



## Logic and Action Plan: Post-Quarterly Progress Meeting

### Fish Habitat – 2020-2021

**Long-term Target:** (the metric for success of Outcome)

**Two-year Target:** (increment of metric for success)

<b>Instructions:</b> Before your quarterly progress meeting, provide the status of individual actions in the table below using this color key.
Action has been completed or is moving forward as planned.
Action has encountered minor obstacles.
Action has not been taken or has encountered a serious barrier.

Additional instructions for completing or updating your logic and action plan can be found on [ChesapeakeDecisions](#).

Factor	Current Efforts	Gap	Actions	Metrics	Expected Response and Application	Learn/Adapt
<i>What is impacting our ability to achieve our outcome?</i>	<i>What current efforts are addressing this factor?</i>	<i>What further efforts or information are needed to fully address this factor?</i>	<i>What actions are essential (to help fill this gap) to achieve our outcome?</i>	<i>What will we measure or observe to determine progress in filling identified gap?</i>	<i>How and when do we expect these actions to address the identified gap? How might that affect our work going forward?</i>	<i>What did we learn from taking this action? How will this lesson impact our work?</i>
<b>Scientific and Technical Understanding:</b> habitat impacts on fish at critical life stages	Research on fish habitat is ongoing by partner organizations	Gaps remain in understanding how environmental factors and availability of quality habitat	<b>1.1</b> Complete NCBO-funded research projects addressing tidal habitat utilization and connectivity for black sea bass, summer flounder, striped bass, and forage species.	Results communicated to stakeholders, and considered for fishery management	Improved understanding of fish habitat utilization and connectivity for key species.	

		impacts fish at critical life stages	<p><b>1.2</b> Complete GIT-funded project – Chesapeake Bay striped bass nursery habitat assessment.</p> <p><b>1.3</b> Continue efforts to link fish habitat requirements of shad, herring, striped bass to water quality trends using long-term tidal monitoring data</p>	<p>Information on striped bass nursery habitat incorporated into management decision making (e.g. Essential Fish Habitat consultations, land use planning)</p> <p>Review and refine analysis products</p>	<p>Improved understanding of high value habitat availability and condition for striped bass</p> <p>Improved understanding of habitat and water quality relationships</p>	
<b>Scientific and Technical Understanding:</b> conducting fish habitat assessments	Ongoing effort to compile and assess available environmental and biological data, and effects of scale, for fish habitat assessments.	Need improved understanding of how data quality, scale, extent, and quantitative analytical and modeling methodologies affect fish habitat assessment at management-relevant scales.	<p><b>2.1</b> Evaluation of different scales and summary assessment methods in a test area where data are available (nontidal only)</p>	Summary of tested methods to assessment steering committee	Results by October 2020 will inform decisions on tradeoffs related to most appropriate scale for assessment methodologies.	
			<p><b>2.2</b> Evaluation of information at 1:100,000 for the entire non-tidal portion of the watershed. USGS will begin a nontidal watershed assessment at 1: 1:100K (to compare with existing NFHP assessment)</p>	Assessment may serve as a metric/baseline for this outcome.	Results on data evaluation by October 2020 will be used for the 1:100K assessment which will provide better understanding of Chesapeake Bay specific	

					stressors and fish habitat.	
			<p><b>2.3</b> Build analytical (statistical) framework for candidate tidal tributary using physical and biological datasets. Obtain feedback on the tidal framework from regional experts and incorporate feedback in final version of analytical (statistical) framework to Chesapeake Bay tidal areas.</p>		Results in the development of framework for analysis, based on guidance from experts and stakeholders - relevant to fish habitat with potential for broader application	
			<p><b>2.4</b> Develop recommendations for extending the analytical /statistical framework from candidate tributary</p>			
			<p><b>2.5</b> Summary of fish metadata and data gaps (nontidal and tidal) Specific to biological fish data.</p>	Final project report and deliverables resulting in better understanding of existing fish data sets for the Chesapeake Bay, to inform pilot assessments		
			<p><b>2.6</b> Updated inventory of stressors and predictors,</p>		Results in a catalogue of a broad array of	

			their spatial scale and identification of data gaps (nontidal and tidal)		spatially defined data sets for the Chesapeake Bay	
			<b>2.7</b> Build on non-tidal and tidal analytical and assessment work to identify options for joint NOAA-USGS pilot with non-tidal and tidal habitats		Decision on feasibility of, and potential locations for, conducting a joint assessment	
		Need improved understanding of blue catfish ecology, occupancy, and consumption impacts of blue catfish in order to manage expectations and improve natural mortality estimates of species in the blue catfish diet	<b>2.8</b> American eel habitat assessment	Watershed land cover and other environmental predictor data combined with American eel occupancy, abundance, and density in catchments of the Chesapeake Bay	Suitability of data to conduct American eel habitat and stock assessment in FY21	
			<b>2.9</b> Conduct co-designed ‘test bed’ study with MD DNR on invasive blue catfish in the Patuxent River	Use information about spatiotemporal differences in diet and occupancy abundance to guide efforts to manage blue catfish populations.	Understanding of movement patterns and consumption impacts at greater spatial and temporal scales. Identify overwintering and spawning habitats (areas of high concentration) in order to guide efforts to suppress blue catfish populations.	

	<p>Currently obtaining nontidal fish data that can then be mapped.</p> <p>Previous GIT funded projects investigated the impact of hardened shorelines on fish resources using thresholds, and a current project is looking at the barriers to behavior changes that increase use of living shorelines.</p>	<p>Information on fish occupancy and hardened shoreline impacts have been done, but they need effective communication to inform homeowner, permitting and management decisions.</p>	<p><b>3.1</b> Map of fish species occupancy in nontidal waters</p> <p><b>3.2</b> Potomac River and Shenandoah River bathymetric LIDAR.</p> <p><b>3.3</b> Develop a percent hardened shoreline GIS layer using existing shoreline inventory data and connect to shoreline threshold results</p> <p><b>4.4</b> Develop communications and guidance products that focus on educating coastal landowners on the ecological impacts of hardened shorelines and the benefits of living shorelines.</p>	<p>Continued discussion with Chesapeake Bay Program partners on how to address loss of natural shoreline habitat</p> <p>Project deliverables used to communicate about shorelines with counties or permitting agencies</p>		
<p><b>Partner Coordination</b></p>	<p>Interviews with tidal and nontidal State partners were conducted to determine their management and science needs. Currently, the team coordinator participates in other outcome team meetings.</p>	<p>Acquiring and analyzing feedback and utility for fish habitat decision-making tools and datasets</p>	<p><b>4.1</b> Report on stakeholder needs -includes NOAAs white paper (tidal) and USGS summary of meetings (nontidal).</p>	<p>Stakeholders widely use the habitat assessment in decision making to address needs.</p>	<p>Improved understanding on the needs of each jurisdiction to help plan work on fish habitat assessment and habitat stressors.</p>	

			<b>4.2</b> Improved Cross Outcome Coordination: Engage and communicate fish habitat information and efforts with other teams.	Increased collaboration on information and projects.  Increased communication and efficiency working across outcomes		
	Coordination is needed to build from other similar, ongoing or recently completed fish habitat assessments, and will continue in the next 2 years		<b>5.1</b> Coordination with NRHA inland assessment and ACFHP northeast assessment			
			<b>5.2</b> Summary of lessons learned and variables used in previous fish habitat assessments			
<b>Government Agency, Nongovernmental organization, and local engagement</b>	Provide relevant and accessible information to local governments to help increase consideration of fish habitat in decision-making	Engaging effectively with stakeholder groups can be improved	<b>4.3</b> Engage and communicate the value of fisheries (economic impact) to local government planners and officials.	Evidence indicating whether counties have found the information useful.	Improved understanding of anthropogenic impacts to fisheries economic contributions	
			<b>4.4</b> Complete GIT-funded project- Developing communications and guidance on shoreline protection options for coastal landowners.	Improved understanding of nature-based shoreline benefits by landowners	Increased numbers of living shoreline BMPs implemented over time	

			<b>4.5</b> Develop cross-Outcome Watershed Educational Materials for Local Government.	Results in better-informed local officials throughout the Chesapeake Bay watershed who understand the multiple benefits environmental management practices can bring to their communities	Increased capacity of local officials to take action and implement BMPs	
			<b>4.6</b> Habitat tools fact sheet that describes how fisheries management can use habitat tools to address habitat influences and improve management outcomes	Increased focus on management applications of fish habitat work		

### ACTIONS – 2020-2021

Action #	Description	Performance Target(s)	Responsible Party (or Parties)	Geographic Location	Expected Timeline
<b>Management Approach 1: Compile and identify available data on habitats, habitat vulnerabilities and fish utilization</b>					
<b>1.1</b>	Complete NCBO-funded research projects addressing habitat utilization and connectivity for black sea bass, summer flounder, striped bass, and forage species.	Final reports and deliverables with results distributed to the Fisheries GIT and Fish Habitat Action Team	NCBO, research PIs	Mid-Atlantic region	January 2021

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Action #	Description	Performance Target(s)	Responsible Party (or Parties)	Geographic Location	Expected Timeline
1.2	Complete GIT-funded project – Chesapeake Bay striped bass nursery habitat assessment	Deliver final results to Fish Habitat Action Team and Fisheries GIT, and develop recommendations to apply results to conservation and restoration	Selected Bidder/Contractor, Project Advisory Team, and Fish Habitat Action Team	Chesapeake Bay tributaries	March 2021
1.3	Continue efforts to link fish spawning habitat requirements of shad, herring, striped bass to water quality trends using long-term tidal monitoring data	Maps of species-specific habitat requirements overlaid with tidal water quality trends analysis	NCBO, USGS	Chesapeake Bay tributaries	Ongoing
<b>Management Approach 2: Identify and prioritize stressors to fish habitat and evaluate scale</b>					
2.1	Evaluation of different scales and summary assessment methods in a test area where data are available (nontidal only)	Final reports, publications, and data releases with results distributed to the Fisheries GIT, Fish Habitat Action Team, other stakeholders	USGS	Mid-Atlantic region	Scale evaluation, summary methods - October 2020; Fine-scale stressor summary - October 2021
2.2	Evaluation of information at 1:100,000 for the entire non-tidal portion of the watershed. and begin a nontidal watershed assessment at 1: 1:100K, (to compare with existing NFHP assessment)	Final reports, publications, and data releases with results distributed to the Fisheries GIT, Fish Habitat Action Team, other stakeholders	USGS	Chesapeake Bay Watershed	Updated stressor inventory, summary of fish metadata and data gaps - October 2020; Preliminary fish habitat assessment - October 2021
2.3	Build analytical (statistical) framework for candidate tidal tributary using physical and biological datasets.	Using small set of variables, develop an analytical, statistical framework for a candidate tributary (April).	NOAA/NCCOS	Tidal waters of candidate tributary (TBD)	April 2020



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Action #	Description	Performance Target(s)	Responsible Party (or Parties)	Geographic Location	Expected Timeline
	Obtain feedback on the tidal framework from regional experts and incorporate feedback in final version of analytical (statistical) framework to Chesapeake Bay tidal areas.	Review the analytical and statistical framework with regional experts.	NOAA/NCCOS	Tidal waters of candidate tributary (TBD)	July 2020
		Testing of analytical framework for select tributary(s) informs development of recommendations for extending framework.	NOAA/NCCOS Fish GIT	Tidal waters of candidate tributary (TBD)	December 2020
<b>2.4</b>	Develop recommendations for extending the tidal analytical /statistical framework from candidate tributary to Chesapeake Bay tidal areas.	Recommendation report distributed to the Fisheries GIT, Fish Habitat Action Team, and other stakeholders.	NOAA/NCCOS	Tidal Waters of Bay	January 2021
<b>2.5</b>	Summary of fish metadata and data gaps (nontidal and tidal) Specific to biological fish data.	Receive fish metadata summary from Tetra Tech	Tetra Tech; NOAA/NCCOS; USGS/LSC	Chesapeake Bay Watershed Baywide	June 2020
		Combine USGS and Tetra Tech metadata	NOAA/NCCOS; USGS/LSC	Chesapeake Bay Watershed Baywide	September 2020
<b>2.6</b>	Updated inventory of stressors and predictors, their spatial scale and identification of data gaps (nontidal and tidal)	Collate new data sources for stressor, condition, and habitat variables with inventory from 2018 STAC Workshop	USGS/LSC; NOAA/NCCOS	Chesapeake Bay Watershed Baywide	September 2020
		Reformat data for simplified searching and viewing	NOAA/NCCOS; USGS/LSC	Chesapeake Bay Watershed Baywide	September 2020
<b>2.7</b>	Build on non-tidal and tidal analytical and assessment work to identify options for joint NOAA-USGS pilot with non-tidal and tidal habitats.	Options to identify means of achieving better understanding of habitat, stressor and species relationships from headwaters to estuary.	USGS and NOAA/NCCOS, NOAA/NCBO	Chesapeake Bay Watershed	October 2021

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Action #	Description	Performance Target(s)	Responsible Party (or Parties)	Geographic Location	Expected Timeline
2.8	American eel habitat assessment	White paper on scoping American eel habitat assessment from existing data.  Results distributed to the Fisheries GIT, Fish Habitat Action Team, Fish Passage Workgroup, and other stakeholders	USGS	Chesapeake Bay Watershed	September 2020
2.9	Conduct co-designed ‘test bed’ study with MD DNR on invasive blue catfish in the Patuxent River	Final reports, publications, and data releases with results distributed to the Fisheries GIT, Fish Habitat Action Team, other stakeholders  Data visualization tool of invasive blue catfish tagging study on distribution and movement patterns  Summary of the management challenges and priority science needs of invasive blue and flathead catfish.	USGS, MD DNR	Patuxent River, MD	Final reports and data visualization tool – September 2021  Summary of priority aquatic invasive science needs – March 2020
<b>Management Approach 3: Map and target high-value fish habitat for improved conservation and restoration.</b>					
3.1	Species Occupancy maps (Nontidal only) showing where different species occur	Map of fish species occupancy	USGS	Chesapeake Bay Watershed	October 2020

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Action #	Description	Performance Target(s)	Responsible Party (or Parties)	Geographic Location	Expected Timeline
3.2	Potomac River and Shenandoah River bathymetric LIDAR.	Collect and assess bathymetric LIDAR data on the Potomac and Shenandoah Rivers.  Report and data release	USGS	Potomac River from Little Falls Dam upstream to Shepherdstown, WV and including a portion of the Shenandoah River to Millville Dam	October 2020
3.3	Develop a percent hardened shoreline GIS layer using existing shoreline inventory data and connect to shoreline threshold results	Map products showing areas of relative high shoreline development, to inform communication about shoreline management	NCBO, Chesapeake Bay Program GIS team	MD, VA, DE	May 2020
<b>Management Approach 4: Communicate importance of fish habitat</b>					
4.1	Produce report on stakeholder needs -includes NOAAs white paper (tidal) and USGS summary of meetings (nontidal)	Compile state meeting summaries into a report including a list of potential projects, actions, and timeframe	NOAA/NCCOS; USGS/team Coordinator	Watershed	May 2020
4.2	Improved Cross Outcome Coordination: Engage and communicate fish habitat information and efforts with other teams.	Committed coordination and cooperation with key CBP workgroups to assure shared resources, information and priorities while reducing duplication of efforts: Key complementary groups include: Healthy Watersheds, Stream Health, Brook Trout, Wetlands, Climate Resiliency, Local Engagement Coordination.	Fish Habitat Action Team	Watershed	Ongoing

## ACTIONS – 2020-2021

Action #	Description	Performance Target(s)	Responsible Party (or Parties)	Geographic Location	Expected Timeline
		Continue working to determine intersections with the healthy watersheds assessment and how to overlay a future fish habitat assessment layer	Fish Habitat Action Team, Healthy Watersheds GIT	Watershed	Ongoing
4.3	Develop and communicate the value of fisheries (economic impact) to local government planners and officials.	Develop infographic for each state that communicates the economic impact of fisheries to the jurisdiction, and number of fishing participants per county.	Fish Habitat Action Team, Communications Team	MD, DE, VA, PA, WV	February 2020
4.4	Complete GIT-funded project- Developing communications and guidance on shoreline protection options for coastal landowners.	Use final project deliverables to inform communications and outreach to target audience	Selected Bidder/Contractor, Project Advisory Team, and Fish Habitat Action Team	MD, DE, VA	May 2021
4.5	GIT funded project - Cross-Outcome Watershed Educational Materials for Local Government	Fish habitat is one of several modules that the contractor will work to reflect outcome objectives and frame issues through the lens of local priorities.	Selected GIT funded Contractor	Watershed wide	November 2020
4.6	Habitat Tools summary that describes how fisheries management can use habitat tools to address habitat influences and improve management outcomes.	Fact sheet and presentations to fisheries managers	Fish Habitat Action Team	Watershed wide	May 2021

**Management Approach 5: Evaluate ways to enhance fish habitat protection by reviewing examples from other regions and actively engaging with the Atlantic Coast Fish Habitat Partnership.**

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Action #	Description	Performance Target(s)	Responsible Party (or Parties)	Geographic Location	Expected Timeline
5.1	Coordination with NRHA inland assessment and ACFHP Northeast assessment	Presentation to Fisheries GIT and Fish Habitat Action Team on final ACFHP NE assessment	NOAA/NCBO; NOAA/NCCOS; USGS/LSC	Baywide/Regional	Ongoing
5.2	Summary of lessons learned and variables used in previous fish habitat assessments	Summary presented to assessment steering committee	NOAA/NCCOS	National/Regional	April 2020