Summary Report of
Ecosystem Technical Committee
Gulf of Mexico Fishery Management Council
Hybrid Meeting
Friday, September 10, 2021
8:30 am EDT – 5:00 pm EDT

The Gulf of Mexico (Gulf) Fishery Management Council's (Council) Ecosystem Technical Committee (ETC) was convened at 8:30 AM EDT on September 10, 2021. The agenda was approved with minor changes in the order of presentations, and minutes of the March 2, 2020 meeting were approved as written.

Status Update on the CCC Subcommittee on Area-Based Management

Council staff provided an update on the Council Coordination Committee's (CCC) Area Based Management subcommittee (subcommittee). The subcommittee was formed in response to Executive Order 14008 Sec. 216c that requires actions to conserve at least 30% of our lands and waters by 2030. The subcommittee was charged with developing a report on existing area-based measures in the U.S. exclusive economic zone (EEZ) including fishery areas and other area-based measures. This information will contribute to a baseline assessment of how much land and ocean in the U.S. is currently conserved and restored. To date, the subcommittee has met twice to discuss area-based management and is developing a database describing portions of the EEZ with place-based management measures to promote conservation. This database will contribute to a larger effort to develop an atlas of conservation areas in the U.S. The subcommittee will provide a status update to the CCC at its September 2021 meeting followed by updates at regional Council meetings in the coming months.

Mid-Term Project Summary of Ecosystem Technical Committee Overview of Fisheries Ecosystem Planning from LGL Consultancy

LGL Ecological Research Associates Inc. (LGL) has been contracted by the Council to help develop a Fishery Ecosystem Plan (FEP), which will provide a framework to continue incorporating ecosystem-based fishery management into the Council process. The ETC was presented with a mid-term project summary outlining the goals and efforts to date. Efforts include: a summary of case studies and lessons learned from other Councils' FEPs, development of indicators and data visualization dashboard, stakeholder mapping and mental modeling, a proposal to develop the Gulf FEP around Fishery Ecosystem Issues (FEIs), and a discussion on dividing the Gulf into subregions.

Dr. Will Heyman (LGL) provided the historical context of national environmental policy specific to marine fishery management and indicated that legislation has identified ecosystem approaches as important factors in fisheries management for several decades. For example, when setting a stock annual catch limit, a fishery management council will often incorporate socioeconomic factors into selecting an appropriate value. While generally accepted by fisheries managers that ecosystem considerations are important for decision-making, broader ecosystems' effects on an ocean basin-scale are difficult to directly incorporate into traditional fishery management plans. Ecosystem-based management addresses issues related to natural effects such as how physiochemical attributes relate to stock reproduction and how observed increases in frequency and intensity of hurricanes may alter access to fisheries. Additionally, ecosystem-based

management incorporates changing anthropogenic influences such as offshore energy exploration and aquaculture projects. Dr. Heyman proposed a conceptual model through which ecosystem planning could progress through the existing regional fishery management structure, and focused on the importance of incorporating fishermen's observations early in the process of identifying FEIs, and having these observations drive the scope of potential policy actions.

Several ETC members suggested that the proposed conceptual model should include broader definitions for stakeholders than just fishermen and cautioned against putting too much focus on only those FEIs that are deemed actionable. They also recommended that stakeholder engagement and outreach be implemented earlier in the process than proposed in the presented conceptual model. While there was agreement among the ETC that stakeholders who are already engaged in the Council process, and who may have a monetary vested interest in the fishery, are valuable sources of input, the ETC also stated that unrepresented groups (e.g., shoreline fishermen and charter vessel customers) should also be encouraged to provide insight. Dr. Heyman agreed that broad and early stakeholder engagement was important to the process. He cited work currently being conducted by Dr. Scyphers on identifying stakeholder groups and quantifying their fishery needs and behaviors as integral to the development of the FEP. ETC members emphasized that a Gulf FEP should have a clear vision and objectives, followed by a description of actions that would meet those objectives. The ETC requested to reorder the agenda, in order to hear Dr. Scyphers' presentation on stakeholder engagement.

Update on Stakeholder Mapping, Engagement, and Mental Modelling

Dr. Scyphers (sub-contracted by LGL) provided an update on the stakeholder mapping, engagement, and mental modeling component of the FEP project, and requested ETC feedback and discussion on each of two tasks. The first task is to conduct a stakeholder assessment to develop a comprehensive list of the types and groups of individuals closely associated with Gulf of Mexico fisheries. In discussing the categorization of stakeholder groups, ETC members asked about the use of the identified categories of stakeholders in the spreadsheet. It was suggested to consider groups that have been identified and used as the subject of required analyses by NMFS and the Council, as there are several surveys that are currently administered among such stakeholder groups.

Dr. Scyphers reviewed the second task, which is to conduct and analyze semi-structured interviews using concept mapping with key informants representing diverse stakeholders in the region's fisheries. Dr. Scyphers explained his preliminary work on conceptual modeling, intended to represent how stakeholders' view the ecosystem and its functioning, as well as to examine social topics such as equity in fisheries. These analyses can help identify important concepts and to inform decisions on how to prioritize them. ETC members discussed the capabilities of the conceptual modeling software and inquired about the use of these analyses in the management process. Dr. Scyphers noted that conceptual modeling has largely been used towards stakeholder engagement and could potentially be used to help identify gaps between the results of quantitative assessment models and what fishermen are seeing on the water. ETC members also discussed whether conceptual modeling could help identify management objectives through the observations of ecosystem changes by stakeholders. Dr. Scyphers also noted that the analyses could be applied to different geographical scales.

Indicators and Data Visualization
Dr. Nathan Putnam (LGL) presented the work to date on the development of indicators in the context of FEIs. These ecosystem indicators could be useful to the Council when considering potential ecosystem impacts when making management decisions. Dr. Putnam pointed out the importance of those indicators being relevant to fishery management, and to visualize the data in terms of space and time. Spatial context reflects that issues may not be Gulf-wide, but regional. Temporal context could indicate what the Council should be managing towards. In addition, Dr. Putnam proposed developing indicators that could provide insight on the ecological, fisheries, and socio-economic connectivity among locations. The list of indicators can be narrowed-down based on relevancy to fishery management, ability to provide actionable information and to be understood by a broad audience, those that are determined to be scientifically valid, and availability of data.

ETC members agreed with the approach to use regional indicators. It was also mentioned that an indicator dashboard may be useful, but that the way the indicators are prioritized would depend on who is asking (e.g., technical vs managers vs broader public). Once the dashboard is developed, the ETC may want to go through it in detail considering the various groups that will be interested in those data. The ETC also mentioned that indicators are useful, but we should be thinking about reference points and identifying the objectives toward which the indicators are measuring progress. Over time, we have changes in the system that manifest in the indicators and they can come in and out of "importance;" thus, it is important to make sure there is a system in place to revisit the question of what objectives are being measured.

Dr. Heyman mentioned the dashboard is being designed to be flexible with the data that are being displayed and include a user-interface to look at the indicators at a regional or temporal scale. The ETC Chair also cited a useful system used in the Greater Atlantic Regional Fisheries Office region to classify indicators into two groups: 1) indicators that are tied to management objectives (e.g., number of overfished stocks), and 2) indicators that represent risks to meeting these objectives (e.g., index of red tide severity).

Case Studies and Lessons Learned
Dr. Heyman summarized the efforts undertaken by other fishery management Councils in incorporating or developing an FEP into their management process. To date, the Gulf and Caribbean Councils do not have a completed FEP, but are actively working towards it. LGL has been tasked with developing a white paper that would summarize this information and be included in the final report. This work is still in progress.

Dr. Heyman noted that developing an FEP is not a one-size fits all project, and that Councils have taken different approaches to ecosystem-management depending upon available data, species managed, regional fishing practices, and jurisdictional boundaries. For example, two regional management councils (i.e., Western Pacific and Caribbean) have reframed their management structure around large marine spatial areas or island-based management. The amount of available data on managed species does not seem to dictate the approach on how to incorporate ecosystem-based fisheries management. Some regions adopt heavily quantitative ecosystem approaches to take advantage of available data, while other regions appear to embrace

ecosystem approaches in spite of data limitations that have necessitated the exploration of alternative holistic approaches.
The ETC asked if the other Councils with FEPs had clearly defined goals and objectives and if so, do they seem to have a better outcome at incorporating the FEP into their decision making. The ETC also warned about spending too much effort on developing an FEP without clear goals and too much background information as it can result into a document that could not be fully incorporated into the management process.

The ETC had questions about the vision and goals of the work done to date. The group debated between establishing goals in a top-down matter (i.e., stemming from the Council and NOAA) versus bottom-up (i.e., stemming from stakeholder concerns). The possibility of going through a visioning process has been discussed various times by advisory bodies and the Council. Council staff reminded the group that the scope of work was to hire a consultant that would help develop a framework for ecosystem management. Visioning was something that had been considered during earlier efforts, but is not being considered at this time. Instead, the Council might consider conducting a visioning process for very specific issues at a future time.

Dr. Heyman stated that the FEP should be defined through a shared vision and investigated at an appropriate subregional scale. He stressed the importance of establishing a pathway for inter-agency collaboration when ecosystem issues expand beyond geopolitical lines and he argued the Council is uniquely positioned to handle these issues given the diversity of participants. Additionally, he recommended that marine protected areas (MPAs) in the Gulf should not be considered in isolation, but thought of as a network that functions effectively for fishery production and to encourage stakeholder buy-in.

> **<u>Motion</u>: The ETC approves the use of a Fishery Ecosystem Issue (FEI) approach as a practical approach to incorporate additional ecosystem information into the management process. The ETC encourages some additional attention to develop clear goals and objectives at the beginning of the conceptual modeling process, including the diverse stakeholders included in the Consultant's proposed Stakeholder Mapping Template. The ETC also encourages LGL to identify tradeoffs associated across each of the FEI's, to begin to develop ecosystem level goals and objectives to track the status of ecological and socioeconomic sustainability.**
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> ***Motion carried with one abstention.***

The ETC also requested the opportunity to review the consultant's deliverables in document format at another meeting before the end of the year 2021. Council staff will work on re-convening the group once materials are available to be distributed and reviewed.

Dividing the Gulf into Eastern and Western Components
Dr. Mudrack provided ecological rationale for dividing the Gulf into western and eastern portions when considering ecosystem management approaches. Since the 1960s and 1970s, DeSoto Canyon has represented a natural barrier to species distribution when coupled with underlying predominate ocean currents. Additionally, freshwater inflows drive this general

east/west species distribution, with the Mississippi River largely contributing approximately 95% of the freshwater output found in the western Gulf. More specifically, several managed species also exhibit a nearshore habitat component during the juvenile portion of their life history. This could create the need for a further sub-region examination of ecosystem processes with the broader east/west division.

A member of the ETC inquired about the Council's use of spatial management in its Fishery Management Plans (FMPs). Council staff provided examples of spatial management used in the Reef Fish and Coastal Migratory Pelagics FMPs.

Public Comment
Chad Hanson from the Pew Charitable Trust commends the discussions during today's meeting, and encourages the group to continue discussing the development of an FEP for the Gulf, as well as its efforts towards identifying short-term and long-term goals.

Other Business
No items were brought up for discussion.

Meeting was adjourned at 5:17 pm.

Participants

Ecosystem Technical Committee
Mandy Karnauskas, Ph.D., Chair
Casey Streeter, Vice Chair
Eric Brazer, Jr.
David Chagaris, Ph.D.
Michael Drexler, Ph.D.
Nick Farmer, Ph.D.
Joshua Kilborn, Ph.D.
Matt McPherson, Ph.D.
Steven Saul, Ph.D.
Steven Scyphers, Ph.D.

Council Liaison
Bob Shipp, Ph.D.

Council Staff
Natasha Méndez-Ferrer, Ph.D.
John Froeschke, Ph.D.
Carrie Simmons, Ph.D.
Camilla Shireman
Bernadine Roy
Lisa Hollensead, Ph.D.
Ava Lasseter, Ph.D.
Jessica Matos

Public
William Heyman, Ph.D.
Nathan Putnam, Ph.D.
Steven Atran
April Cook
Carissa Gervasi
Bob Gill
Chad Hanson
Julien Lartigue
Rich Malinowski
Matthew Malphurs
Sharon McBreen
Peter Mudrak
Kelli O'Donnell
Jay Odell
Miriam Olivares
Ashford Rosenberg
Joe Serafy
Savannah Swinea
Brendan Turley
Orian Tzadik, Ph.D.
Eric Weissberger
David Yoskowitz
Donnie Duane Jackson Sr
Jason Landrum
Rob Maddox
Nick Owens
Mariana Steen