Outcome: Forage

Goal: Sustainable Fisheries-Protect, restore and enhance finfish, shellfish and other living resources, their habitats and ecological relationships to sustain all fisheries and provide for a balanced ecosystem in the watershed and Bay.

Outcome: Continually improve the Partnership's capacity to understand the role of forage fish populations in the Chesapeake Bay. By 2016, develop a strategy for assessing the forage base available as food for predatory species in the Chesapeake Bay.

Long term Target: Implement an assessment and monitoring of forage per the strategy to determine the status of forage availability.

2 year Target: Write a strategy outlining how Chesapeake Bay forage species will be assessed and monitored.

In progress/completed

Needs action in near-term

Key Action** *Description of work/project. Define each major action step on its own row. Identify specific program that will be used to achieve action.*	**Performance Target(s)** *Identify incremental steps to achieve Key Action.*	**Participating Entity** *Identify responsible partner for each step.*	**Geographic Location**	**Timeline** *Identify completion date (month & year) for each step)*	**Factors Influencing and/or Gap** *Identify related factor or gap in Management Strategy*
Management Approach 1: Define forage species and what comprises the forage base.					
Key Action**	**Performance Target(s)**	**Participating Entity**	**Geographic Location**	**Timeline**	**Factors Influencing and/or Gap**
1.A. Using results from the forage workshop report, *Fisheries GIT resource managers will identify highest priority forage species* to focus near-term science and management efforts.	1.A.1. Develop and conduct a process to identify near term priority species across the resource management agencies. Maryland has decided to focus on striped bass as a key managed predator to develop forage indicators around its major prey species.	Forage Action Team, Sustainable Fisheries GIT Ex Comm (MD, VA, PRFC)	MD, VA and Potomac River waters (focus on tidal but will include full extent of biological range for species selected)	mid-late 2016	Management prioritization and commitment, funding and coordination, challenges in assessing migratory species, numerous management species, Bay and Regional objectives may not align, many forage species not currently managed, lack of indicators for invertebrates and benthic species
	1.A.2. Compile data and analyses for selected near-term forage species to quantify their contribution to the forage base.	Forage Action Team	MD, VA and Potomac River waters (focus on tidal but will include full extent of biological range for species selected)	late 2016	
	1.A.3. Determine how to utilize this information to manage the forage supply for key predators.	Forage Action Team, Sustainable Fisheries GIT Excomm (MD, VA, PRFC)	MD, VA and Potomac River waters (focus on tidal but will include full extent of biological range for species selected)	late 2016 - early 2017	
	1.A.4. Prioritize data gaps and identify potential funding mechanisms.	Forage Action Team	Watershed-wide	late 2016	

1.B. Resource managers will identify and prioritize forage species from the forage workshop report to focus long term efforts.	1.B.1. Compile and evaluate information on long-term priority forage species and determine how to utilize this information to manage the forage supply for key predators.	Forage Action Team, Sustainable Fisheries GIT Excomm (MD, VA, PRFC)	MD, VA and Potomac River waters (focus on tidal)	late 2016	Management prioritization and commitment, funding and coordination, challenges in assessing migratory species, numerous management species, Bay and Regional objectives may not align, lack of indicators for invertebrates and benthic species
	1.B.2. Prioritize data gaps and identify potential funding mechanisms.	Forage Action Team	Watershed-wide	late 2016	
1.C. Conduct outreach to emphasize importance of forage species and the application of efforts to quantify their role in the Bay ecosystem.	1.C.1. Meet with ASMFC, MAFMC and state advisory groups to identify shared efforts/priorities.	Sustainable Fisheries GIT Staff and jurisdictional reps (MD, PRFC, VA), jurisdictional advisory bodies	N/A	Ongoing	Management prioritization and commitment, funding and coordination, challenges in assessing migratory species, numerous management species, Bay and Regional objectives may not align, lack of indicators for invertebrates and benthic species
	1.C.2. Present the STAC Forage Workshop Report and progress to CBP Management Board and STAR.	Sustainable Fisheries GIT Staff and STAC Forage Workshop Leads	Watershed-wide	Ongoing; Initial briefings in early 2016	
	1.C.3. Develop content and web pages on CBP website and partner sites and explore a video or film.	Sustainable Fisheries GIT staff and Forage Action Team	Watershed-wide	mid 2016	
	1.C.4. Explore the feasibility of developing a documentary about the importance of forage for outreach efforts.	Forage Action Team, CBP Communications Team, Forage experts	Watershed-wide	early 2016	

Management Approach 2: Determine the status of the forage base including a definition of "balanced" state.

Key Action**	Performance Target(s)	Participating Entity	Geographic Location	Timeline	Factors Influencing and/or Gap
2.A. Use existing data to develop indicators and metrics for near-term species.	2.A.1. Identify which indicators are most useful for specific forage groups using the results of the GIT funded forage project.	MD DNR, VMRC, PRFC, Forage Action Team, UMCES	Watershed-wide	early 2016	Management prioritization and commitment, funding and coordination, challenges in assessing migratory species, numerous management species, Bay and Regional objectives may not align, lack of indicators for invertebrates and benthic species
	2.A.2. Maryland DNR will continue to refine forage/nutritional indicators for striped bass. (Prototype indicators are complete)	MD DNR (Jim Uphoff)	MD waters	Ongoing	

2.A. Develop a definition of a "balanced" state for predators and prey.	2.B.1. Identify and evaluate population trends (consider environmental drivers) for priority forage species. Evaluate and quantify consumption indices for 5 identified predator species.	MD DNR, UMCES, Forage Action Team	MD, VA and Potomac River waters (focus on tidal but will include full extent of biological range for species selected)	Feb 2016 (report provided by UMCES)	Management prioritization and commitment, funding and coordination, challenges in assessing migratory species, numerous management species, lack of indicators for invertebrates and benthic species, need for predator dietary studies
	2.B.2. Apply population trends analysis as a tool to develop management objectives.	Forage Action Team, Sustainable Fisheries GIT Ex Comm (jurisdictional managers)	MD, VA and Potomac River waters (focus on tidal but will include full extent of biological range for species selected)	late 2017	

Management Approach 3: Inform management decisions to better address sustainability of the forage base.					
Key Action**	**Performance Target(s)**	**Participating Entity**	**Geographic Location**	**Timeline**	**Factors Influencing and/or Gap**
3.A. The management jurisdictions will establish management objectives for priority forage species (near-term and long-term).	3.A.1. The CBC will work collaboratively with the Bay Program partners to identify legislative, budgetary and policy needs to advance the goals of the Chesapeake Watershed Agreement. The CBC will, in turn, pursue action within their member state General Assemblies and the United States Congress. See CBC Resolution #14-1 for additional information on the CBC's participation in the management strategies.	CBC, Sustainable Fisheries GIT	Watershed-wide	Ongoing	Funding and coordination, management prioritization
	3.A.2. Convene a meeting to establish specific short-term management objectives including targets and thresholds for priority species.	Forage Action Team, Sustainable Fisheries GIT Ex Comm (MD, VA, PRFC)	MD, VA and Potomac River waters (focus on tidal)	mid-late 2016	Funding and coordination, management prioritization, challenges in assessing migratory species, numerous management species, Bay and Regional objectives may not align, workshop funding
	3.A.3. Convene a workshop to discuss strategic long-term objectives and regional priorities.	Forage Action Team, Sustainable Fisheries GIT Ex Comm (MD, VA, PRFC)	MD, VA and Potomac River waters (focus on tidal)	mid-late 2016	
	3.A.4. Coordinate Fisheries GIT forage species science and management objectives with ASMFC, MAFMC and state advisory groups. Provide information on Chesapeake Bay forage as needed to ASMFC/MAFMC.	Fisheries GIT Staff, MD, VA, PRFC, management agency advising groups	MD, VA and Potomac River waters (focus on tidal)	Ongoing	

Management Approach 4: Maximize the efficiency of monitoring programs and build on existing efforts

Key Action**	Performance Target(s)	Participating Entity	Geographic Location	Timeline	Factors Influencing and/or Gap
4.A. Identify and prioritize monitoring gaps for forage species.	4.A.1. Explore options to modify existing monitoring programs that will reduce costs and cover a range of species.	Forage Action Team, STAR	MD, VA and Potomac River waters (focus on tidal)	early-mid 2016	Management prioritization and commitment, funding for monitoring programs, multiagency coordination, challenges in assessing migratory species,
	4.A.2. Work with partners to evaluate the feasibility of restarting phytoplankton and zooplankton monitoring.	Forage Action Team, MD DNR, VIMS, STAR	MD, VA and Potomac River waters (focus on tidal)	Mid 2016	
	4.A.3. Develop a proposal for shallow-water monitoring survey(s) that address identified gaps.	Forage Action Team, MD DNR, VIMS, STAR	MD, VA and Potomac River waters (other jurisdictions?)	Mid 2016	
4.B. Draft a strategy for assessing the forage base available as food for predatory species in the Chesapeake Bay	4.B.1. Incorporate outputs from Management Approaches 1, 2 and 3.	Forage Action Team, Sustainable Fisheries GIT Ex Comm	Watershed wide	2017	Management prioritization and commitment, funding and coordination, challenges in assessing migratory species, numerous management species, Bay and Regional objectives may not align, lack of indicators for invertebrates and benthic species

ASMFC - Atlantic States Marine Fisheries Commission
CBP - Chesapeake Bay Program
DE - Delaware
EPA - Environmental Protection Agency
Ex Comm - Executive Committee of the Sustainable Fisheries GIT
GIT - Goal Implementation Team
MAFMC - Mid-Atlantic Fisheries Management Council
MD - Maryland
MD DNR - Maryland Department of Natural Resources
NCBO - NOAA Chesapeake Bay Office
NOAA - National Oceanic and Atmospheric Administration
PRFC - Potomac River Fisheries Commission
STAR - Scientific and Technical Assessment and Reporting
SF GIT - Sustainable Fisheries GIT
UMCES - University of Maryland Center for Environmental Science