Sustainable Fisheries GIT

The Sustainable Fisheries Goal Implementation Team (SFGIT) draws together a diverse group of managers, scientists and fishery stakeholders to improve management and recovery of species in the Chesapeake Bay. It focuses on advancing ecosystem-based fisheries management by using science to make informed fishery management decisions that cross state boundaries. Institutions represented on the SFGIT include state management agencies, federal agencies, industry groups, non-profits and academic institutions that meet as the full SFGIT twice a year.

Meeting Topics

Workplans

2014 Watershed Agreement → Management Strategies → 2016 – 2017 Workplans

The Chesapeake Bay Program (CBP) is working to achieve the 31 outcomes outlined in the 2014 Watershed Agreement. The SFGIT is responsible for the sustainable fisheries goal in the Agreement and associated five outcomes: Blue Crab Abundance, Blue Crab Management, Oyster Restoration, Forage, and Fish Habitat (joint with the Vital Habitats GIT).

In 2015, Management Strategies were finalized for each outcome and outline the approaches and high-level actions that will be taken to achieve each outcome by the year 2025, including monitoring, assessment and reporting of progress. The strategies are supported by two-year workplans summarizing specific commitments and near-term actions for each individual outcome. The 2016-17 workplans were finalized in April 2016.

Blue Crab

Plan and implement stock assessment.
Support annual review of blue crab stock status.
Evaluate allocation-based framework.

Oysters

Select tributaries.
Collect data, set targets.
Develop and implement plans.
Track and monitor restoration.

Forage

Define forage species
Develop indicators.
Determine status
Increase monitoring.
Inform decisions.
Map important habitats.

Fish Habitat

Identify threats.
Compile data.
Develop tools and thresholds.
Enhance protection.
Communicate fish habitat importance.

The June 2016 SFGIT meeting agenda was designed to highlight current progress toward each of the fisheries outcomes, focusing the team on moving forward with implementation of the 2016-17 workplans.

Please see Bruce Vogt's presentation for more information.

Ecosystem Approach to Fisheries Management

The Mid-Atlantic Fishery Management Council (MAFMC) is developing an Ecosystem Approach to Fisheries Management (EAFM) guidance document. EAFM recognizes and takes into account the biological, economic, social and physical interactions in the ecosystem when making considerations for fishery management. This non-regulatory guidance document provides a framework for considering policy choices and trade-offs in fisheries management plans (FMPs). Major components of the document are noted in the box below:

The EAFM guidance document focuses on:

- Forage/low trophic level species
- Effects of climate change and variability on abundance/distribution of fish stocks; impact on existing management approaches and programs
- Interactions – climate, fleets, species and their effects on sustainable harvest policy
- Improved incorporation of habitat conservation and management objectives

Please see Rich Seagraves' presentation for more information.

Stemming from the EAFM efforts, MAFMC recently initiated an unmanaged forage amendment. MAFMC recognizes the value of forage species to the health of marine ecosystems, and the proposed amendment would "prohibit the development of new, or expansion of existing, directed fisheries on unmanaged forage species until adequate scientific information is available to promote ecosystem sustainability." The SFGIT is exploring options to better connect Chesapeake forage objectives with MAFMC objectives, therefore, linking Bay and offshore management.

Forage Workplan

To learn more, click on Emilie Franke's presentation.

Recent Activity

- Held STAC workshop and reported recommendations to SFGIT and Management Board
- Identified key forage species
- Completed forage indicator and consumption profile project
- Funded and initiated study on drivers of forage variability
- Organizing public outreach video with Chesapeake Bay Program

Issues

- Does the management strategy and workplan satisfy the requirement to develop a strategy for forage by 2016?

Next Steps

- Determine how to utilize/apply forage indicator options
- Agree on process to identify priority species (prey or predator approach) and develop management objectives

Effects of Land Use on Aquatic Health

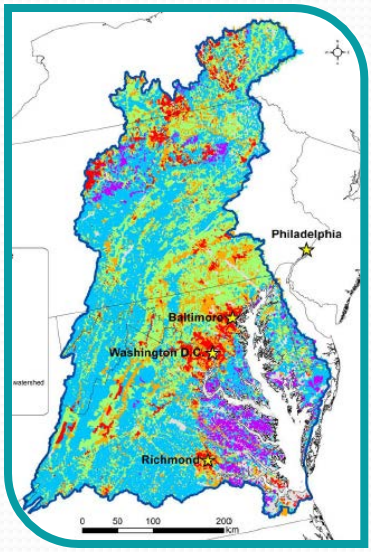
The NOAA Cooperative Oxford Laboratory conducted a study of six rivers in Maryland to provide insights on the linkages between human activities, coastal community resilience, and environmental condition. Several variables were analyzed to evaluate the relationship between dominant land uses and aquatic health (results at right).

Variable	Results
Dissolved Oxygen	Generally sufficient – very low (hypoxic) in bottom waters of developed Magothy
Nutrients	P and N high in all rivers; very high in agricultural rivers, lowest in developed rivers
Chlorophyll a	Agricultural rivers very high
Water clarity	Poor scores for most rivers, especially for Nanjemoy
Fish Abundance	No correlation to land use or water quality, most rivers similar
Fish Disease	High prevalence in agricultural rivers, especially Corsica, low in forested
Macrophage Aggregates	Rivers poorly differentiated; high levels in 2010 and low in 2011
Parasites in Fish	Higher crab host responses in agricultural rivers and crab parasites in higher salinity rivers
Crab Health	Mixed results

To learn more, click on AK Leight's presentation.

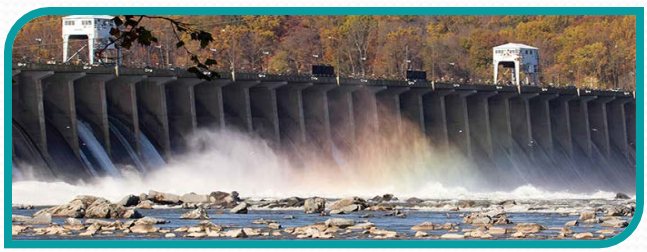
Recommendations from this study suggest that management should continue focusing efforts to reduce nutrient and sediment inputs, preserving habitat for diverse and healthy fish populations, and working to better understand crab health as an indicator of habitat conditions.

Habitat Vulnerability Study



The National Fish Habitat Partnership (NFHP) compiled data to develop habitat vulnerability scores across the United States based on anthropogenic disturbances and accounting for natural variation at different spatial scales. The Chesapeake Bay watershed scores are pictured to the left (cooler colors such as purple and blue represent the least at-risk habitats, while warmer colors represent habitats that are more vulnerable). Agriculture, urbanization, mining, and nutrients were the most limiting disturbances for Chesapeake Bay habitats.

This habitat vulnerability study has applications for scientific and management decisions, including directing efforts to areas that are most vulnerable, focusing conservation on healthy areas, and quantifying habitat disturbances.



Click here for Dana Infante and Wesley Daniel's presentation.

Fish Habitat Workplan

Recent Activity

- Developed project with TetraTech to synthesize habitat requirements and threats for 14 lesser-studied aquatic species in the Chesapeake Bay.

Issues

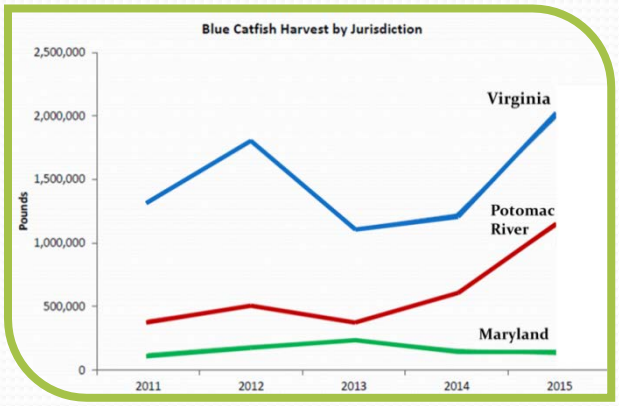
- Identifying priorities within a large scope (entire watershed).
- Coordinating with the Habitat GIT to address shared issues.

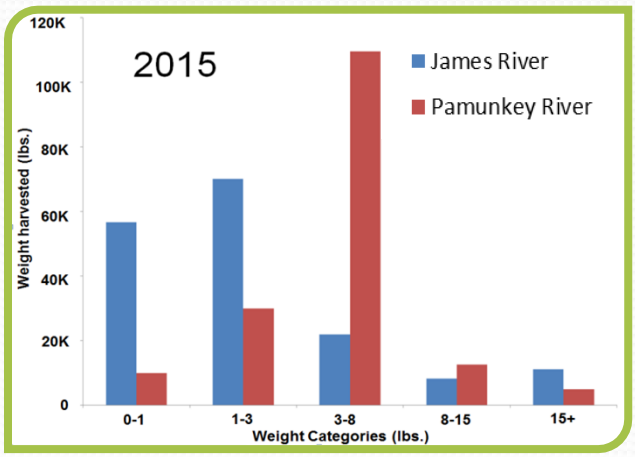
Next Steps

- Identify priority species to develop focus.
- Illustrate what is meant by fish habitat to team and Management Board.

Invasive Catfish

Maryland Department of Natural Resources, Virginia Marine Resources Commission and the Potomac River Fisheries Commission discussed blue catfish harvest data for each of their jurisdictions. The SFGIT will continue to track invasive catfish research and fishery data.





To learn more, click on Matt Balazik's presentation.

The Virginia Fishery Resource Grant Program funded a two-year study to test low-frequency electrofishing gear to increase harvest efficiency of blue catfish in the James and Pamunkey Rivers. During 2014 and 2015, average catch per day was 3,301 lbs./day and 4,523 lbs./day, respectively. Distributions among weight sizes varied depending on the river suggesting that different size classes may prefer specific habitats. The study explored issues concerning the health of native catfish, predation by birds and predator fish, as well as market and management considerations. The full project report is available here.

The Virginia Department of Game and Inland Fisheries conducts annual monitoring of CPUE, age & growth, and size structure of blue catfish populations in major Virginia tributaries. Data show the highest blue catfish abundances are in the James and Rappahannock Rivers, but abundance has seen declines since the mid-2000s. The Pamunkey River population shows a slight increasing trend. Based on the age & growth data, there is strong shift toward slower growth (magnitude varies by river). Please see Aaron Bunch's presentation for more information.

Sturgeon

Atlantic and Shortnose sturgeon are both listed as endangered under the Endangered Species Act. Atlantic sturgeon are found in some major tributaries of the Chesapeake, including the James, York and Nanticoke Rivers. Shortnose sturgeon are very rare.

NOAA and USGS hosted a meeting of scientists and experts in May 2016 to discuss the threats to sturgeon, genetic studies, telemetry efforts, population dynamics and new research techniques for Shortnose and Atlantic sturgeon. Jason Kahn's presentation outlines the major findings for the Chesapeake Bay Distinct Population Segment (DPS) of Atlantic sturgeon. Top threats for the Chesapeake Bay DPS include blue catfish, ship strikes and bycatch. An extensive telemetry network as well as sampling events have detected 856 of 1,784 tagged sturgeon in the Chesapeake Bay. Future research for the Chesapeake Bay DPS will focus on habitat use, predation, finding juveniles and more accurate adult abundance estimates throughout the Bay.

The Effect of Climate Change on Blue Crabs

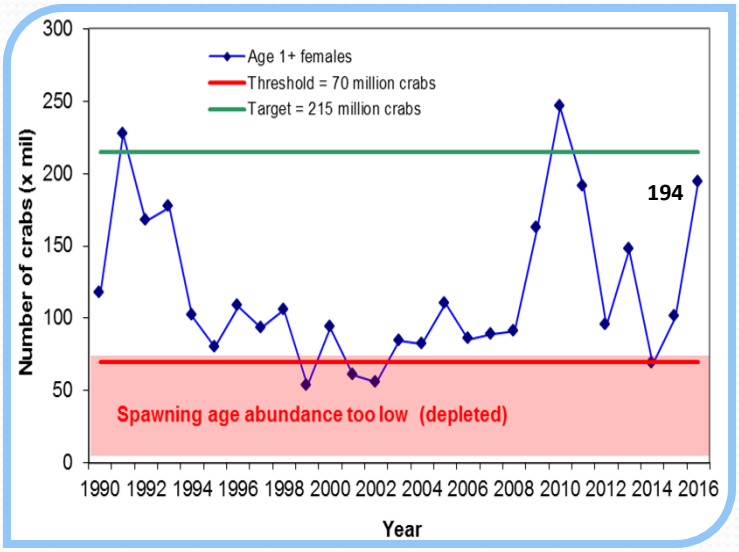
The Chesapeake Bay is anticipated to experience fairly dramatic changes in temperature and acidification. These changes will modify the existing ecosystem and habitat of the blue crab. The study conducted by UMCES-CBL is quantifying the effects of rising water temperature and increasing acidity on Chesapeake Bay blue crabs.

Findings show that increased water temperature resulted in faster growth, increased food consumption, shortened intermolt period (time between molts), and thinner carapace for blue crabs. Ocean acidification leads to increased energetic costs on blue crabs. These effects could change the timing of key life history transitions and population dynamics. Managers should consider the associated management implications of climate change and the impact of regulations in the case of altered population dynamics and other climate change impacts, including changes in predation and reduced overwintering mortality.

Find Tom Miller's presentation here for additional results.

2016 Blue Crab Advisory Report

The Chesapeake Bay Stock Assessment Committee (CBSAC) is drafting the 2016 Blue Crab Advisory Report that summarizes the 2016 Winter Dredge Survey, harvest data, status of the blue crab stock, management recommendations and data/research needs. The stock is considered not depleted and overfishing is not occurring. In 2016, the abundance estimate for female age 1+ crabs was 194 million, which is above the 70 million target but below the 215 million target. This was a 92% increase from the 2015 estimate of 101 million. The 2015 female exploitation rate was 15% (below both the target of 25.5% and threshold of 34%).



Short-term recommendations from CBSAC include continuing an adaptive risk-averse approach to management, improving estimates of recreational harvest, and continuing efforts to improve commercial catch data. The data, long term recommendations, and identified critical data and analysis needs for future assessment and management can be found in Glenn Davis' presentation. The full report will be available in July 2016.

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Shoreline – Will Parson, ACB
Blue catfish weight class distribution graph – Matt Balazik, VCU
Blue catfish harvest Bay jurisdiction harvest numbers – Marty Gary, PRFC
Page 5: Atlantic Sturgeon – Robert Michelson
Molting crab – Tom Miller, UMCES-CBL
Page 6: Spawning-age female blue crab graph – Glenn Miller, MD DNR
Blue crabs in net – Will Parson, ACB