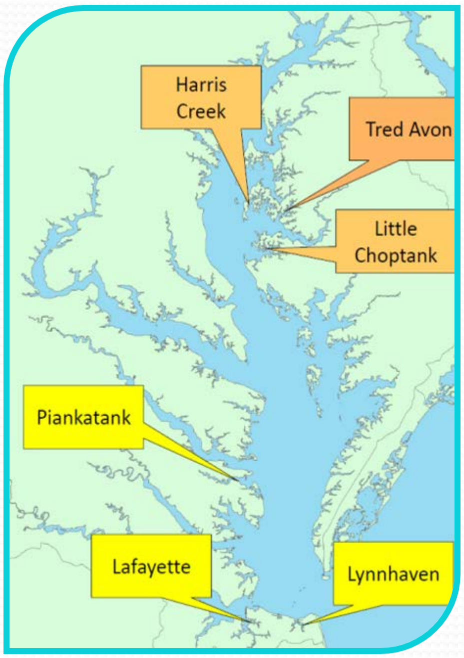
Sustainable Fisheries GIT

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

Oyster Restoration

Maryland



Little Choptank

The total acreage goal for restored oyster reefs in the Little Choptank is 442 acres. 45 of those acres already meet the metrics for what is considered to be 'restored'. 114 acres were constructed in 2014 and 35 acres have been seeded. Additional seeding is planned for 2016.

Tred Avon

The Tred Avon River has a total goal of 147 acres. Currently 17 acres have been constructed, 2.6 of those acres have been seeded, with the rest planned for seeding in 2016. The U.S. Army Corps of Engineers (USACE) plans to construct 8 additional acres in 2016, but this is pending due to a request of Maryland Department of Natural Resources to postpone until a July report on oyster restoration is released.

Please see Stephanie Westby and Susan Conner's presentation.

Harris Creek

Oyster reef construction and seeding in Harris Creek has been completed. 350 acres were built, 2 billion oyster spat were seeded. The reefs are currently being monitored per the SFGIT oyster restoration metrics of success. Model projections suggest spat produced from these restored reefs will settle beyond sanctuary boundaries and into harvestable areas.

In September 2015, the last oyster spat planting occurred in Harris Creek. The tributary has now reached the monitoring phase of restoration. *Image by the NOAA Chesapeake Bay Office.*

Oyster Restoration

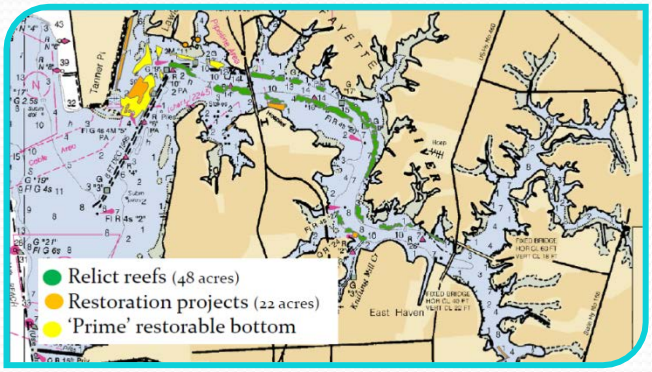
Virginia

Great Wicomico

In the summer of 2015, 13 acres were constructed by USACE. 85 acres of oyster reef were originally constructed for past restoration projects, and 61 of those acres already meet the metrics for what is considered to be 'restored'.

Piankatank

The restoration goal will be between 514 to 1028 acres. There is ongoing work to determine if any of the designated area already meet the metrics for what is considered to be 'restored'. Approximately 28 acres have been constructed to date.



Restoration sites and restorable bottom in the Lafayette River. *Image courtesy of* *Susan Connor*.

Lynnhaven

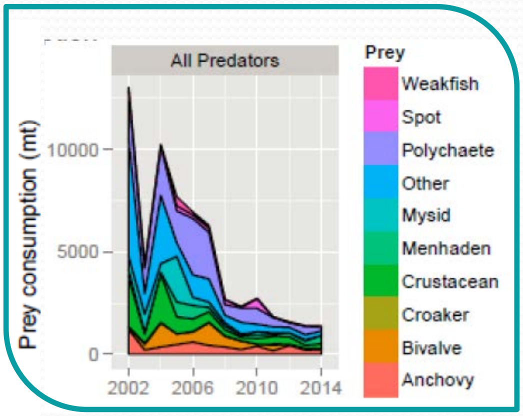
The total restoration goal for the Lynnhaven River will be between 90 to 200 acres. Currently 63 acres have been restored and 31 acres are in the process of being restored.

Lafayette

Of the 80 acre restoration goal in the Lafayette River, 48 acres already meet the metrics for what is considered to be 'restored', and 22 acres have been restored through various projects. New construction of the remaining 10 acres is needed to meet the goal.

Forage

A team at the University of Maryland Center for Environmental Science (UMCES) conducted a study in which they developed a suite of indicators for key prey species in the Chesapeake Bay. These key prey species were identified at the Scientific and Technical Advisory Committee (STAC) workshop held in November 2014, the workshop report is available here. They evaluated the consumption patterns of six dominant predatory fishes.

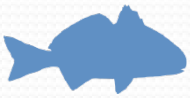


The Total Annual Consumption is depicted above. There is a decline in total consumption for all predators. *Image courtesy of Andre Buchheister (UMCES).*

The indicators developed from this study show long-term, correlated shifts in prey abundances and an overall decline in total predatory demand from 2002 to 2014. The four types of forage indicators are listed below.

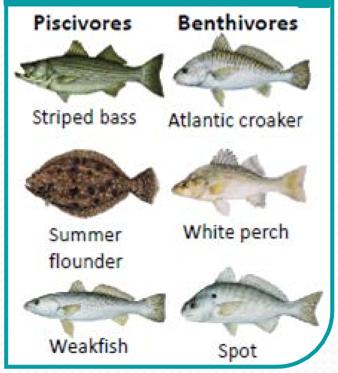
Forage indicators included:

- Relative prey abundance
- Diet-based indices
- Prey-predator ratios
- Consumption-prey ratios



Please see Andre Buchheister's presentation.

Key Predators
(~80% of CM catch by wt[1])

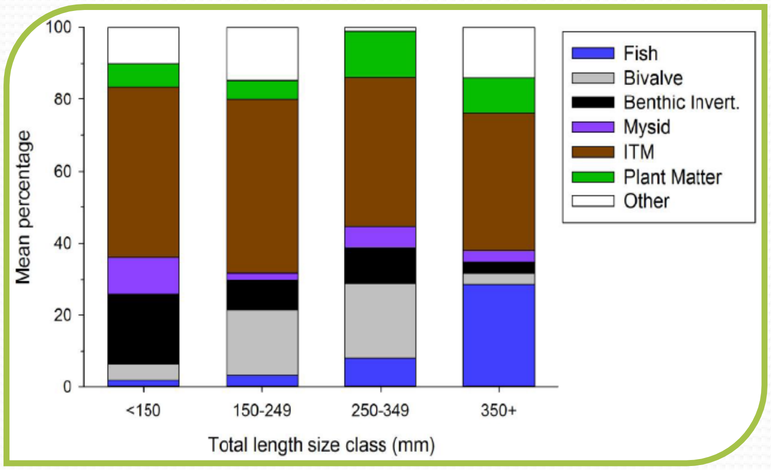


Key Prey Groups

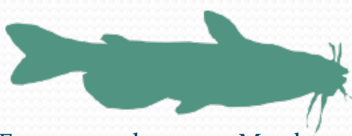
- Bay Anchovy
- Menhaden
- Croaker
- Spot
- Weakfish
- Mysids
- Worms
- Bivalves
- Crustaceans

Invasive Catfish

The Smithsonian Environmental Research Center (SERC) conducted a diet study on catfish in the upper parts of the Patuxent and Nanticoke Rivers. The catfish they sampled were found in lower salinity waters and tended to be small in size (< 12 lbs.), which affects the diets. The SERC team dissected the catfish, and identified and quantified the species found in the stomach contents. The diets found between the two sampling locations were largely similar. The predominant diet item was invertebrates, as invertebrate tube material was found in high quantities among all size classes.



Percent of diet by weight for different blue catfish size classes. Invertebrate tube material (ITM) comprised the majority of the stomach contents. *Image courtesy of* [Matthew Ogburn](#) *(SERC).*

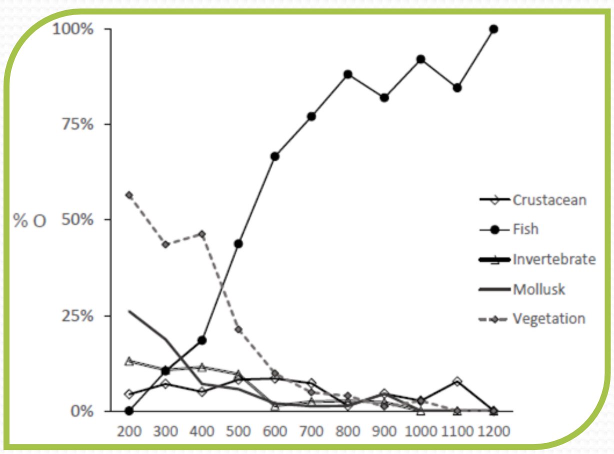


For more, please see Matthew Ogburn's [presentation](#).

It was noted that as catfish reached 350 mm in total length (TL), their diet became more piscivorous. In addition to the diet study, SERC is also tracking the movement of tagged catfish and building a genetic database that can be used to identify species found in stomach contents.

Virginia Tech (VT) investigated predation of *Alosa* species by blue and flathead catfish in Virginia's tidal rivers. This study targeted a larger range of catfish sizes. Stomach contents were extracted from 2,164 blue catfish and 331 flathead catfish. This included hundreds of large fish (526 catfish > 800 mm TL).

Image courtesy of [Joseph Schmitt](#) *(VT)*



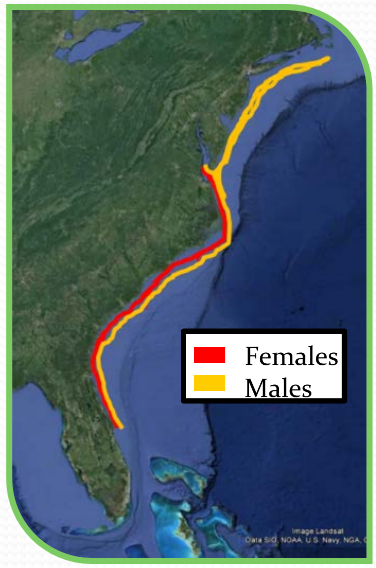
Statistical analysis of blue catfish diets revealed significant ontogenetic diet shifts for most prey categories. The majority of the dietary shifts to piscivory occurs around 500 mm TL. *Image courtesy of* [Joseph Schmitt](#) *(VT)*

Blue catfish had a broad, omnivorous diet with an ontogenetic shift to piscivory at 500 mm TL. Gizzard shad are the most important fish prey for the blue catfish. Flathead catfish was exclusively piscivorous, and consumed *Alosa* species more often than blue catfish. The overall *Alosa* occurrence in Flathead was 16.67% (mostly hickory shad), and 4.46% in Blue Catfish. It is important to note that the sample size of flathead catfish was much smaller than that of blue catfish, and blue catfish are much more abundant than flatheads.

The next steps in this research are to evaluate population sizes and consumption estimates to determine the population-level impacts of catfish predation on Alosines.

Cownose Rays

This past October, scientists, fisheries managers and interested public met at the National Aquarium for a workshop on Cownose Rays. Scientists shared the results of their recent cownose ray research and provided recommendations moving forward. The workshop explored age, growth, reproduction, diet, population dynamics, fishing effort and marketing of the cownose ray in the Chesapeake Bay.



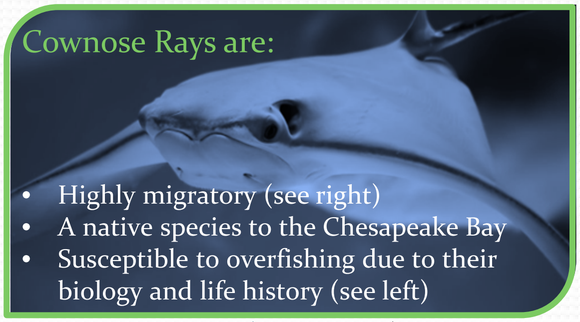
The cownose ray migrates along the East Coast. Mature cownose rays migrate into the Chesapeake Bay in May. Mature females give birth in June-July, mate with mature males, and remain in the Bay until October. Males leave the Bay after mating is complete. *Image by of Robert Fisher (VIMS)*

High potential for overfishing:

- Low reproduction potential (1 pup/year)
- Long gestation period (11 months)
- Slow growing (7 years to maturity)

Both historically and presently, there are concerns regarding cownose ray predation on commercially valuable shellfish. Hard clams and oysters were not found to be a significant portion of cownose ray diets in the Chesapeake Bay, but localized intensive feeding on these species can be a threat to shellfish aquaculture and restoration.

Presentations featured recent studies that provided insight into the cownose ray species and their utilization of the Chesapeake Bay. The information addressed questions and misconceptions about cownose rays in the Chesapeake (detailed in the box to the right).



See Emilie Franke's (ERT/NOAA) presentation.
Photo: Metropolitan Oceanic Institute

Workplans

Please see this link for more information.

Chesapeake Bay Program develops the Watershed Agreement with numerous outcomes → Goal Implementation Teams (GITs) draft Management Strategies to outline targets for each outcome → GITs and workgroups designate specific actions in 2 year workplans

The SFGIT is focused on four outcomes in the 2014 Chesapeake Bay Watershed Agreement: Blue Crab Abundance and Management, Oyster Restoration, Forage Fish, and Fish Habitat. The habitat outcomes under the purview of the Habitat Goal Team, such as brook trout and fish passage, are also of interest to the SFGIT. In order to achieve the outcomes, the SFGIT and their workgroups developed workplans which outline actions for the next two years. Numerous agencies, jurisdictions, non-profits, and other organizations are committed to specific actions to achieve these outcomes. The major actions for each workplan are outlined below. Final workplans will be completed in April following public input period.

Sustainable Fisheries GIT

Blue Crab
- Finalize and conduct stock assessment
- Evaluate allocation based framework

Oyster
- Restoration implementation
- Secure support
- Enhance protection
- Local participation

Forage
- Define species
- Determine status
- Increase monitoring
- Inform decisions

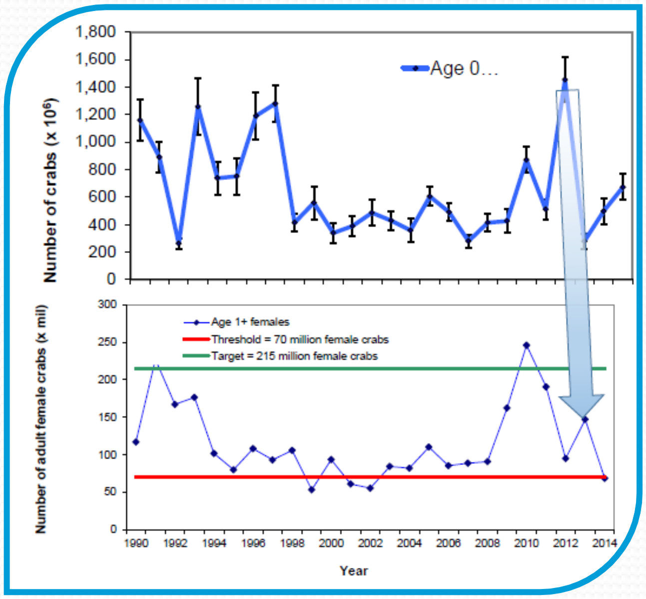
Fish Habitat
- Identify threats
- Compile data
- Develop tools
- Enhance protection
- Communicate

Vital Habitats GIT

Brook Trout
- Focus priority areas
- Climate planning
- Expand monitoring
- Utilize support tools

Fish Passage
- Open 1,000 stream miles
- Utilize Passage Tool
- Document species return

Blue Crab



The 2011 blue crab year class was very high according to surveys. This year class become the 2012 juveniles which were surveyed in the WDS. A large increase was expected in the 2013 WDS, however, it was not represented in the survey. *Image courtesy of [Tom Miller](#) (UMCES-Chesapeake Biological Laboratory)*

A team at UMCES has completed a project to compare blue crab data from multiple fishery-independent surveys to address the disappearance of the 2011 blue crab year-class. The project also assessed the number of broods an adult female can produce within her lifetime.

The 2011 blue crab year-class was estimated to be very strong due to the high juvenile estimate from the 2012 Winter Dredge Survey (WDS); however the 2013 WDS did not see an increase in adults as expected from these juveniles. UMCES performed a thorough examination of possible causes of this disparity to determine whether the WDS survey estimate in 2012 was biased, if mortality was unusually high, or other factors were at play.

Their results indicate that the survey was not biased, and that mortality was indeed high for the 2011 year-class. The relative survival rate (juveniles surviving to adulthood from 2012-2013) was the lowest on record for the WDS, and the low survival was more evident in the northern parts of the Bay. and that the survey was not biased.

The expected number of broods per individual female recruit to the Chesapeake is ~1.42. The expected number of broods given a female survives to produce a first brood is ~3.30. A summary of their work can be found in Tom Miller's [presentation](#).

To Right: UMCES compiled blue crab data from six different surveys in the Chesapeake Bay to investigate the coherence of the survey trends. *Image courtesy of [Tom Miller](#) (UMCES-CBL)*