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Summary Report

Habitat Protection and Ecosystem-Based Management
Advisory Panel Meeting
Florida Fish and Wildlife Conservation Commission (FL FWCC)
Florida Fish and Wildlife Research Institute (FWRI)
St. Petersburg, Florida
October 22-24, 2019

Tuesday, October 22, 2019 9:00 A.M. – 4:36 P.M.

Members of the South Atlantic Fishery Management Council (Council)'s Habitat Protection and Ecosystem-Based Management Advisory Panel (AP or Panel) convened on October 22 at the Florida Fish and Wildlife Conservation Commission's Fish and Wildlife Research Institute in St. Petersburg, Florida, to discuss topics pertaining to the conservation of fish and fish habitat and activities advancing Ecosystem Based Fishery Management (EBFM) in the region. The Panel operates on consensus therefore no motions are provided.

[NOTE: Meeting agenda and overview may be found at: https://safmc.net/download/Briefing%20Book%20Habitat%20Ecosystem%20AP%20October%202019/AgendaOverviewHabEcoAPMeetOct19.pdf]

The Advisory Panel (AP) was convened by AP Chair Anne Deaton (North Carolina Division of Marine Fisheries; also Chair of the NC Subpanel). Chair Deaton asked that members and guests provide introductions. The following AP members were present: Dr. Rene Baumstark (FL), Dr. Laurent Cherubin (NOAA-CIOERT), Dr. Cynthia Cooksey (NOAA-NMFS), Anne Deaton (NC), John Ellis (NC, USFWS), Dr. Lisa Havel (ASMFC), Dr. David Glenn (NC), Brian Hooker (USDOI, BOEM), Thomas Jones (GA), Dr. Wilson Laney (NCSU, Department of Applied Ecology, and the Council's Regional Habitat/Ecosystem Scientific Liaison), Rita Merritt (NC), Dr. Steve Ross (UNC-Wilmington), Shane Staples (NC), Capt. Jeff Soss (SC), and David Webb (FL). Additional guests present included: Dr. Heather Coleman (NOAA), Beth Dievany (FL Keys National Marine Sanctuary), Lauren Gentry (FL FWCC, Information Science and Management Fisheries Biologist), Dr. Luke McEachron (FL FWCC, Marine Ecologist) Tina Udouj (FL FWCC, Assistant Research Scientist), and Steve Werndli (FL Keys NMS).

Council members present included the Chair and Vice Chair of the Council's Habitat Protection and Ecosystem Based Management Committee, Steve Poland (NC), and David Whitaker (SC). Council staff present included Roger Pugliese and Cierra Graham. Roger reviewed the changes

to the agenda. The AP approved the agenda as modified, and the minutes from the May 2019 meeting as transcribed (Attachment 1; https://safmc.net/download/HabEcoAPMin_May19.pdf). Chair Deaton asked all members to keep the Fishery Ecosystem Plan Two-Year Road Map in mind during the meeting.

The following topics (**bold font**) were addressed during the meeting by the indicated presenters. Links are provided to the presentations given to the meeting participants, and a summary of the presentation and any recommendations by the AP to the Council or staff are provided below each topic heading.

NOAA Fisheries EBFM in the South Atlantic Region: Update on Activities Supporting FEP II Implementation Plan Two Year Roadmap: *Presenters: Dr. Todd Kellison, NOAA Fisheries SEFSC, Michael Burton, NOAA Fisheries SEFSC, and Dr. Kevin Craig, NOAA Beaufort Lab (Todd and Mike via webinar).* (Attachment 2) https://safmc.net/download/Briefing%20Book%20Habitat%20Ecosystem%20AP%20October%202019/A02_NOAAFisheriesEBFM%20Update%20Oct%2019.pdf

Presentation Summary: Dr. Kellison addressed the **South Atlantic Ecosystem Status Report (ESR)**. The ESRs are intended as updates on ecosystem condition and are done every three to five years. The reports examine trends over time in environmental conditions and resources. The AP was provided with specific examples of the information which will be provided within the ESR, including the Atlantic Multidecadal Oscillation (AMO) time series for the South Atlantic and temperature. There is some indication of an increasing trend in some of the indicators during recent years, but overall things have been pretty stable for the last two decades. Fishery data from the independent (trap) survey reflect a general downward trend over time. Recreational catches have been trending upward. Status of stocks is also tracked in the ESRs. Dr. Kellison indicated that NOAA welcomes feedback and input with respect to additional information to include in the ESR. He indicated that the draft report was due by the end of 2019 or early 2020. The ESR directly addresses multiple actions in the Council's Fishery Ecosystem Plan II Road Map (see the presentation for specifics).

Dr. Kellison next addressed the **South Atlantic Climate Vulnerability Assessment (CVA)**. A number of individuals present in the meeting are engaged in that process (Gentry, Laney, Poland). Dr. Kellison noted that Mike Burton and Mark Nelson of NOAA have the lead for the CVA. The CVA is a tool to determine which stocks/species will respond with a shift in abundance or productivity to a changing climate. It employs a set methodology. The South Atlantic CVA is assessing 69 species. Todd reviewed the steps in the CVA process, as well as the methodology. The method fundamentality assesses species-specific sensitivity to climate change across a suite of life-history characteristics (sensitivity attributes). These are: complexity in reproduction, spawning cycle specifics, dispersal of early life stages, early life history survival and settlement requirements, habitat specificity, prey specificity, adult mobility, pH preferences, thermal preferences, population growth rate, stock size/status, and other stressors (e.g., harmful algal blooms, invasive species, etc.). Todd and Mike reviewed the methodology in detail. The final report is due in 2020. The CVA also addresses actions in the Council's Fishery Ecosystem Plan II Road map (see presentation).

AP Discussion and Recommendations: Chair Deaton inquired regarding reef fish diversity as a component of the ESR. Dr. Kellison indicated they have not looked at species diversity, only relative abundance. Mr. Pugliese noted that the diversity question was a really important one and suggested that the ESR really should be designed to meet the needs of management and enhance the ability of Council members and staff to address management issues. He suggested that data from coastal trawl surveys (e.g., SEAMAP) should be incorporated in the ESR and may shed some light on changes in the ecosystem. He suggested looking at what other NOAA regions have included in their ESRs. Dr. Kellison noted that review of the report would be critical and asked if Roger was specifically asking about species distribution shifts. Yes, he was. Dr. Kellison noted that they don't have a lot of information to assess changes in distribution, but he would follow up with Roger. Todd indicated that one issue hampering comparisons across time was changes in survey methodology. Other topics raised by AP members included whether the ESR would include any information on hypoxia, especially in the South Atlantic estuaries; coverage of submerged aquatic vegetation (SAV); and information on whether shallow-water groupers are moving offshore earlier (requested by a Snapper-Grouper AP member). Members discussed the availability of temperature data for the South Atlantic. Members noted that in addition to climate change, shifts in underlying oceanography may be driving some of the observed changes in the region. The CVA was briefly discussed. Todd and Mike noted that it will not address the question of species distribution shifts. Chair Deaton noted that North Carolina is also conducting an assessment as part of the E.O. 80 process [see: https://governor.nc.gov/documents/executive-order-no-80-north-carolinas-commitment-address-climate-change-and-transition].

Energy Development Activities in the South Atlantic: *Presenter: Brian Hooker, BOEM.* (Attachment 3)
https://safmc.net/download/Briefing%20Book%20Habitat%20Ecosystem%20AP%20October%202019/Late%20Materials/A03_%20Atlantic%20Renewable%20Energy%20Program%20UpdateOct19.pdf

Brian provided a thorough and comprehensive update on offshore renewable energy development activities for both the Atlantic and Pacific coasts. There have been no new leases since his last briefing to the AP. Topics addressed included leasing, Site Assessment Plans, and Construction and Operations Plans, with a focus on those near or in the SAFMC's jurisdiction (Coastal Virginia Offshore Wind, and Kitty Hawk Offshore Wind, the latter being conducted by Avangrid Renewables). Brian provided details about the Kitty Hawk project (see Attachment 3), including the types of surveys being done, and preliminary survey results for some of them (i.e., they have found a lot of sea turtles, and bow-riding dolphins). Brian noted that Avangrid has hired Rick Robbins, former chair of the Mid-Atlantic Fishery Management Council, as their Fishery Liaison. Brian noted that BOEM will be soliciting for new studies under their Environmental Studies Program and asked that AP members keep that in mind. New study starts were reviewed. Brian indicated that a Responsible Offshore Science Alliance has been formed and is looking for an Executive Director.

AP Discussion and Recommendations: AP members inquired regarding site survey data storage, availability and release. All data will eventually be archived and publicly available, but there may be a three-year embargo period for some data. Some developers are willing to release

bathymetric data earlier. The BOEM was complemented for requiring comprehensive studies on each lease site, and for enabling the release and public use of the data. Chair Deaton asked specifically about the shore cable corridor options and whether an NC option was still under consideration. Brian advised all options remain on the table. Dr. Laney noted that the corridor options cross nearshore areas historically used as wintering habitat and as migration corridors by Atlantic Sturgeon and Atlantic migratory Striped Bass. Brian noted that BOEM has funded acoustic telemetry studies for these species and those studies will be ending soon.

Ecosystem Considerations: Prey supporting Dolphin Wahoo Fisheries: Update: Bullet and Frigate Mackerel as Ecosystem Component Species to the Dolphin Wahoo Fishery Management: *Presenters: Steve Poland, Roger Pugliese.* (Attachment 8)
https://safmc.net/download/Briefing%20Book%20Habitat%20Ecosystem%20AP%20October%202019/A08_Dolphin%20Wahoo%20Amend%2012Options%20Paper.pdf

Roger and Steve briefed the AP on the status of this Ecosystem Component (EC) species designation for Bullet and Frigate mackerels. The Amendment 12 Options Paper was reviewed. The Council is moving forward with scoping for EC designation, but other potential measures are on hold until NOAA General Counsel (GC) provides input at the March 2020 Council meeting. Steve noted that the Council's Science and Statistical Committee (SSC) had weighed in the previous week and also supports EC designation, as well as recommending the same designation for some additional species. Steve explained the NOAA GC legal concerns.

AP Discussion and Recommendations: The AP discussed the NOAA GC concerns, as well as the designation of a lead Council and how that affects species management. Steve noted that the Council is testing the waters so is moving slowly with the designation. Roger noted that under the Council's Fishery Ecosystem Plan, a goal is to advance the science of both managed and unmanaged species, including prey. Wilson noted that both Bullet and Frigate mackerels are important prey for other Highly Migratory Species (HMS) such as Blue Marlin, in addition to Wahoo and Dolphin. The AP discussed whether it would be possible for NOAA's HMS Division to specify EC designations.

12:00 Noon - 1:28 P.M. Lunch

The meeting reconvened following the lunch break. Anne introduced the next presenters.

Florida Keys National Marine Sanctuary Plan: **DEIS FKNMS Marine Zoning and Regulatory Review**: *Presenters: Beth Dieveney, Florida Keys National Marine Sanctuary (FKNMS) and Steve Werndli (FKNMS).* (Attachments 4-7)
https://safmc.net/download/Briefing%20Book%20Habitat%20Ecosystem%20AP%20October%202019/A04_SAFMC%20ONMS%20304a5letter_22AUG2019.pdf

https://safmc.net/download/Briefing%20Book%20Habitat%20Ecosystem%20AP%20October%202019/A05_DEIS_FKNMSRestorationBlueprintAug19.pdf

https://safmc.net/download/Briefing%20Book%20Habitat%20Ecosystem%20AP%20October%202019/A06_FKNMS%20Zone%20Summary%202019.pdf

https://safmc.net/download/Briefing%20Book%20Habitat%20Ecosystem%20AP%20October%202019/A07_FKNMS_DEIS_304a5presentationOct19.pdf

AP Discussion and Recommendations: [**NOTE**: The October 22 presentation by Florida Keys National Marine Sanctuary staff, and the AP deliberations and summary, as well as the AP's consensus recommendation to the Council, were provided in a separate document to the South Atlantic Fishery Management Council for review and action at their December 2019 meeting and the document may be found at the following link (document also includes the Coral AP information):
https://safmc.net/download/Briefing%20Book%20Council%20Mtg%20Dec%202019/TAB%2010%20-%20Full%20Council/TAB10_A1b_FKNMS_CoralHabAP_Comments.pdf

Roger introduced the presenters for the next presentation on the progress of the Council's Ecopath with Ecosim (EWE) model.

South Atlantic Ecopath with Ecosim Model: Update on Development of Next Generation Ecopath with Ecosim Model: *Presenters: Lauren Gentry, FWRI and Luke McEachron, FWRI.* (Attachments 9-11)
https://safmc.net/download/Briefing%20Book%20Habitat%20Ecosystem%20AP%20October%202019/A09_SAFMC_EcopathPathForwardSep19.pdf

https://safmc.net/download/Briefing%20Book%20Habitat%20Ecosystem%20AP%20October%202019/Late%20Materials/A10_Update_Construction%20of%20the%20Ecopath%20Diet%20%20Matrix_Gentry_Oct19Final.pdf

https://safmc.net/download/Briefing%20Book%20Habitat%20Ecosystem%20AP%20October%202019/Late%20Materials/A11_EcospaceDevelopmentUpdate_McEachron_Oct19_Final.pdf

Lauren Gentry had been working on the diet component of the model for a year. She noted that the current version now has 140 species groups (102 of them vertebrates), representing about 670 species. There are some single species groups, but most groups contain multiple species. The 140 by 140 cell diet matrix feeds the EWE model. Lauren explained in detail how she developed a metadata approach for scoring data reliability from 0 to 6 and explained how she can use the database to evaluate the data. She explained the changes made at the July Modeling Workgroup meeting. The data are useful for other purposes, including the CVA, the Ecospecies Database, and for developing comprehensive prey lists. They also are useful for identification of data gaps, and for identifying interesting or valuable interactions (examples: Shortfin Mako consuming 80 percent Bluefish; Blue Marlin consuming 80 percent *Auxis* mackerels; and Red Snappers consuming Black Sea Bass). Lauren reviewed the next steps in the modeling process, which include filling in diet data gaps, QA/QC estimates for biomass and discard mortality, determining predator/prey vulnerabilities, and conducting QA/QC for the time series. In addition, the spatial dimension must be added, and major habitat constraints determined.

Luke McEachron provided the update on the Ecospace component of the model. He defined Ecopath, Ecosim and Ecospace for the AP: the first represents a snapshot in time (Ecopath); the

second trophic dynamics over time (Ecosim); and the third trophic dynamics over time and space (Ecospace). Luke provided details of how the spatial component of the model functions. He also went into some detail regarding the outcome of the July Modeling Workgroup review, at which maps, and environmental drivers were discussed, and 70 possible covariates were ranked by their "importance." The top six variables were: depth, temperature, current velocity, salinity, DO range and pH. The distribution of biomass in Ecospace will reflect the influence of the environmental drivers. Luke shared the results of a model trial run they had conducted for 2017, and modifications made as a result. The next steps will include: review panel webinar Nov/Dec; Ecopath and Ecosim balancing; continuing to investigate environmental relationships and data availability given resolution tradeoffs; and an Ecospace development update provided at the April 2020 SSC meeting.

AP Discussion and Recommendations: With respect to the diet matrix, members were asked to provide any additional diet information they may have to Lauren for incorporation into the diet matrix. Dr. Laney had already done so for Atlantic Sturgeon, and Striped Bass, following the CVA workshop in Beaufort, NC. Chair Deaton clarified that the model output was in biomass. Luke noted that was correct and that the diet matrix was key to defining relationships. Temperature influences the interactions. The AP discussed the challenges associated with getting assessment scientists to use such models. Roger noted that the Council's SSC is providing direct input and is being routinely briefed, which is a positive step. The Habitat AP will have the opportunity to discuss management strategy evaluations that we would like to see, during 2020. Dr. Baumstark noted that managers in Florida really want to know how red tides affect things. The FWRI will host the model and the Council will continue working to advance this into the future. Luke explained in response to a question how the model could be used to explore the effect of increasing temperature. The AP is excited about the prospects of exploring various habitat scenarios using the model.

Wednesday October 23, 2019 9:06 A.M. – 5:19 P.M.

Chair Deaton convened the second day of the meeting and introduced the first presenters.

Mapping/Characterization of South Atlantic Deep Water Ecosystems: 2019 Activities including: 2019 ocean exploration expedition in the South Atlantic region on NOAA Ship Okeanos Explorer "Windows of the Deep;" and 2019 "Deep Search" research expedition on NOAA Ship Ronald H. Brown: *Presenters: Kasey Cantwell, NOAA Office of Ocean Exploration and Research and Heather Coleman, Deep Sea Coral Research and Technology Program*. (Attachments 12-14)
https://safmc.net/download/Briefing%20Book%20Habitat%20Ecosystem%20AP%20October%202019/A12_Windows%20to%20the%20Deep%202019%20Exploration%20of%20the%20Deepsea.pdf

https://safmc.net/download/Briefing%20Book%20Habitat%20Ecosystem%20AP%20October%202019/A13_Deep%20Search%202019%20Mission%20Planand%20Highlights.pdf

https://safmc.net/download/Briefing%20Book%20Habitat%20Ecosystem%20AP%20October%202019/A14_DeepSeaResearch%20Presentation%20Oct%2019.pdf

Heather Coleman provided a brief introduction to the presentations and noted that all the work accomplished was responsive to the Council's mapping priority. Kasey summarized the work accomplished or ongoing during the Windows to the Deep 2019 cruises, using the NOAA ship *R/V Okeanos Explorer*, as well as the Deep Search 2019 cruises conducted aboard NOAA ship *R/V Ronald H Brown*. Kasey and Heather showed the AP a lot of video footage from the cruises. In addition to mapping deepwater corals, the cruises are exploring methane seep sites. They have mapped 14,000 square kilometers of the Coral Habitat Area of Particular Concern (HAPC) and conducted 19 remotely operated vehicle (ROV) dives. They have been focused on mapping the Blake Plateau. The cruises have accomplished a lot and many details of their discoveries were provided in the presentations (see above-provided links). Key takeaway findings included: areas of the Blake Plateau that were expected to be featureless/soft sediment, contain extensive coral habitat; mapping continues to reveal additional potential coral habitat; and distribution of Lophelia on the Blake Plateau is much greater than originally thought. Details were provided regarding some of the explored areas, such as the Bodie Island Seep off NC (see the presentation). The researchers also documented a 15th-Century shipwreck. Kasey also summarized SEABED 2030, which is a program to secure 100-m resolution maps of the entire US Exclusive Economic Zone (EEZ).

<u>AP Discussion and Recommendations</u>: AP members asked a lot of questions. Kasey's office does not do change analysis; however, she indicated that the data they gather are available for such use by other researchers. Dr. Ross noted that *Lophelia* corals cannot be aged. David Webb asked about the geology of the coral mounds; they are biogenic in origin and some are thought to be as old as 1.5 million years. Dr. Cherubin asked about currents in the vicinity of the mounds. Kasey indicated that they can be low, especially in the lee of the mounds. Interesting temperature and salinity anomalies have been observed and scientists are working with oceanographers to address some of these. Laurent noted that it is important to understand hydrodynamics, in order to understand larval transport and recruitment dynamics. Dr. Ross noted that he and colleagues are working on papers looking at genetic connectivity and relationships between seep communities. Roger noted that work with these key partners needs to continue and hoped that the data can be integrated into the ecosystem model. Kasey noted that everywhere they cruise, they are collecting data for BOEM as well. Capt. Soss asked about observations of anthropogenic debris, and Heather indicated that plastics were commonly observed, along with lots of balloons and fishing gear. Roger noted the more we understand the characterization of the area, the more insight the Council has regarding management. There was discussion of the genetic uniqueness of some of the species populations present at some of the individual seep sites (mussels and bat stars). Roger noted that the Law of the Sea may be modified to authorize countries to expand their EEZs to 300 miles, from the current 200. The AP expressed its interest in continuing a dialog with Heather and Kasey, and other partners, regarding the establishment of sentinel sites in the Council's jurisdiction, to enable future change detection.

Fishery Independent Research in the South Atlantic Region: Southeast Reef Fish Survey (SERFS): 2018 Update Sampling Activities and Relative Abundance: *Presenters: Dr. Walter Bubley, Tracey Smart, SCDNR, and Dr. Marcel Reichtert, Marine Resources Division*. (Attachment 15)

https://safmc.net/download/Briefing%20Book%20Habitat%20Ecosystem%20AP%20October%202019/Late%20Materials/A15_2019%20Reef%20Fish%20Survey%202018_Overview_Oct19.pdf

Dr. Bubley gave the presentation on behalf of Dr. Marcel Reichert. Wally noted that the SE Reef Fish Survey is a collaboration of three different programs (MARMAP, SEAMAP and SEFIS) using four research vessel platforms: *R/V Savannah* (University of Georgia), *R/V Pisces* (NOAA), *R/V Palmetto* (SCDNR), and *R/V Lady Lisa* (SCDNR). The target habitat for sampling in the SEFIS is low to medium relief, live bottom, using Chevron Video bottom traps, and a short bottom longline. The surveys have been standardized since 1990. Wally provided the details of the sampling methods and randomly selected stations. He reviewed data processing and data gathered in each time series. He summarized the 2018 data and reviewed the most commonly encountered species (the top five were: Tomtate, Black Sea Bass, Vermillion Snapper, Scup and Longspine Porgy, and White Grunt). Red Snapper was Number 6. Wally reviewed the fishery-independent abundance trends, by species, for the time series (1990 through 2018). Trends vary depending upon the species. Wally also provided some age and length data for selected species, and reviewed the sampling being done in 2019.

AP Discussion and Recommendations: The AP clarified how many cruises were accomplished during 2019. Roger noted how critical the data gathered by these fishery independent cruises are for conducting assessments.

SAFMC Citizen Science Program Research Prioritization: Citizen Science Research Prioritization –Webinar Presentation: *Presenter: Julia Byrd, Citizen Science Program Manager, SAFMC*. (Attachments 16-19)
https://safmc.net/download/Briefing%20Book%20Habitat%20Ecosystem%20AP%20October%202019/A16_SAFMC_CitSciBackgroundOverview.pdf

https://safmc.net/download/Briefing%20Book%20Habitat%20Ecosystem%20AP%20October%202019/A17__SAResearchPlan_2019-Approved.pdf

https://safmc.net/download/Briefing%20Book%20Habitat%20Ecosystem%20AP%20October%202019/A18__SAFMC_CitSciResearchPriorities_Adopted_06_2018.pdf

https://safmc.net/download/Briefing%20Book%20Habitat%20Ecosystem%20AP%20October%202019/A19_SAFMC_CitSciProjAdv_ResearchPriorities_9.22.2019.pdf

Julia Byrd gave the presentations regarding the Council's Citizen Science Program, and its Research Prioritization process. She asked for AP input regarding the appropriateness of the research proposed as well as the priority of the proposed work.

AP Discussion and Recommendations: In response to Julia's request for input, the AP members provided detailed recommendations for each Citizen Science research priority. In the interest of brevity, those detailed recommendations and comments are not provided in this summary;

however, they are available upon request (request a copy of the file from Julia, or Roger). Julia captured all the comments and recommendations within her presentation. Two AP members (Dr. David Glenn, and Capt. Jeff Soss) volunteered to serve as Habitat AP points of contact.

1:22 - 2:42 P.M. Lunch

Chair Deaton reconvened the meeting and asked that members organize themselves into breakout groups, with NC and SC representatives together, and GA and FL representatives together.

State Panel Breakout Sessions and Web Services Access / Training: *Facilitators: Lauren Gentry, Tina Udouj, FWRI.* (Attachments 20, 22; breakouts; Attachments 21, 23; training)
https://safmc.net/download/Briefing%20Book%20Habitat%20Ecosystem%20AP%20October%202019/A20_SAFMC%20FEP%20II%20Two%20Year%20Roadmap.pdf

https://safmc.net/download/Briefing%20Book%20Habitat%20Ecosystem%20AP%20October%202019/A21_%20EcoSpeciesWebUserManual.pdf

https://safmc.net/download/Briefing%20Book%20Habitat%20Ecosystem%20AP%20October%202019/A22_SAFMC_HabitatPolicy_ClimateVariabilityFisheries_Final_Dec2016.pdf

https://safmc.net/download/Briefing%20Book%20Habitat%20Ecosystem%20AP%20October%202019/A23_SAFMC%20Habitat%20Ecosystem%20Web%20Services%20User-Guide.pdf

Training Sessions: Access to updated Webservices and running Ecospecies query: AP members were trained in the use of Web Services Access and ArcGIS Online.

Breakout Session: Input on State Activities addressing FEP II Implementation: participants in each of the two breakout groups worked together to identify State activities initiated or undertaken addressing actions in FEP II Roadmap, and State activities associated with climate change and extreme event planning. The NC/SC Group consisted of Cooksey, Deaton, Ellis, Glenn, Laney, Merritt, Pugliese, Ross, Soss, and Staples. The GA/FL Group consisted of: Baumstark, Cherubin, Havel, Hooker, Jones, and Webb. Laney and Pugliese facilitated both groups in succession, beginning with the NC/SC Group. Each group used the Two Year Roadmap document as a guide for their discussion.

NC/SC discussion/deliberations: Roger noted that NC is at the forefront of climate change. Anne indicated that she would just walk us through the Road Map and share what NC is doing. Under Chapter 1, Action 5, NC Division of Marine Fisheries (NCDMF) has compiled salinity data, in collaboration with the NC Wildlife Resources Commission (NCWRC), and projected salinity contours under high- and low-flow conditions. NOAA is also compiling chlorophyll data in order to evaluate algal bloom occurrence. Cindy noted that she could speak to everything that SC is doing. She noted that she got funding from the U.S. Army Corps of Engineers (USACOE), for a Folly Beach renourishment study during summer. Summer deposition was not previously authorized; however, the study was offered as a compromise so that they can look at the subtidal trophic state and conduct diet studies during beach fill activities. Steve Ross noted that the National Estuarine Reserves have a system-wide monitoring program which is better

than just point data. They monitor DO and other parameters. Wilson suggested that such a program could serve as a model for other agencies. Steve noted that was the hope, but it hasn't yet happened. Wilson noted that agencies have collaborated to fund continuous water quality monitoring stations on the Roanoke River in NC. Steve noted that in the Gulf of Mexico, someone has compiled all the diet data. He indicated he could provide that information. Roger reminded us that Lauren Gentry has compiled diet information for species in the South Atlantic. Steve indicated that he and colleagues are compiling everything having to do with trophic change. Wilson noted the recent paper in Science, on change in the marine biome.

The group moved to Chapter 2, Action 3. Anne noted the NC governor has established a group to produce a climate science report, which involves all of the NC cabinet agencies. They are doing their own climate assessment. Anne is on the Working Lands Group, which is looking at how to increase resilience, and enhance recovery. That report should be done in March 2020. All the agencies are being required to develop ways to reduce their carbon footprints. Recommendations include buying more land for conservation, preserving the opportunity for marsh to migrate inland, i.e., establishing habitat migration corridors. Another recommendation is to reduce methane emissions from hog waste lagoons. Wilson shared several articles of possible interest, including one on feeding cattle algae to reduce methane emissions, and another paper in preparation by Yurek et al., which reports on a new oyster reef model. Anne noted that is an upcoming seminar for which she will provide us the details, and it is open for participation. Roger mentioned the Southeast Conservation Adaptation Strategy (SECAS). This initiative was developed by the Southeast Association of Fish and Wildlife Agencies (SEAFWA). It seeks to develop a seamless plan for ecosystem sustainability across the entire southeast US. A lot of work has gone into the SECAS. Dr. Rua Mordecai of the South Atlantic Landscape Conservation Cooperative (SALCC) had brought it to Roger's attention. Wilson wasn't sure that the state marine agency directors were all fully engaged in SEAFWA. Roger noted that SECAS is coordinated across all of the State Wildlife Action Plans (SWAPs).

Cindy noted that the USACOE led an initiative to identify vulnerabilities and increase resilience, including for Essential Fish Habitat (EFH). She noted that NOAA has engaged. This is occurring in the South Atlantic, as the South Atlantic Coastal Study. Wilson noted that this is exactly what we discussed at our last AP meeting; the hope is that we could use any results from this and other studies in the southeast to possibly form the basis of a new Council guidance document. Roger noted how valuable this would be. Cindy noted that Charleston has been engaged in the "Dutch Dialogs" which entails some restoration as living shorelines. Also, they are looking at removal of the New Savannah Bluff Lock and Dam (NSBLD), and NOAA is taking a look at Santee-Cooper. Wilson verified that the Corps was in fact now looking at the removal option for NSBLD, since previously they were considering a natural channel bypass. John Ellis asked if the Corps is getting more into the weeds with SC, since in NC, they are still just asking about resource locations. Cindy said they are perhaps into Tier II in SC, whereas NC may still be in Tier I. She noted the Corps is also doing a Charleston Flooding Study, which is looking at "sunny day" flooding. They are also looking at such flooding in other locations. Anne asked Cindy to discuss the Charleston tunnels, designed to convey floodwaters off, with a discharge to the Ashley River. Cindy noted that a lot of municipalities are looking into marsh drainage. She noted that it is not a long-term option. Anne noted that some of this is happening for agricultural purposes. Shane noted that in eastern NC, they are constructing dikes, e.g. in

Swanquarter. They were supposed to come up with a drainage plan. They put tide gates in the canals, but the water level outside was higher than inside. Towns like Belhaven, and Engelhard, both flood now with 10-knot winds blowing est. Anne noted the dike was touted as successful, so others may want dikes as well. Shane noted there are very old marsh ditches, and some people want them dug deeper, but storage is also not the answer. Shane noted some of the lands would revert to marsh, very fast, if management ceased. Anne noted that would be good for EFH, and for fish. Cindy noted they have begun discussions with Ducks Unlimited about letting some of their impoundments revert to a natural state. The AP could encourage such reversion. Wilson noted waterfowl is one taxon which generally has increased, not decreased. John Ellis noted that wasn't necessarily true at a local level. Roger noted it makes no sense to not take advantage of such opportunities. Cindy noted they don't want to disadvantage waterfowl hunters. Wilson indicated that he would query National Wildlife Refuge colleagues to determine what the current guidance is with respect to dike rehabilitation in areas subject to SLR.

The group moved to Chapter 3, Marine Aquaculture. David Glenn stated that the plan is to use National Weather Service data for shellfish aquaculture harvest and thereby avoid closures. This is focused on NC. Wilson and Anne thought that was relevant. David indicated that North Carolina State University (NCSU) and NOAA (Dr. Ken Riley) are part of this program. Anne noted that is more about economic resilience, also the incentive will be to maintain water quality. She noted that will resonate with legislators. John Ellis noted the NC Emergency Management Division is very active in buying and removing threatened homes. David Glenn noted that there are a lot more tidal monitoring stations now as well. Wilson noted that the U.S. Geological Survey (USGS) has been doing a lot of pre- and post-storm monitoring.

Anne turned to Chapter 4, SAV. NC is developing indicators, through the Albemarle Pamlico National Estuary Partnership (APNEP) and NCDMF. She noted that NC may now be Number 1 in terms of the area of SAV, since FL has lost so much. Anne noted that Shoalgrass is moving north, and Eelgrass (*Zostera*) is less dense. She noted that the next iteration of the NC Coastal Habitat Protection Plan (CHPP) is underway. She noted also that a lot of SAV has been lost in Albemarle Sound, due to algal blooms.

Roger noted that we have discussed having an aquaculture session of the AP. He reminded us that the Gulf of Mexico Fishery Management Council (GMFMC) has already done a plan, which is under litigation. The SAFMC has been tracking the Gulf's issue. Anne noted that NC has been doing nothing with respect to aquaculture in the ocean. NC is considering establishment of oyster aquaculture zones. Shane noted that the NC Coastal Resources Commission (CRC) is looking into the permitting issues. Dr. Havel had joined the discussion and noted that if areas that are priority for recreational fishing can be identified, then perhaps we can keep such areas free for that use. Roger noted that we do need to identify such areas. Lisa noted the SAFMC was more specific about EFH designations, than MAFMC. They way they designated EFH, it turns out to be everywhere. Roger noted that Tina had helped us look at hard bottom habitat, so we can say, these areas need to be avoided. Roger and Lisa noted that both ASMFC and SAFMC had sent letters expressing concerns regarding seismic testing.

GA/FL discussion/deliberations: Roger and Wilson shared the approach that the NC/SC Group had used in recording their discussions, using the Two Year Roadmap as an outline for the conversation. The GA/FL Group agreed to proceed in the same manner.

Rene indicated that FL is also collecting data and compiling them under Action 5 of Goal 1. Roger agreed that Rene in particular has been doing a lot. Rene noted FL is also updating their environmental sensitivity maps, which they doo every five years or some. Tom Jones noted that GA is likely going to do the same; they have been dealing with the capsized car carrier vessel in Brunswick. Roger asked Rene about any information on the distribution of species, i.e., changing distributions, etc. Rene said they are using more acoustic tagging; they are getting more information all the time. The Gulf and Florida East Coast networks are now sharing data. They are doing more suitability monitoring, mostly at the estuary level. Roger noted they had highlighted ESI in the original EFH description for Cobia. Rene noted they are trying to create a similar program on the East Coast, similar to the Florida west coast. Wilson noted the historic NOS Estuarine Living Marine Resources (ELMR) Program and wondered whether it was going to be updated. Roger noted that we had used those reports in the original EFH designations. Wilson and Lisa noted that we had contracted with Moe Nelson and Mark Monaco to build a database of studies for the initial ACFHP assessment.

For Action 2 in Chapter 1, Development of food web indicators to summarize the state of knowledge of the South Atlantic ecosystem, Lisa updated us on the progress of the ASMFC in developing ecosystem-based reference points for Atlantic Menhaden. Roger noted this one ties to the Beaufort Ecosystem Characterization Report as well. Rene noted that FLDEP has put a lot of effort into a Coastal Zone Management project, through the Department of Environmental Protection, developing the SECAR program for the next four years. SECAR stands for Statewide Ecosystem Assessment of Coastal and Aquatic Resources.

The group moved to Chapter 2, South Atlantic Climate Variability and Fisheries. Roger noted that SERFS is providing information for offshore. Roger noted that Action 5 under Food Webs is being worked on by Luke McEachron. Wilson and Roger noted that the NERRs and National Estuary Programs can be source of such data. Laurent noted that the South Florida Water Management District, and the St. Johns Water Management District, have both compiled a lot of information. Someone in the Department of Civil Engineering at the University of Florida is the contact. The WMDs have data on water quality, water management, and SAV. They also have data layers showing how things have evolved. Roger noted that we did originally have WMD representation on the Habitat AP. We need to reestablish it.

The group moved on to the second issue. Rene noted that Florida is under a more informed administration now, so they can now discuss climate change and impacts. The local WMDs had moved ahead, regardless. The FLDEP has appointed a Chief Resilience Officer, and Chief Science Officer. The FWCC has always had a climate change presence. They are putting together a course. They have several things on their web site. Lisa noted that ASMFC has some guidance they have put together, which is on their web site. Wilson noted that he and John Ellis will definitely check with the USFWS with respect to current impoundment management and resilience. Roger asked for other comments. Rene noted that FL has a decision framework tool for living shorelines. Roger noted that is exactly for what we are looking. Lisa noted the Living

Shorelines Act just made it out of committee in the US House of Representatives. Also, ASMFC had released an update to their living shorelines guidance document.

The group moved to Chapter 3, Marine Aquaculture. Wilson briefed the GA/FL Group on the previous group's discussion on this topic. Roger noted that the Council Coordinating Committee (CCC) has concerns that Councils should manage aquaculture. He noted that national legislation could really change things. General permits could reduce considerations for EFH, and so forth. Roger noted that it would be beneficial to have a session on aquaculture for the AP. He noted that any issues for offshore aquaculture, would be the same as for inshore issues. Wilson asked Brian about the potential for combining offshore wind energy facilities and aquaculture. Brian noted that any such discussions would be between the lessee and aquaculturists. He noted that BOEM's discussions have been with respect to their leasing guidance, and also being able to understand the human use impacts. Also important is to understand the long-term aquaculture goals, i.e., reducing seafood imports by x amount, etc. Understanding any goals would be key. They are working through this issue in the NE. Brian noted he mentioned their aerial surveys, and acoustic work, previously.

Wilson summarized the previous groups comments regarding SAV, Chapter 4. Rene summarized FL's program. The monitor SAV by regions. Roger noted they wanted to go beyond the dashboard, and update for FL. The Council didn't want to reinvent the wheel. Roger noted the best case is to stick with state mapping and include detailed mapping. Rene noted they are doing the same thing for oysters, emergent wetlands, and mangroves. Lisa noted that the ACFHP will discuss making recommendations for monitoring SAV, along the East Coast, at their meeting next week. Roger noted the last action deals with SLR and assessing changes of habitats within the ecosystem. He noted Gag Grouper settlement is tied to SAV. We asked about any beach nourishment studies. Tom noted there are some efforts in GA; some island always needs more sand. Wilson asked Brian about BOEMS offshore sand survey. Brian indicated he will check into that work. Wilson and Roger noted that all the sand shoals are EFH. We collaborated on comments on the Cape Fear/Frying Pan Shoals proposed mining. Lisa noted that there is a new artificial reef guidance document forthcoming. It is a collaboration between NMFS, the ASMFC Habitat Committee and the Council.

Rene asked about updates to all of the AP action items and indicated that he could provide his comments as a Word document. Roger noted that was fine. All members should feel free to comment.

Chair Deaton recessed the AP meeting for the day at 5:19 p.m.

Thursday October 24, 2019 9:00 A.M. – 12:00 Noon

Chair Deaton convened the AP at 9:18 a.m. The AP reviewed the revised draft consensus statement regarding the Florida Keys National Marine Sanctuary. After discussion, a motion was made by Dr. Laney and seconded by Dr. Baumstark to accept the statement with revisions and pass it on to the Council at their December meeting. The motion passed unanimously.

[NOTE: as indicated earlier in this summary, the specifics regarding that motion may be found in another document as above-indicated.]

State Panel Breakout Session Report Out

Rather than having the two breakout groups report on their discussions of the previous afternoon, the AP decided to continue the Two Year Roadmap review as a committee of the whole.

Chapter 5, Beach Dredging/Re-nourishment and Large Scale Coastal Engineering: Steve Ross noted that we're going down the road as usual, when we all recognize that this action is a losing proposition. He is concerned. Wilson agreed, noting that Dr. Orrin Pilkey, and Ken Lindeman, had prepared a sand resources report. Roger noted that revisions to the policy can be entertained. Wilson noted his concern about summer deposition of sand on the beach. There is a lack of data regarding recovery of impacted fauna. Shane Staples also agreed that the study done, is erroneous. Cindy noted a lot of the research has been set aside in the interest of expediency. She noted that a three-to-five-year deposition cycle precludes recovery. They are working with SCDNR looking at productivity on impacted beaches. John Ellis noted that inadequate sampling in potential "borrow" sites often results in placement of inappropriate material on the beach. Then you have to remove that material, and further jeopardize the fauna during that process. Dr. Ross noted we don't need to debate all of the existing literature; we can say, in the current political and social climate, these beaches aren't going to be there. We need to look beyond this. Anne suggested the Council could encourage studies looking at the economics. She noted that a new study by Dr. Rob Young (Western Carolina University) shows it is cheaper to relocate, than to continue filling the beach. Wilson noted that Rob's study probably doesn't mention the lost ecosystem services. Anne agreed. Cindy noted the policy could be revised to encourage filling only during periods of low economic activity. Roger noted the AP could certainly address this need to take the policy from where it is now, into the future. Tom Jones noted that global warming and SLR will ensure the beachfront will be some place different in the future than where it is today. Steve Ross noted that is where he is getting to—we shouldn't ignore it—we need to look to a different future. Tom Jones noted he didn't want to violate any protocol. Roger noted we already set the stage, with the climate policy, so we can look at what the future of the beaches is. We know communities are addressing those issues. We are working toward going further on where we can be in the future. The context has changed. Wilson asked about the USFWS programmatic policy developed by the Ecological Services Field Office in Raleigh, NC, and whether we can pull some guidance from that document. John Ellis indicated he thought we could, recognizing it is mostly directed at sea turtles. Wilson agreed with Steve that it is time to revisit the policy and revise it accordingly. Steve noted we shouldn't tell the Council we need a 500-year plan, but we need to tell the Council we need a better view. Roger agreed and suggested we can list the points that need to be included in a revision. Some areas in SC are going to be gone. Areas which have created buffers will remain. Anne asked if we are going to express to the Council that we need to review the policy. Roger suggested we need to say in our review, the stage is set for Council review of the policy. Wilson asked if we need to make this an action item. Roger suggested we incorporate it in the review, it doesn't need to be a stand-alone item. David Webb asked if we need an Action 5, under this Chapter. Roger indicated we will report out on what the AP discussed. He noted that Steve Poland is here with us, as Chair of the Council's Habitat Protection and Ecosystem Based Management Committee. David Webb

suggested that we're saying, here's how it can be less horrific, but in the short-term, this will keep happening. He asked how we are doing to formally do this. Anne noted the whole AP can weigh in, and the AP is saying we want to revise the policy. Steve Ross wanted to have a stronger message, in a separate statement.

Steve moved the AP make a statement on this topic stating renourishment is a losing proposition, and it needs to be changed. David Webb didn't want to throw a bomb, noting that nourishment isn't the only issue that needs addressing. David wanted to have an answer, before he seconded the motion. Roger noted if we want further discussion, someone needs to second the motion. David seconded the motion. He asked Roger how to proceed. Roger noted that ultimately, the Council and NOAA engage n the policy. Concerns need to be addressed to the Council. Roger noted that this will be part of the bigger report to the Council, at their March meeting. That is when we need to highlight the concern. But Roger noted the AP can do what it wants to do. Steve Ross just didn't want the conversation buried somewhere. Roger noted that the statement of concern can be presented to the Council. He suggested we follow the consensus statement, then create a statement for policy revision, and a list of things to address. Cindy suggested delaying this issue until next year. At that time, SCDNR and NOAA will have the data on the loss of metric tons from the coastal food webs, due to beach filling (the Folly Beach study results). Roger noted that Steve wants to see a statement to the Council, now. We can address specifics at the AP May meeting. Shane Staples felt the motion is generic enough, but it isn't written down. Roger noted the motion could be withdrawn. Steve Ross concurred. A statement needs to be drafted and circulated to the AP. Roger noted we don't have to have this done now until March. The door will be open. We have time to make this as effective as possible. Wilson noted that in his opinion, mitigation has proven largely a myth, and it is primarily an administrative construct that we humans have erected to make ourselves feel better about impacting our planet. Roger and David concurred.

Chapter 6, Energy Exploration and Development: This chapter was not addressed by either group during the previous day's discussions. Roger noted the Council took a firm stand on seismic testing. He noted that we all thought this had gone away. The SCDNR found such testing inconsistent with their CZM plan. With respect to Action 2, maps of priority areas, the states are updating their sensitivity maps. Rene noted the joint NOAA/BOEM cadaster project, that is the focal database. Lisa noted the ASMFC comments to BOEM about avoiding impacts to HAPC designated by all the Councils. Roger noted he hopes our SAFMC system could collaborate with the NOAA system, under Action 4. He noted that having Brian as a partner in the AP has been really useful.

Chapter 7, Alterations to Riverine, Estuarine, and Nearshore Flows: David Webb noted this fit in to our discussion of beach filling. There are going to be lots of consultants from Holland counseling local communities. Anne noted TNC and the Corps in NC are developing recommendations on ecological flows. Roger noted that the policy does encourage consultations at the river basin scale. Wilson noted we could provide a table, river-by-river, showing departures from normal flows, the degree of negotiation, and degree of success, etc. Roger suggested we could work on that with the Southeast Aquatic Resources Partnership (SARP), and the SALCC. Rene noted that the FL governor has spun up a Blue-Green Algae Task Force. Wilson noted that would resonate well with NC in view of recent blooms on the Chowan and in

Lake Mattamuskeet. Roger asked Cindy about any new guidance with respect to barriers. Cindy noted that Fritz Rohde and Pace Wilber work on that guidance. Lisa noted that ACFHP has a new assessment which will be coming out once NOAA reviews it. She will share it with the AP once it is finalized.

Chapter 8, Non-Native and Invasive Species: Action 1 addresses novel gears, such as Lionfish traps. Roger noted that NOAA has been tracking and avoiding compromising the fish trap prohibition. He asked about other invasives. Rene noted that there are some other things we could address. Jeff Soss noted that Northern Snakeheads appear to be expanding. Wilson noted that Blue Catfish, and Flathead Catfish, are certainly problematic. Anne noted that Blue Catfish are also eating Blue Crabs. She noted that jurisdictions may be changing in NC and this could result in gill nets not being available in inland waters to catch Blue Catfish. Wilson noted that hoop nets in inland freshwater may be an option, but they would have a bycatch issue (i.e., freshwater turtles would possibly drown in them, unless they were set with an air pocket). Rene noted new ballast water requirements and indicated that he will share those with the AP. Roger asked about other concerns. Rene said there is a new sponge species. Wilson asked about the Orange Cup Coral. Roger thought that Action 2 was directed at that species.

Chapter 9, Artificial Reefs: Roger noted that the Council has created Special Management Zones (SMZs) for some Artificial Reefs (ARs). Anne noted that NC participates on the R Committee (an ASMFC/Gulf States Marine Fisheries Commission committee). Anne noted what NC is doing with ARs. They do ongoing monitoring on the oyster sanctuaries. Rita noted that Lisa has more information, but she noted that NC has not been very active lately, but there are working to update everything. Thy have a five-year plan, and research is a priority. There is some research out of UNC-Wilmington, being done by Avery Paxton. Anne noted that Dr. Freshwater at UNC-W has done some monitoring. Lisa noted that last year, she tried to compile BMPs, but resources were limited, and states were reluctant to endorse BMPs, lest they be held accountable for implementing them. Lisa noted that she can provide the compiled list to the Council. She noted they declined to make any recommendations. Roger noted it would be good to see what Lisa has. He noted that we want the most updated information. Lisa noted the third iteration of the AR materials manual should be coming out, any day now. Also, the states have agreed to update the 1988 reef profile document that should be available in 2020. Anne asked for any more AR comments. Roger noted that eh Council is moving forward with an amendment to designate SMZs in NC, and some additional ones in SC. Once designated they also become EFH-HAPCs. Roger asked Steve Poland to touch on the amendment. Steve noted SMZ status highlights the status, adds more protection, removes tangling gears, reduces protected species interactions and covers 30 reefs off NC. The Council scheduled taking action at a special meeting in January and is conducting scoping now. This will be the last chance for the AP to make any comments. David Webb asked about any FL additions. Roger advised FL is not adding any SMZs.

Anne noted that we were at the end of our agenda.

Other Business

Dr. Lisa Havel briefed the AP on the upcoming Atlantic States Marine Fisheries Commission Habitat Committee meeting, and the Atlantic Coastal Fish Habitat Partnership Steering Committee meeting, both of which she coordinates. Lisa noted that the aquaculture impacts document is coming out soon for Interstate Fisheries Management Board approval. The Habitat Committee is putting together a document on acoustic impacts on fish, collaborating with BOEM and the other two East Coast Fishery Management Councils. Finally, the HC is also putting together a document on habitats of concern, for ASMFC-managed species. The ACFHP will review project proposals. Seven applications were received for passage projects, and six for benthic projects. Selected projects will be recommended to USFWS for funding.

Roger noted that the AP members would be receiving the dates for the 2020 meetings, which will probably be held in May, and October. He will work with Anne and Cindy to try to resolve NMFS remote participation and representation issues. He thanked everyone for attending and especially for the Citizen Science input.

Adjourn
The AP adjourned at 11:28 a.m.