markets and
7 global trade, and that does align with what we heard in the
8 workshops.

9
10 The goal of the AI process is to identify potential additional
11 fishery ecosystem issues that were not captured through the
12 workshops, and so we have here two candidate fishery ecosystem
13 issues that were discovered by the AI, and so the topic here is
14 recreation, tourism, and coastal access management.

15
16 The issue, as described, it's rapid growth in coastal recreation
17 and tourism strains access to infrastructure, increases user
18 conflicts, and alters fishing pressure and safety outcomes, and so
19 some of the drivers of this fishery ecosystem issue, and the
20 impacts, are crowding at ramps, piers and nearshore sites, limited
21 parking, launch capacity, tourism-driven seasonal pulses that
22 intensify local pressure on resources, wildlife disturbance, and
23 safety incidents from inexperienced users, economic dependence on
24 visitor spending, which complicates management tradeoffs.

25
26 In terms of community needs, targeted investment in access
27 infrastructure and signage, time-area management and zoning to
28 reduce conflicts, visitor education on best practices and safety,
29 and coordination between local and state planning for peak use
30 periods. Again, we did hear some comments in the workshops about
31 working waterfronts, but none of them directly address the
32 management of public recreation and tourism systems and the
33 associated user dynamics.

34
35 This is the second candidate fishery ecosystem issue identified by
36 AI. It's marine aquaculture expansion and sustainability, and so
37 the core issue is proposed growth of marine aquaculture raises
38 siting, environmental risk, and user conflict questions alongside
39 opportunities for local seafood supply.

40
41 The described drivers and impacts, permitting uncertainty and
42 multi-agency oversight delays, environmental concerns, escapes,
43 diseases, benthic impacts and monitoring needs, spatial conflicts
44 with fishing, navigation and viewsapes, and unclear integration
45 with markets and working waterfront capacity.

1 Some of the community needs described are clear siting criteria,
2 baseline surveys and adaptive monitoring, streamlined permitting,
3 with safeguards and transparency, best practice standards,
4 contingency planning, and liability frameworks, extension of
5 services and R&D for resilient, low impact technologies.

6
7 While aquaculture did come up slightly in our fishery ecosystem
8 issue framework, that was largely related to import competition,
9 whereas this is more focused on development pathways, safeguards,
10 and coexistence with wild fisheries.

11
12 Again, this is our interim report, and we do have a number of next
13 steps, which essentially includes building out all of the results
14 that you've seen. We also will be expanding the validation, but
15 Phase II, which Dr. Kasperski will discuss momentarily, is about
16 that expanded in-depth comparison and that building on of artifacts
17 that we'll provide to the council for review to identify novel
18 candidate fishery ecosystem issues, and that's it, and so I will
19 hand it over to Dr. Kasperski. Thank you.

20
21 **CHAIRMAN ANSON:** Before we move on to Dr. Kasperski, we have a
22 question or two. Dr. Sweetman.

23
24 **DR. C.J. SWEETMAN:** Thank you. Appreciate the presentation. Just
25 two questions that will help me understand this a little bit more,
26 and so, one of your categories, you had all the states listed, and
27 then you had Gulf Coast. I want to know what that means relative
28 to all the other states that were listed.

29
30 Then the other one is where your categories -- Where you listed
31 other, and you've got commercial, charter, recreational, NGOs, and
32 what is the other? Those are just two definition questions I would
33 like to know.

34
35 **DR. BRUGNONE:** Sure, and so Gulf Coast, to address that point
36 first, is so, when a specific state was clearly mentioned, you
37 know, if it was on a website that was explicitly tied to that
38 state, or the state was explicitly mentioned in the comment, then
39 it was assigned explicitly to that state, understanding that
40 sometimes folks travel over state boundaries, and so that's the
41 way that the state was assigned, and then Gulf Coast is where it
42 was either about a Gulf wide issue, or multi-state, or it was
43 ambiguous, and so Gulf wide captures everything that is not state-
44 specific. The second question -- I'm sorry, and can you repeat
45 the other, the definitional question?

1 **DR. SWEETMAN:** Yes, and no problem. It was the other category
2 that you had, and so you had NGOs, charter, commercial,
3 recreational, and like what constitutes -- Who is within that other
4 category?

5
6 **DR. BRUGNONE:** Yes, and so other is -- That captures media
7 perspective, and so for -- I'll give you an instance. Some
8 podcasts, you know, you had a charter captain talking to the
9 podcaster. In others, you would have someone from academia, for
10 instance, someone from the sciences speaking, and so we wanted to
11 not attribute those perspectives per se to any of like the core
12 participants that we had in the workshops.

13
14 We binned them as other because we were focused on recreational,
15 charter-for-hire, NGO perspectives, and so, with the other
16 delineation, really what it allows us to do is to say, okay, we
17 can do a comparison to the workshops on the basis of, you know who
18 was there, but some of these other perspectives, while we had a
19 couple science perspectives, science perspective at the workshop,
20 folks representing that, it was largely focused on fishermen and
21 folks in the fishing industry.

22
23 **DR. SWEETMAN:** Thank you.

24
25 **DR. BRUGNONE:** You're welcome.

26
27 **CHAIRMAN ANSON:** I had a question. Thank you for the presentation.
28 I had a question about the data collection. You had a slide with
29 the pie chart, and then the top twenty-five sites by retrieved
30 document count, and I'm curious. There were two state agencies
31 and then the Gulf Council were cited in those to -- In the top
32 twenty-five, and I would have expected, I guess, a little bit more
33 of the states being represented, or NOAA, and can you describe
34 what you meant by --

35
36 **MS. BERNADINE ROY:** Test, test, test.

37
38 **DR. BRUGNONE:** We can hear you online.

39
40 **CHAIRMAN ANSON:** Can you hear us?

41
42 **DR. BRUGNONE:** Yes, and can you hear me?

43
44 **CHAIRMAN ANSON:** Yes, we can hear you. Give us a minute, and we'll
45 try to get quiet again here for a second.

1 **DR. BRUGNONE:** Okay.

2
3 **CHAIRMAN ANSON:** So I was just curious as to why there wasn't any
4 other state representation, or NOAA, because you said you retrieved
5 documents, and so is that a document considered a webpage? Hold
6 on. We're going to have to take a time out. Sorry. We're going
7 to have to take a time out. If you could stay on the line, and,
8 if we lose you, we'll try to reach you. Okay?

9
10 **DR. BRUGNONE:** Standing by.

11
12 **CHAIRMAN ANSON:** All right. Thank you.

13
14 **MR. J.D. DUGAS:** If you're listening online, we lost power, and we
15 need a few minutes to get back up and running.

16
17 (Whereupon, a brief recess was taken.)

18
19 **MR. DUGAS:** All right, folks. I'm getting a thumbs-up from Bernie.
20 If everyone can settle down and get back to their seats, we're
21 going to reconvene. All right. If we can quiet down in the back
22 of the room, we're going to reconvene. All right, Mr. Anson.

23
24 **CHAIRMAN ANSON:** Thank you, Mr. Chair. Dr. Brugnone, are you still
25 there? Can you hear us?

26
27 **DR. BRUGNONE:** Loud and clear. Have you got me?

28
29 **CHAIRMAN ANSON:** Yes, I do, sir. Thank you. My question goes
30 back to the slide in your portion of the presentation where you
31 identified the top twenty-five sites.

32
33 **DR. BRUGNONE:** Yes, regarding the state representation?

34
35 **CHAIRMAN ANSON:** Yes, and so just -- Can you describe what on those
36 websites you actually retrieved, and counted as a document, because
37 I would have expected some of the other states and NOAA to be on
38 there.

39
40 **DR. BRUGNONE:** I should emphasize that that is by retrieved
41 document count, and that was only the top twenty-five, and I don't
42 have the precise number in front of me, but we had something on
43 the order of 150 sites total and so, if something didn't appear on
44 that list that you expected, it's likely due to just the document
45 count being lower, and so the document counts that went into that
46 top twenty-five list were those that were filtered -- After the

1 filtering for, you know, relevance either to the Gulf, Gulf state,
2 Gulf fisheries.

3
4 I can't speak to why that is per se, because I did not review each
5 of them, you know, individually, but, you know, if I had to hazard
6 a guess, I would say it was probably due to that filtering process,
7 having perhaps not as many, you know, chat threads, discussion
8 posts related to the keyword filtering there, but I do want to say
9 that that is a -- Well, that's what part of Phase II is for too,
10 is to go in and further do that in-depth validation, but I guess
11 that's the most precise answer that I can give at the moment for,
12 you know, why you wouldn't see something in the top twenty-five.

13
14 **CHAIRMAN ANSON:** Okay. Thank you. Dr. Furman.

15
16 **DR. FURMAN:** Can I add to that as well? Just to add to what Dr.
17 Brugnone said, we tried to strike a balance of pulling public
18 comments and public testimony from agency and federal agency
19 websites, but we screened to ensure that the perspectives included
20 in the AI portion of the project were truly only stakeholder
21 fishing industry perspectives and not management or agency
22 perspectives.

23
24 In our first initial data scraping, we had a lot of management
25 agency research and academic perspectives getting lumped in and
26 disguised as fishing industry perspective, which we, of course,
27 don't want, and so that's probably also part of that process.

28
29 That being said, if part of what we're hoping to get out of this
30 presentation today -- If there are things that appear to be missing
31 from your perspective that we should look into, then please flag
32 that, and we'll go back and look at it. Thank you.

33
34 **CHAIRMAN ANSON:** Thank you. Any other questions for the
35 presentation, or the presenters, at this point in time? Mr.
36 Sanchez.

37
38 **MR. JOHN SANCHEZ:** Yes, and I want to thank Dr. Wang, Dr. Brugnone,
39 and Dr. Furman for your presentation. I've long been concerned
40 about ecosystem challenges, and how we affect them, so we're not
41 just left managing what's left after the fact, and so I'm
42 encouraged that we're going to do something to that.

43
44 To that end, I would like to make a motion, just to make sure we're
45 moving this thing forward, and the motion will be as such.

1 **CHAIRMAN ANSON:** John --

2
3 **MR. SANCHEZ:** We're not done yet?

4
5 **CHAIRMAN ANSON:** Yes, and we're not done with the presentation, if
6 you can hold off on that.

7
8 **MR. SANCHEZ:** Yes.

9
10 **CHAIRMAN ANSON:** Thank you though. Anyone else? All right, and
11 so, Dr. Kasperski, if you're online, and if you're ready to go,
12 please go.

13
14 **DR. STEVE KASPERSKI:** Yes, I am. Can you hear me?

15
16 **CHAIRMAN ANSON:** We can.

17
18 **DR. KASPERSKI:** Perfect. First, I want to say thank you all for
19 having me, and thanks again to all the workshop participants and
20 Fisherman Feedback respondents. My name is Steve Kasperski. I'm
21 going to quickly go through and describe the second phase of the
22 project, which is going to be the impact assessment, and will
23 hopefully act as a bit of a guide for the council's prioritization
24 of these fishery ecosystem issues going forward.

25
26 The goals of Phase II, and so the first goal is to document the
27 models and data that are available to understand each of these
28 FEIs. The second goal is going to be to identify the key questions
29 surrounding these FEIs and document the knowledge gaps within some
30 of these issues.

31
32 The third goal is to publicly document these conceptual models,
33 the knowledge gap analysis, and the priority questions on a single
34 website for the council, the public, the Ecosystem Technical
35 Committee and any other groups, to synthesize all of the
36 information together and build a common understanding of the
37 fishery ecosystem issues in the Gulf. We're going to do this
38 iteratively with the council, through the ETC, starting with the
39 next meeting this fall.

40
41 To give you a little bit more of an example of what this might
42 actually look like in practice, we're going to be building this
43 from an example that was done in the Mid-Atlantic Council a few
44 years back. We're going to take all the information gathered from
45 those conceptual models developed in the workshops, and so that's
46 the top-middle there in that figure, and we're going to develop

1 these interactive diagrams, on the lower-right, that are going to
2 display some of the connections, or display all of the connections,
3 between each of the different elements.

4
5 As both Dr. Brugnone and Dr. Furman described earlier, we can
6 aggregate these in different ways, to either the state, the sector,
7 or kind of have a combined model for the whole Gulf, or you can
8 even look at just each fishery ecosystem issue in itself and look
9 at how those are -- How those compare to one another.

10
11 At the same time, in the lower-left, we're going to be developing
12 these data documentation tables. They're going to incorporate the
13 characteristics about each of these networks themselves, some of
14 the network statistics, as well as there's data available with
15 some justifications for including those data.

16
17 Our next steps, over the next nine months or so, are to first
18 revise the potential list of FEIs, with the help of the ETC, build
19 and share these preliminary conceptual models and documentation
20 tables, and 3 is to identify key questions for each of the FEIs.
21 4 is refine the knowledge gap analysis and data documentation
22 tables, and 5 is to create a final website that will hopefully act
23 as a guide that anyone can use to better understand these fishery
24 ecosystem issues in the Gulf and to create a common set of
25 knowledge about what the issues are, what are some key questions
26 for each of the FEIs, and what data we currently have available to
27 understand them. This will hopefully help the console determine
28 what its next steps will be as it further implements its FEP.

29
30 One piece of feedback that I would find particularly useful as we
31 step into Phase II is really what kind of sense, at least at this
32 point, if you have a sense of what kind of specificity and kind of
33 scope you have for the FEIs.

34
35 You know, for example, are you thinking that an FEI might be, you
36 know, as general as we kind of have them here, as, you know,
37 depredation impacts, or would they be more specific, such as shark
38 depredation? You know, a shark depredation FEI might have kind of
39 different policy levers than a general depredation impacts, which
40 includes marine mammals as well, and so getting a sense for how
41 you want to use the FEIs will help me provide you a better guide
42 as we go through Phase II.

43
44 Thank you all for listening. Our contact information is here on
45 the screen, and I will turn it back over to Dr. Furman. Thank you
46 all, or I'll answer any questions, too.

1
2 **CHAIRMAN ANSON:** All right. Thank you, Dr. Kasperski, and so,
3 looking at the committee, we have Geeslin, followed by Dr.
4 Sweetman.

5
6 **MR. DAKUS GEESLIN:** Dr. Furman, thank you for being so persistent
7 and reaching out and coordinating with many of us, and, even when
8 I ignored your initial email, you followed back up, and that's
9 what I instruct our teams to do as well, and so thank you for doing
10 that. It's very exhaustive and very, you know, thorough process.

11
12 I am waiting with bated breath to see what Mr. Sanchez has up his
13 sleeve in the form of a motion. You know, we've heard, time and
14 time again, and there's -- You know, this is a big nut to crack,
15 and one of my, you know, for-hire captains in Texas, Captain
16 Hickman has been very -- He's been beating these drums for many
17 years.

18
19 I've always questioned, you know, okay, how do we right this ship,
20 and what do we start addressing, and what bites of the elephant do
21 we start chewing on? I don't know, but I'm certainly willing to,
22 you know, engage, enlist, and activate, and so, again, thank you
23 to you and your team in being persistent in trying to tackle this
24 issue.

25
26 **DR. FURMAN:** Thank you. I appreciate that.

27
28 **CHAIRMAN ANSON:** Dr. Sweetman.

29
30 **DR. SWEETMAN:** Thank you, Mr. Chair. Can we go back -- Bernie,
31 can you put it back to slide 4, just kind of the overall Gulf
32 Fishery Ecosystem Plan mission statement, and so I just want to
33 hit this on here.

34
35 There's, obviously, some important issues that were brought up
36 during this presentation. It was very well thought out, and very
37 in-depth, but, when I'm looking at a lot of these FEIs that have
38 been determined, I see a lot of things in there that are beyond
39 the Gulf Council's jurisdiction.

40
41 I'm looking at that mission statement, you know, of inform the
42 Gulf Council's decision-making for a lot of the -- You know, in
43 order to address a lot of these issues here. That is, I guess,
44 where I'm struggling, to how we keep moving this forward and making
45 sure that it is useful for our decision-making process in the
46 future here, and I only bring this up because I've had firsthand

1 experience with where this went on the South Atlantic, and it's
2 essentially a 500-page paperweight at this point, where it's not
3 really used for anything, and so I just want to make sure that
4 we're continuing to make progress on things that we can actually
5 address in here.

6
7 I know shark depredation was a huge issue. We constantly hear
8 about it at the Gulf Council, but we don't set the management for
9 sharks, and so that's where I'm trying to figure out how we can
10 make this -- All this work that's been done for something that's
11 usable and practicable for the Gulf Council to operate on, whether
12 it's for a single fishery or across-the-board.

13
14 I'm all for holistic fisheries management, getting more in that
15 direction there, but it's a lot more to get moved towards
16 ecosystem-based, or even ecosystem approaches towards fisheries
17 management, than just getting social context for some of these key
18 issues that we're dealing with here, and so I just wanted to kind
19 of put that out there. No question, and I thought it was a good
20 presentation, and I'll leave it there.

21
22 **CHAIRMAN ANSON:** Yes, and I appreciate the comment, Dr. Sweetman.
23 I have similar concerns, I guess, with, you know, having a document
24 for the amount of time that we've invested in this, going back to
25 ecosystem-based fisheries management and those days, and so,
26 relative to identifying issues, you know, getting good input from
27 the public and stakeholders, and then, of that list, going through
28 and identifying those that we can and we cannot address.

29
30 Even as much as recognizing that we have reviewed, or the Ecosystem
31 Committee has reviewed these, to take them in, think about them,
32 and then come back and say that we don't have that jurisdiction,
33 or we can't do that, and that's another agency's responsibility,
34 and then trying to just write a letter, I think, just to -- You
35 know, to identify that in the appendix, you know, and go through
36 the machinations, I think is helpful.

37
38 You know, will it satisfy that individual, or individuals, who
39 have that concern? Maybe not, but at least that is an outcome to,
40 again, utilize the process and to, again, kind of get feedback to
41 the general public, and so that's my comment at least.

42
43 We did have a question from one of the presenters. I just want to
44 make sure that we don't lose that, and that is that is there
45 anything that has been presented today, as they're looking to go
46 into their next phase of the project, and looking at their final

1 report, to help them with maybe prioritizing or delineating those
2 ecosystem issues? Do we want high-level, low level, very specific?

3
4 My opinion would be any and all at this point, any and all
5 combinations, as long as the general, or generic, one is fairly
6 descriptive. You know, depredation includes dolphins and sharks,
7 for instance, and not just depredation, and so that would be my
8 comment, but certainly others can comment to that. I had Mr.
9 Strelcheck, and his hand was up earlier.

10
11 **MR. ANDY STRELCHECK:** Yes, and thank you for the presentation, and
12 congratulations on getting an email response from Dakus, who still
13 ignores my emails. No, and, all kidding aside, I have two
14 questions, one for your colleague on the AI.

15
16 Obviously, ecosystem issues cross state and federal boundaries.
17 As C.J. has pointed out, the mission statement focuses on the Gulf
18 Council, things within our purview, and so I'm curious, with the
19 AI work, and is it possible to even possibly further narrow down
20 the information that you've gathered to species or issues that are
21 specific to federal fisheries management? That's my first
22 question.

23
24 **DR. BRUGNONE:** Yes, and, if you don't mind, and so definitely,
25 and, you know, I think we appreciate the -- In the workshops, and
26 I was at each of the workshops as well, and we heard feedback from
27 folks, and I don't know if -- We heard many of the same, you know,
28 issues come up, and I don't know if it's, you know, not every
29 stakeholder is familiar with what's within the Gulf's -- I mean,
30 I can't even say that I am, and what's within the council's
31 purview.

32
33 We kind of let the process unfold, similarly to the workshops as
34 we did with the AI, but we can absolutely go back and do targeted
35 searches for species that, you know, what are the fishery ecosystem
36 issues that impact X, Y, or Z species, or, you know, is there
37 depredation, you know, something there that is relevant for the
38 Gulf. If we get guidance that way, we can certainly go back and
39 curate the information in a way that makes it more useful.

40
41 **MR. STRELCHECK:** Okay. Great. I appreciate that, and then,
42 similar to C.J.'s comments, I think my concern is there's such a
43 wealth of information here. Obviously, it's great that you're
44 kind of ground-truthing, with human data, AI-generated data that's
45 producing a tremendous amount of results.

1 I think one of the struggles we've had with just ecosystem-based
2 management is really understanding what does that mean, and how
3 can we actually apply the information to actually help better
4 manage our fisheries, and so maybe a question I would have for you
5 is, as you progress, as you produce these results, what do you see
6 as something that we can do as a council to kind of offer
7 assistance, help, to the work that you're doing, the results that
8 you're producing, to help kind of narrow the scope of those
9 outcomes?

10
11 **DR. FURMAN:** Absolutely, and I think the first step will be with
12 the Ecosystem Technical Committee, but then with the Gulf Council
13 more broadly, to, like Dr. Sweetman was saying, identify what is
14 actually within the council's purview and jurisdiction and what
15 you can actually address.

16
17 For this first initial preliminary analysis, we wanted to be all-
18 encompassing, and include everything, but that will be Dr.
19 Kasperski's first task with ETC, and he has started to already
20 make a framework to categorize the FEIs based on what's within the
21 council's purview and what's within other state agency, or other
22 jurisdictions, to kind of narrow us in, and then our goal is to
23 circle back to the Gulf Council next spring with those results and
24 get further perspective and feedback from you all then.

25
26 **CHAIRMAN ANSON:** Any other questions? Dr. Allen.

27
28 **DR. MIKE ALLEN:** Yes, and I would just like to echo that there's
29 a ton of great information here. I also have the thought of what
30 are some tangible things where the council can act on these things
31 that are going to help move management forward from an ecosystem
32 perspective.

33
34 I just wanted to point out that we do have a couple of successes
35 here on the Gulf Council. The red tide maps have been used in
36 natural mortality estimation for red grouper and gag grouper, and
37 that's the first time I think that had been done, and so that's -
38 - You know, that's an ecosystem-level effect that's really outside
39 the fishery that is directly brought into the management process.

40
41 The other example that strikes me is the Mid-Atlantic actually
42 taking an eye on menhaden harvest with regard to striped bass, you
43 know, and how you manage menhaden harvest with the thoughts of
44 implications on the striped bass fishery, and so I think that the
45 challenge -- I would say the challenge to the team, and to the
46 council in general, is, when we go through the list of these, is

1 to think about where are those knobs that we have some control
2 over in the management process that we can bring this kind of
3 information in, and I think anything that your team can do to give
4 us some insight there I think would be really helpful. Thank you
5 though.

6
7 **CHAIRMAN ANSON:** Thank you, Dr. Allen. Anyone else? Dr. Walter.

8
9 **DR. JOHN WALTER:** Thank you, Kelsi and Nathan for the presentation.
10 I'm wondering -- As I see these, and begin to get a little -- I
11 think we see a really large body of work that is there, and it
12 gets hard to know where to start, and now we're talking about let's
13 find out which ones need to have council decision exposure, but I
14 also think perhaps we need to -- We want to show some progress,
15 and we want to start on some things.

16
17 I think there are things that are ongoing where we could certainly
18 give ourselves credit for being responsive to this, and where work
19 is ongoing, and so I guess I'm a fan of having multiple irons in
20 the fire on these things, rather than trying to tackle, you know,
21 really large ones, that we may not make progress on, but there are
22 things that are ongoing, and I'll just say shark depredation is
23 something that is ongoing, and I think this council could probably
24 engage even more on it.

25
26 We are, as an agency, engaging in that, and I think that's
27 something that it wouldn't have to be the council alone engaging,
28 but the council and partnership engaging on, that allows that to
29 move forward and say, yes, we're making concerted efforts on that,
30 and so identifying maybe the things for which there are ongoing
31 initiatives, such that you could hitch, you know, two trains moving
32 the same direction on.

33
34 I'll say seafood is another one, and so I think that there's
35 administration priorities related to seafood competitiveness that
36 I think are ongoing that have shared partnerships with the council
37 where there may be council decisions for, and I think that ties a
38 little bit into the regulatory environment, and deregulation, and
39 screening management for where regulations could be more effective
40 and less restrictive, which would support both, you know,
41 recreational opportunity and commercial fishing.

42
43 I think there are things where maybe, if we look at this through
44 the lens of other things that are ongoing, we say, actually, we
45 are making progress on some of these FEIs, and it's just being, I
46 think, explicit in saying, yes, these link together, and these are

1 bundled here. Thanks.

2
3 **CHAIRMAN ANSON:** Yes, and good segue into my next comment, Dr.
4 Walter. So, Dr. Kasperski, in your portion of the presentation,
5 and I think it was your last slide, you talked about the next
6 steps, and that you would be developing a website that would kind
7 of provide some background, and a summary of FEIs and such, and so
8 I'm curious is -- How do you all envision that, because, you know,
9 this council will be taking this up as a routine exercise.

10
11 I'm just wondering, and is this something that you're going to
12 pass off to manage, or is this going to be independent from maybe
13 what, Emily, you envision for FEIs, and kind of noticing to the
14 public as to where the council is? I'm curious as to if there's
15 been any thought about that.

16
17 **DR. KASPERSKI:** Thanks, and I'll let Emily speak for herself, but
18 my hope is to keep this as consistent with what the council is
19 looking to have as possible. I mean, this is likely just going to
20 be an interactive HTML, you know, website address that you can
21 play with various kind of toggles and links and things.

22
23 I think the idea was to host it on the council website, but at
24 least this analysis would be kind of a static analysis of the
25 stakeholder workshops and the stuff that we did in Phase I, and so
26 I guess I can't say that we'll update it going forward necessarily,
27 but I'll also defer to Emily on what she thinks.

28
29 **DR. FURMAN:** Verena, do you want to go before me?

30
31 **MS. EMILY MUEHLSTEIN:** Okay, and so we do have a sort of -- In our
32 Fishery Ecosystem Plan, we developed, with the O&E Technical
33 Committee, sort of a plan on how to outreach this, and one of the
34 action items was redesigning and maintaining our fishery ecosystem
35 management webpage, and, as a part of the RFP, we sort of agreed
36 that they would help provide content.

37
38 We will be hosting it, and then, as we sort of move forward -- I
39 believe, in Phase II, the plan was to work together with them to
40 get that content, and then house it on our page, and so we've got
41 it on an internal council action plan, but it's also something
42 that they understand that they will be providing content. Verena,
43 did you have extra things?

44
45 **CHAIRMAN ANSON:** Thank you. Dr. Wang.

1 **DR. WANG:** Yes, and I just wanted to also weigh-in that I think
2 the idea is to kind of combine everything and provide kind of
3 multiple layers of information. Like a lot of what Dr. Kasperski
4 is putting together is going to be like really deep-dives into all
5 the connections between each of these issues, and the data that's
6 available to support these issues, but we also want to put forth,
7 from the council side of things, actual kind of more accessible
8 information on what we're actually doing, where it's moving in the
9 process, and how things are going to progress from there, and so
10 we're trying to kind of hit it from all angles.

11
12 **CHAIRMAN ANSON:** Sounds good, and that's where I was -- What Dr.
13 Walter was saying about, you know, these issues and such, and kind
14 of a stoplight type thing, you know, the red, green, yellow that
15 was provided in the presentation, and maybe provide a little bit
16 more description, and not very in-depth, but at least, you know,
17 that there's ongoing research being conducted to try to address A,
18 B, or C of an issue. All right. Very good.

19
20 Any other discussion or comments about the presentation, or
21 questions for the presenters? I'm not seeing any. Thank you, Dr.
22 Furman, Dr. Kasperski, and Dr. Brugnone. That will take us to
23 Number V. Mr. Sanchez, do you still want to make a motion?

24
25 **MR. SANCHEZ:** If I could have that motion put up on the board.
26 All right. I will read it, and then, if I can get a seconder, I
27 will explain the rationale. **Upon completion of identifying the**
28 **list of fishery ecosystem issues, send the list to the Ecosystem**
29 **Technical team to begin development of action item next steps for**
30 **council review and consideration.** If I can get a second, I'll
31 explain where I'm coming from.

32
33 **CHAIRMAN ANSON:** We have a motion, and a second by Dr. Allen. Mr.
34 Sanchez.

35
36 **MR. SANCHEZ:** While it may seem, as this discussion has evolved,
37 we're already doing this, I feel better about having it in a motion
38 in front of us, so we can keep this moving forward, because I
39 think, once we identify these issues, we can then, during council
40 review and consideration, identify those which are in our purview,
41 and we can act upon, and single those out, and, also, maybe become
42 finally the interagency catalyst to coordinate all these other
43 jurisdictions involved into understanding that our marine, our
44 living marine, resources don't respond to our jurisdictions, but
45 they're surely impacted by our behaviors inland, in our state
46 waters and our federal waters, and so I think somebody needs to

1 take the lead on this, and do something, and I'm encouraged by
2 your work.

3
4 **CHAIRMAN ANSON:** We have Dr. Simmons.

5
6 **EXECUTIVE DIRECTOR CARRIE SIMMONS:** Thank you, Mr. Chair, and so
7 I think, high level, this is what we were planning to do, right,
8 and so I think staff is okay with this. I think, for those that
9 have been around for a while, we went through a big prioritization
10 exercise originally, when we started drafting the FEIs, and, some
11 of the technical folks, we seem to get kind of wrapped around the
12 axle sometimes with the prioritization process.

13
14 Maybe, as we work through this and we see the report, and can kind
15 of digest that some more, I think that will help us with this as
16 well.

17
18 I'm not convinced that we can't have an FEI that the council
19 doesn't have purview over. I mean, it could be a standalone module
20 that informs the public that we are aware of this issue. You know,
21 we're not the regulatory agency, with the National Marine
22 Fisheries, but we see these interactions, and there's these
23 connections, because, if you take the pilot, which we've already
24 talked about already, which is the red tide that we've talked about
25 many times at the Ecosystem Technical Committee level, and we are
26 starting to integrate into our stock assessments, and we are doing
27 that.

28
29 We are operationalizing, it in a way we can, through our science,
30 and using that in our management advice right now, and so I have
31 a similar question about when is an FEI done? When is that module
32 complete, because you could go on forever with some of these, and
33 keep getting more information, and more data, and so, to me, that's
34 the other thing we're going to have to figure out, is like it
35 depredation of just reef fish, or is it, you know, depredation
36 seasonally, or is it depredation of different species of sharks?

37
38 Like how many -- How complex do we want to get with this, and
39 that's all going to be driven, to me, based on the data and
40 resources that we have to develop those, and so, I mean, I see it
41 as being a very iterative process, and I think the motion is fine,
42 because I think that's generally the direction we were planning to
43 go already, and so that's my two-cents for the day.

44
45 **CHAIRMAN ANSON:** I have a question, Dr. Wang. I can understand
46 potentially the urgency of why you wanted to make the motion, Mr.

1 Sanchez, but I guess, relative to the ecosystem fishery plan, this
2 is a little bit out of sync. I mean, the Ecosystem Technical
3 Committee was supposed to kind of come with the list of FEIs to
4 the council, and the council then would -- No?

5
6 **DR. WANG:** No, and so I think the way that it ended up being
7 outlined in the Fishery Ecosystem Plan was that we were -- Because
8 we had this opportunity, with these IRA funds, to have this sort
9 of social-science-driven effort to identify fishery ecosystem
10 issues, we kind of rejiggered things within the Fishery Ecosystem
11 Plan to say, hey, this is where we're starting.

12
13 We're going to start with a project team that's going to identify
14 all the fishery ecosystem issues, and then it's going to flow
15 through the rest of the process, and so the way this motion reads,
16 to me, is kind of the way that we were planning on doing things to
17 begin with. We're going to have this project, identify the fishery
18 ecosystem issues, and then we're going to get into the nitty-
19 gritty with the ETC, and so it reads okay to me.

20
21 **CHAIRMAN ANSON:** Okay. Any other discussion on the motion? **Is**
22 **there any opposition to the motion? Seeing none, the motion**
23 **carries.** Is there any other issues that people want to bring up
24 before the committee? Seeing none, Mr. Chair, that concludes
25 Ecosystem.

26
27 (Whereupon, the meeting adjourned on August 24, 2026.)
28

29 - - -