Sustainable Fisheries Goal Implementation Team (Fisheries GIT) Meeting
June 1-2nd, 2015
Chesapeake Bay Foundation Brock Environmental Center
Virginia Beach, VA

Meeting Materials: http://www.chesapeakebay.net/S=0/calendar/event/22470/
Fisheries GIT Website: http://www.chesapeakebay.net/groups/group/sustainable_fisheries

Meeting Summary

Background

On June 1-2nd, the Sustainable Fisheries Goal Implementation Team (Fisheries GIT) of the Chesapeake Bay Program met at the Chesapeake Bay Foundation's Brock Environmental Center in Virginia Beach, VA for its 11th semiannual meeting. This report provides a short summary of the meeting discussions and next steps. All presentations are posted on the meeting web page and linked throughout this document.

The *objectives* of this June 2015 meeting were to discuss:

- **Management Strategies and Work Plans:** public comments received on fisheries management strategies and next steps for developing work plans for the 2014 Watershed Agreement.
- **Lynnhaven Oyster Restoration:** progress on the evaluation of past Lynnhaven restoration projects against the Oyster Metrics criteria for restored reefs.
- **Striped Bass Movement and Health:** telemetry work tracking striped bass movements in and out of the Potomac River and the Chesapeake Bay; striped bass health indicator development using Maryland data on the prevalence of mycobacteriosis in striped bass.
- **Forage Indicators:** development of forage indicators and predator nutritional profiles for key species identified by the 2014 STAC Forage Workshop.
- **Atlantic States Marine Fisheries Commission (ASMFC):** updates on recent ASMFC management decisions for striped bass and menhaden.
- **Climate Change:** predicted impacts of changing temperatures, salinities and loss of marsh/wetlands on key Chesapeake Bay fish and shellfish species using the Chesapeake Atlantis Model (CAM).
- **Fish Habitat:** research results on the effects of land use and shoreline hardening on fish and benthic productivity.
- **Blue Crabs:** 2015 Winter Dredge Survey results and Chesapeake Bay Stock Assessment Committee's (CBSAC) draft 2015 Blue Crab Advisory report; Maryland's electronic harvest reporting pilot project; plans for the upcoming blue crab benchmark stock assessment.
- **Fisheries GIT Member Updates:** recent fisheries-related projects and initiatives that GIT members and their organizations have been involved in.

Near-Term Next Steps

- Increase stakeholder participation in Fisheries GIT meetings and work plan development.
- Ex Comm and Fisheries GIT Staff develop priority project needs for 2015 EPA funding to the GITs.
- Keep up awareness of oyster restoration efforts progress, success and the end goal of a healthy ecosystem.

- Further explore the potential for connecting striped bass health indicator to ecosystem factors through the continued development of the indicator. The final results from this project will be presented to the Fisheries GIT later this year.
- Compile relevant, current information on Chesapeake Bay striped bass, including health and migration, for better communication and to inform management discussions at ASMFC.
- Complete final forage index calculations to be presented at the December 2015 Fisheries GIT meeting.
- Maintain forum and communication with climate change modelers and managers through the Fisheries GIT to ensure the findings are presented in the best way.
- Incorporate the fish and nearshore habitat research results into the fish habitat work plan and into the presentations on Land Use and Fisheries that NCBO is coordinating for the upcoming American Planning Association Virginia Conference in July.
- Continue to monitor progress in Maryland to increase participants for both the blue crab and striped bass electronic harvest reporting program.
- Complete and publish CBSAC Advisory Report this summer after Ex Comm approval.
- Complete final Blue Crab Stock Assessment terms of reference and develop funding estimate.

Presentations, Discussions and Next Steps

Stakeholder Meet 'n' Greet

Fisheries and natural resources stakeholder groups from the Hampton Roads/Lynnhaven area were invited to attend the Fisheries GIT meeting early on Day 1 to participate in a meet 'n' greet session. GIT staff provided an overview of the Chesapeake Bay Program and Fisheries GIT and the stakeholders introduced their organizations and discussed their priorities.

The Virginia Beach Anglers Club was represented by their Vice President George Gabriel. The club is a recreational organization formed in 1959 with ~80-100 member families. The group wants to help sustain the Chesapeake Bay's fisheries and encourages conservation and catch and release, along with participating in Clean the Bay activities. Mr. Gabriel relayed observations from anglers that fish populations have been changing over time and are not the same as they used to be. He also voiced concerns about bycatch regulations causing unnecessary waste of caught fish.

The Virginia Saltwater Sportfishing Association (VSSA) was represented by Dr. Bob Allen and Curtis Tomlin. The VSSA is a relatively new organization whose goal to is to educate the public on fisheries and to support other local fishing clubs. Dr. Allen also represented the Peninsula Salt Water Sport Fisherman's Association, which was founded as a recreational and educational forum for members. Its members actively serve on many VMRC committees. Dr. Allen and Mr. Tomlin discussed the need for more organization and coordination among local fishing clubs create a more united front among groups with similar interests.

Rob O'Reilly, Fisheries GIT Executive Committee member and VMRC Director of Fisheries, emphasized that VMRC tries to be responsive to public concerns and appreciate stakeholder input and involvement in Chesapeake Bay affairs. He hopes to see more recreational industry involvement in public hearings and other forums in the future.

Lynnhaven River NOW was represented by Executive Director Karen Forget. Lynnhaven River NOW is committed to restoring and protecting the Lynnhaven River by reducing contamination in the river, educating and engaging the community and restoring habitats such as oyster reefs. They continue to collaborate with VMRC, federal agencies and local restoration partners on oyster restoration work.

The Lynnhaven River is one of the selected tributaries for the oyster restoration outcome in the Watershed Agreement.

Watershed Agreement: Management Strategies &Work Plans

Fisheries GIT members and stakeholders formed drafting teams in fall 2014 to develop the four management strategies for the fisheries outcomes (blue crab abundance, blue crab management, oyster restoration, forage fish, fish habitat) in the 2014 Chesapeake Bay Watershed Agreement. The drafting teams produced draft strategies that were released for public input in March 2015. The teams worked with stakeholders to address these comments and the final strategies are currently under review by the Chesapeake Bay Program Management Board and Principals' Staff Committee.

The next step after these strategies are finalized at the end of June is to develop two-year work plans, which will outline the near term actions to support achieving the fisheries outcomes. The GIT discussed this process and determined that the current drafting teams are the appropriate groups to lead this process.

Management Strategy Discussion and Next Steps

- Need balance between accountability and adaptability of plans.
- Make the work plans as specific as possible.
- Collecting data is important, but need to apply these data to reach the end goal.
- Ex Comm and GIT Staff will discuss how to use Tetra Tech meeting support provided by the Chesapeake Bay Program for the work plan development process.
- Increase stakeholder participation in GIT meetings and work plan development.
    - Work with jurisdictions to schedule meetings ahead of time and spread awareness using existing stakeholder groups within each jurisdiction
    - Face-to-face meetings for each outcome may be beneficial and time-efficient
    - Focus on collaborative efforts to reach common goals
    - GIT members need to actively engage their organizations and contacts
- Ex Comm and Fisheries GIT Staff develop priority project needs for 2015 EPA funding to the GITs.

Lynnhaven Oyster Restoration

Dave Schulte (USACE) presented on the progress toward evaluating past oyster restoration projects on the Lynnhaven River to determine if they meet the Oyster Metrics criteria for restored reefs and a restored tributary overall. The Lynnhaven River is one of the selected tributaries for the oyster restoration outcomes of restoring 10 tributaries by 2025. Past reefs being evaluated include sanctuary reefs constructed by USACE, VMRC, City of Virginia Beach and Lynnhaven River NOW in 2007-2008. Present monitoring of those sites show positive results with high recruitment and large numbers. All reefs sampled exceed the Oyster Metrics threshold for adult oyster density and biomass for restored reefs. USACE has noted that the high relief reefs are higher performing compared to low relief reefs.

Bruce Vogt (NOAA) provided an overview of the NOAA Chesapeake Bay Office's recent bottom mapping efforts in the Lynnhaven River. The NOAA Chesapeake Bay Office Field Team use several acoustic sonar techniques and ground trothing to map bottom areas as baseline spatial data for use in oyster restoration planning. The resulting data can be visualized to see where certain habitat and sediment types are in the Lynnhaven.

Lynnhaven Oyster Restoration Discussion and Next Steps

- Explore expanding oyster castles on private property - provides oyster habitat and protects homeowner properties from erosion.
- High relief height is optimal, working on fixing the low relief sites in Great Wicomico.
- Less construction due to the presidential budget cuts for oyster restoration.
- Bottom mapping is an important data source that will be included in the evaluation to determine if the Lynnhaven meets the criteria for a restored tributary and to plan additional restoration.
- Important to keep up awareness of restoration efforts and the motivation behind restoration.

GIT Member science questions

- Look into the sex ratios of the reefs, not just size and biomass.
    - Dependent on monitoring funds.
- Data gap: low recruitment in recent years, this could be due to weather but there's no data supporting that.
    - Lynnhaven River NOW has survey data on intertidal reefs to share.

Striped Bass

Striped Bass Health Indicator

Rebecca Scott (Ecoanalytics LLC) and Howard Townsend (NCBO) presented research on the development of a striped bass health indicator that explores the connection between mycobacteriosis and environmental variables like water temperature, hypoxia and forage availability. This project is funded by EPA's Chesapeake Bay Program through the Chesapeake Bay Trust.

This indicator could provide information about how the Bay's health could be influencing the striped bass populations. This project is considering potential indicators based on mycobacteriosis data including disease associated mortality, force-of-infection, apparent prevalence and severity of myco. The mycobacteriosis data is from a 16-year dataset from the Maryland DNR Striped Bass Disease survey. Initial work shows that apparent prevalence (proportion of animals that test positive for myco) is correlated with several external factors including body condition, seasonal water temperatures and hypoxic volume. Apparent prevalence could be used as a striped bass health indicator after further analyses of interaction with external factors.

Striped Bass Health Discussion and Next Steps

- Estimates of disease-associated mortality and force-of-infection can be attained for the entire time span of the data set (i.e. one estimate for each for the 16-year period).
    - In order to estimate disease-associated mortality for each year, surveys should acquire samples from older age classes. Sample sizes over age 6 are currently very limited and too small for year-to-year analyses.
- The research team hopes to apply this indicator framework to Virginia and/or Baywide in the future. Similar data do exist for the Virginia portion of the Bay, but samples from all years have not been processed due to funding constraints.
- This could be used as an ecosystem-based indicator, as water quality and other factors are all tied into this important recreational species.
- The final results from this project will be presented to the GIT later this year.

GIT Member science questions

- Does mortality happen after striped bass migrate out of the Bay?
    - ASMFC has some data on myco that shows lower incidence of myco on the North Carolina coast compared to the Chesapeake Bay.
- Is disease-associated mortality certain if a fish is infected?
    - It may be a combination of factors that influences the mortality rate. Just having myco does not guarantee that the infected fish will die faster than a non-infected fish.

Striped Bass Telemetry

Dave Secor (UMCES-CBL) presented on his Potomac and Atlantic Striped Bass Telemetry study that is tracking a representative group of 100 Potomac River striped bass for a 2.5 year period in the Potomac, other tributaries of the Chesapeake Bay and along the Atlantic Coast. This project aims to address a longstanding management question, for both Chesapeake Bay jurisdictions and the larger ASMFC, about the rates of striped bass residents vs. migrants for striped bass produced in the Chesapeake Bay. The research team tagged 71 Potomac River striped bass in Spring 2014 followed by 29 Potomac River striped bass tagged in Fall 2014, all using a size-stratified design. Preliminary results show that 19/100 have left the Chesapeake Bay so far, 48/100 left the Potomac but stayed in the Chesapeake and 19/100 remained resident in the Potomac. More information and ongoing updates can be found on the project's website: http://fishconnectivity.cbl.umces.edu/PAST.

Striped Bass Telemetry Discussion and Next Steps

- Will determine age and genetic information from specific migrations.
- Investigate why multiple tagged fish (n=13) left the Chesapeake without being detected on their way out.
- Project team is looking to extend the project for a third year to test the prediction that sedentary fish will become migratory as they grow. They will be looking for funding to support that third year.
- Future study aspirations include using cable receiver systems to estimate in-season migration, which could inform management decisions for the striped bass trophy season.
- Telemetry can be applied to study habitat utilization (recent publication looked at temperature and DO squeeze for striped bass) and event-driven migration (migrations after major hurricanes in the Hudson River).
- This study is building certainty for managers about striped bass migration.

GIT Member science questions

- Could telemetry be used to connect back to myco?
    - Tag both diseased and healthy fish
- Further investigations into habitat utilization and striped bass response to temperature change.
- Overlay movement data with disease, forage, water quality information, etc. to get a clearer picture of the ecosystem.

Forage Species

STAC Forage Workshop Review

Tom Ihde (ERT/NOAA) briefly reviewed the outcomes from the 2014 STAC Forage Workshop. Tom co-chaired the workshop with Ed Houde (UMCES-CBL). The workshop produced a list of key forage

groups and important recommendations on how to quantify and better understand forage populations in the Bay and their relationships to predator species. The workshop report is currently being reviewed by STAC and should be finalized this summer.

Forage Indicator Development

Andre Buchheister (UMCES-CBL) presented current efforts to develop forage indicators for key prey species and develop nutritional profiles for five predator species. This project is funded by EPA's Chesapeake Bay Program through the Chesapeake Bay Trust and addresses some of the recommendations from the 2014 STAC Forage Workshop. A suite of four indicator types are being developed based on recommendations from the Forage Workshop: relative prey abundance, diet-based indices, predator-prey ratios and consumption ratios. The objectives for these indicators is to quantify the status of several prey groups over time, integrate information from multiple surveys and potentially serve as the basis for developing targets and thresholds for management use in the future.

This project is developing nutritional profiles for five dominant predators: white perch, Atlantic croaker, striped bass, spot and summer flounder. The objective is to quantify consumption of key prey species by these five predators and provide managers with information on observed consumption patterns that can be shared with stakeholders.

Forage Indicator Discussion and Next Steps

- Research will provide some insight on the relative impact of predator species on prey populations.
    - The five predator species of focus have been divided into small, medium and large size classes.
- Forage is interpreted broadly to include fish, shellfish and invertebrate species. Many forage species are not managed directly and are difficult to monitor.
- Complete final forage index calculations to be presented at the December 2015 Fisheries GIT meeting.

GIT Member science questions

- Add blue catfish to the nutritional profile research. Data may be available from Virginia Tech, but only for a few years in specific tributaries. VA DGIF has some time series data.

ASMFC Updates

Bob Beal (ASMFC Executive Director) updated the Fisheries GIT on recent management action for Atlantic Striped Bass and Atlantic Menhaden. For striped bass, states implemented management measures prior to the 2015 season to achieve reductions in the commercial and recreational fisheries under Addendum IV (25% reduction in the coastal fishery and 20.5% reduction in Chesapeake Bay fishery). The Menhaden Technical Committee is working to develop Chesapeake Bay fishing mortality reference points which will be discussed at the August ASMFC meeting. At the recent May ASMFC meeting, the Menhaden Management Board set the 2015 and 2016 quota at 187,880 metric tons, a 10% increase from 2014 quota. The Board also initiated Draft Amendment 3 to consider allocation and ecological based reference points.

ASMFC Discussion and Next Steps

- ASMFC subcommittee has set up facilitated workshops working on ecological reference points for menhaden.

- The striped bass stock assessment is also being updated simultaneously with the development of Chesapeake Bay specific reference points.
- Chesapeake Bay jurisdictions could work together to communicate relevant research results to the broader ASMFC on striped bass to better inform discussions.
    - Compile current research and information on striped bass in the Bay.

Climate Change

Tom Ihde (ERT/NOAA) presented recent efforts to model climate change impacts on Chesapeake Bay fish production using the Chesapeake Atlantis Model (CAM). The model output shows the sensitivity of specific fish species to climate change scenarios of SAV loss, marsh loss, temperature increase and salinity change. Previously published research and specific assumptions formed the basis for these scenarios representing 50 years in the future. Scenarios included only habitat loss, only temperature/salinity change and cumulative impacts of both habitat loss and temperature increase. The model output showed whether the change to species production was positive, negative or unchanged for each scenario. Overall most species showed losses in production for the combined scenario of habitat loss and temperature increase with Bay anchovy, an important forage species, showing the highest magnitude production loss.

Climate Change Discussion and Next Steps

- Team will incorporate species preferences for temperature and salinity into the scenario model runs.
- Plan to add TMDL scenarios to determine consequences on production.
- Maintain forum and communication with climate change modelers and managers through the Fisheries GIT to ensure the findings are presented in the best way.
- The populations are measured as age-structured populations and could be displayed as different age groups for species. The age groups are currently showing the same reaction to the scenarios.

GIT Member science questions

- Use Atlantis to model hypotheticals (population moves, different types of winters).
- Can use spatial output from Atlantis to look at tributary-specific questions?
    - Yes, the results can be represented spatially to show differences throughout the Bay.
- Incorporate information from the climate change white paper developed for the Mid-Atlantic Council.

Fish & Nearshore Habitat

Denise Breitburg (SERC) discussed the results of work to explore the impacts of land use and shoreline hardening on fish and shellfish. This research is part of a larger 5-year research effort to study the impacts of stressors at the land-water interface in the Chesapeake and Delmarva Coastal Bays. Data for this project to study the effects of land use and shoreline hardening on fish and crabs spanned 45 subestuaries across the Chesapeake Bay watershed. Several species, including blue crab and Atlantic croaker, declined as the percentage of cropland in the watershed increased. Some planktivores increased with cropland due to increased nutrients. As the percentage of cropland increased, nitrogen

concentrations also increased. The amount of wetland area is particularly important, and species abundance increased as the proportion of wetland area increased. Species abundance tended to decrease as the percentage of hardened shoreline increased. Combining factors like % cropland and hardened shoreline is a better predictor of abundance.

Regarding benthic communities, Rochelle Seitz at VIMS led efforts that showed that natural shoreline habitats have higher abundance, biomass and diversity in the benthic community than developed areas. In general, fish and shellfish are strongly affected by watershed land use and shoreline hardening. Denise also discussed her lab's work to study the interacting effects of diel-cycling hypoxia and acidification on Atlantic silversides growth, respiration and mortality.

Fish & Nearshore Habitat Discussion and Next Steps

- General assumptions about the negative impacts of development and land use on fish populations were known, but this research works to quantify those relationships.
- This information can hopefully be applied to management to help determine "tipping points" of impacts on fish populations.
- Regulations for shoreline hardening (ex: height of rip rap) could be a way to promote shoreline management practices that are less harmful to fish species.
- Incorporate the fish and nearshore habitat research results into the fish habitat work plan and into the presentations on Land Use and Fisheries that NCBO is coordinating for the upcoming American Planning Association Virginia Conference in July.

GIT Member science questions

- Look at distributions of land uses in the watershed (ex: downstream vs. upstream), specifically location of agriculture.
    - Don Weller's lab has looked at distance-weighted effects of land use types from the water.
- Show results spatially and combine with biological and water quality layers.

Blue Crabs

CBSAC 2015 Blue Crab Advisory Report

CBSAC Chair Joe Grist (VMRC) discussed the results of this year's Winter Dredge Survey and the preliminary recommendations from the 2015 Blue Crab Advisory Report that is currently being drafted and finalized by CBSAC. Abundance of spawning-age females increased this year from a depleted state of 69 million crabs in 2014 to 101 million in 2015, which is above the threshold of 70 million but below the target of 215 million. Harvest has been below the target for seven consecutive years. The 2014 female exploitation rate was 17%, below both the 25.5% target and the 34% threshold. The abundance of juveniles and total crabs also increased this year. Male crabs increased slightly but remain at a relatively low abundance. Harvest in 2014 was 35 million pounds across all three management jurisdictions, just under the 37 million pounds harvested in 2013.

Overwintering mortality this year was very high compared to recent years. Overwintering mortality decreased abundance across the blue crab population this year, including 19% mortality of adult females.

CBSAC continues to recommend maintaining a risk-averse management approach to protect the 2015 juveniles in order to promote future spawning potential. Additional management advice for the jurisdictions includes improving harvest accountability and supporting efforts to explore an allocation-based management framework.

Blue Crab Advisory Report Discussion and Next Steps

- Exploitation fraction does not include other sources of mortality like discards, bycatch, etc. Need to account for that mortality somehow.
- Important to remember that managers can only control harvest and that most factors impacting the population are out of management control. There is no guarantee that a large # of females means a large population of recruits the next year.
- The upcoming stock assessment and peer review should provide insight on whether the current reference points need to be updated.
- Need to know more about the effort over time and how it has changed.
- 2015 juvenile abundance is fairly high compared to values since 1990. Adult female abundance is about average over that time period.
    - Variability in population abundance is normal, but we want to see variability at a higher overall abundance level.
- Complete and publish CBSAC Advisory Report this summer after Ex Comm approval.

GIT Member science questions

- How many additional crabs would be harvested it fishing at the target of 25.5% female exploitation rate?
- Connect data on habitat, abundance, etc. in a spatial format.
- Can we learn from previous years that had similar abundance numbers? 2005 had similar abundance estimates.

Maryland Electronic Harvest Reporting Pilot Project

Brenda Davis (MD DNR) presented an update on Maryland's Electronic Harvest Reporting Pilot Project for blue crabs. Traditional paper harvest reports is an inefficient way to get harvest information with the potential for errors that can cause delays in the timeliness of data. The objective of blue crab pilot project is to evaluate the feasibility of using and electronic harvest reporting system to improve the quality of fishing activity and harvest information in the Maryland blue crab fishery. The project is trying to determine if the system can be used by industry to report harvest daily and if this reporting can reduce uncertainty of the harvest data. The key is having timely, accurate and verifiable data. The project includes a system with both a start and end hail, which provided more successful harvest verification monitoring that using just an end hail. From 2012-2014, the number of watermen participating has increased and participant feedback has been an important part of the process and many have said the electronic reporting is more convenient and that using both a start and end hail was more effective.

Electronic Reporting Discussion and Next Steps

- The electronic reporting program in Maryland has just been expanded to include the striped bass fishery.
- Continue to monitor progress in Maryland to increase participants for both the blue crab and striped bass electronic harvest reporting program.
- Once out of the pilot program stage, law enforcement will be brought into the discussion.
- A driving force for industry participation in this program is the potential for in-season management changes in the future if harvest data were available more immediately.

Stock Assessment Planning

CBSAC members Joe Grist (VMRC), Rom Lipcius (VIMS) and Lynn Fegley (MD DNR) discussed the Terms of Reference (TORs) that will guide the upcoming blue crab benchmark stock assessment. The assessment is planned to begin in 2016 with final results in 2017. A subcommittee of CBSAC has been working with the management jurisdictions to finalize the TORs. This upcoming stock assessment will provide some new analyses including evaluating possible assessment models operating on finer time scales/spatial resolutions, providing more guidance on the male population, evaluating the use of additional fishery independent surveys (ex: ChesMMAP) and evaluating the potential impacts of ecosystem factors (predation, habitat, environmental drivers) on the blue crab populations.

Stock Assessment Discussion and Next Steps

- Important to know more about the status of male blue crabs, especially for evaluating an allocation-based management framework.
- Should utilize trip-level data (per harvester per day) to understand more about effort.
- Evaluation of ecosystem factors will include retrospective analyses to investigate factors that may have had specific impacts on abundance.
    - Habitat is now being more quantitatively incorporated into stock assessment models in general.
    - Important to look at ecosystem factors and consider impacts from management of predator species and potential unintended consequences on blue crabs.
    - Recognize that the resource is currently underfished and that there are many factors at play.
- Suggestions from the 2011 Peer Review should be considered for this stock assessment.
- The stock assessment should look at the juvenile scalar and try to move away from using it.
- Complete final Blue Crab Stock Assessment terms of reference and develop funding estimate.

GIT Member science questions

- Can improved spatial resolutions in the model look specifically at the Potomac? Want to explore more in-depth. The Potomac has seen very low levels of harvest in recent years.
    - Analyses at finer spatial resolutions will help to better understand differences among the jurisdictions.

GIT Member Updates

- US Army Corps of Engineers (Baltimore and Norfolk Districts) Oyster Restoration
- Mid-Atlantic Fishery Management Council
- Oyster EBFM Indicators – Amy Freitag (VA Sea Grant/NCBO Post doc)
- Delaware Department of Natural Resources and Environmental Control-Division of Fish and Wildlife
- Potomac River Fisheries Commission
- Virginia Fishery Resource Grant Program
- Virginia Marine Resources Commission
- Habitat GIT Management Strategies
- Oyster Reef Ecosystem Services Project
- Choptank Oyster Restoration Update (here)
- Piankatank Restoration Update
- CBF Oyster Reef Three Dimensionality

Public Comments

Sonja Fordham – Shark Advocates International

Sonja expressed concern about the unmanaged, unregulated hunting and harvest of cownose rays in the Chesapeake Bay, especially in the lower Bay. She requested that the Fisheries GIT support a workshop to discuss the best available science on cownose rays. The concern is that cownose rays are being killed using bow and arrow during tournaments, but potential effects this might have on their populations are not known. Cownose rays are considered to be nuisance by some because of perceived population increases and predation on oyster reefs and clam aquaculture.

Cownose Rays Discussion and Next Steps

- It would be worthwhile to bring together various viewpoints on the issue from those growers who are concern about predation to those who promote ray hunting opportunities.
- In order to have any management or regulatory authority, you would need a Fishery Management Plan (FMP).
- Sonja will develop a workshop proposal that will be submitted for the Fisheries GIT for review.

Meeting Attendance

Fisheries GIT and Workgroup Members:

Peyton Robertson *(Chair)*	NOAA
Bob Beal *(Ex Comm)*	ASMFC
Lynn Fegley *(Ex Comm)*	MD DNR
Marty Gary *(Ex Comm)*	PRFC
Rob O'Reilly *(Ex Comm)*	VMRC
Bruce Vogt *(Coordinator)*	NOAA
Jack Brooks *(proxy)*	MWA
Nancy Butowski	MD DNR
Jessica Coakley *(teleconference)*	MAFMC
Jack Frye	CBC
Bill Goldsborough	CBF
Bob Greenlee	VDGIF
Joe Grist *(CBSAC Chair)*	VMRC
Jorge Holzer	MD Sea Grant
Tom Ihde	ERT/NOAA
Andy Lacatell	TNC
Rom Lipcius	VIMS
Ron Lukens	Omega Protein
Matt Ogburn *(teleconference)*	SERC
Tom Powers	VA Blue Crab Advisory Committee
Jim Price	CBEF
Angie Sowers *(proxy)*	USACE-Baltimore
Howard Townsend *(teleconference)*	NOAA
Jack Travelstead *(proxy)*	EDF
Olivia Newport	NOAA Intern
Emilie Franke *(Staff)*	CRC

Stakeholder Attendees and Presenters:

Bob Allen	Virginia Saltwater Sportfishing Association
Karl Blankenship	Bay Journal
Denise Breitburg	SERC
Andre Buchheister	UMCSE-CBL
Brenda Davis	MD DNR
Ande Ehlen	VMRC
Christy Everett	CBF
Sonja Fordham	Shark Advocates International
Karen Forget	Lynnhaven River NOW
Amy Freitag	VA Sea Grant
George Gabriel	Virginia Beach Anglers Club
Ken Hastings	Mason Springs Conservancy
Samantha Hoover	VMRC
Ed Houde	UMCES-CBL
Rachael Maulorico	VMRC
Chris Moore	CBF
Laurie Naismith	VMRC
Dave Schulte	USACE-Norfolk
Rebecca Scott	Ecoanalytics, LLC
Dave Secor	UMCES-CBL
TJ Tate	National Aquarium
Curtis Tomlin	Virginia Saltwater Sportfishing Association