Oysters – 2020-2021 *[NOTE: make sure to edit **pre**- or **post**- in the text above, to tell the reader whether this logic and action plan is in preparation for your quarterly progress meeting or has been updated based on discussion at the quarterly progress meeting.]*

Long-term Target: (the metric for success of Outcome)
Two-year Target: (increment of metric for success)

Instructions: 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
What is impacting our ability to achieve our outcome?	*What current efforts are addressing this factor?*	*What further efforts or information are needed to fully address this factor?*	*What actions are essential (to help fill this gap) to achieve our outcome?*	*What will we measure or observe to determine progress in filling*	*How and when do we expect these actions to address the identified gap?*	*What did we learn from taking this action? How will this lesson impact our*

				identified gap?	*How might that affect our work going forward?*	*work?*
Resource Availability: funding is a barrier to success, and considerations of efficiency and cost savings impact our ability to reach 10 tributaries by 2025.	Efforts are underway to plan for funding tributary restoration. Innovative finance strategies are currently being discussed. Cost-saving	Funding across all state, federal, non-profit partners to fully complete 10 tributaries has not been secured.	1.1, 1.2, 2.1, 3.1	Adequate funding in place to meet each tributary specific restoration goal, and efficiency in meeting restoration goals increasing over time.	Full support from partners with resources needed to reach 10 restored tributaries by 2025.	The key states have stepped up to help ensure the oyster goal will be met. Maryland passed legislation mandating the completion of its five tributaries. Virginia allotted $10 million in additional funding to ensure its tributaries are completed. These actions were largely possible due to the early intensive work of the partners in terms of common goal setting, tributary selection, planning, and consensus building.

	techniques are also					

	being explored.					
Scientific and Technical Understanding: Evaluating bottom conditions in selected tributaries for suitable oyster reef restoration, and conducting monitoring of restored sites to demonstrate success.	Efforts to evaluate bottom type, water quality and habitat conditions for successful oyster restoration.	Surveys and ground truthing for future restoration and monitoring efforts.	1.1, 1.2	Restored reefs continue to meet success metrics.	Restored reefs are sustaining and contributing ecosystem services on a tributary-level scale.	Reef monitoring can likely be done more efficiently, and partners have developed,a dn are testing, a 'rapid assessment protocol' to streamline monitoring.
Government Agency, Nongovernmental Organization, and Partner Coordination: Engaging partners, conduct permitting, and coordinating oyster reef restoration and monitoring at selected sites in MD and VA. Diverse stakeholder coordination is key.	Partner coordination and engagement for existing and planned sites. Frequent coordination with USACE and state agencies.	Further coordination is needed as the new tributary plans are established. Continued planning and permitting applications for new tributaries.	1.1, 1.2, 4.1	Agreement from workgroups on restoration planning and effective restoration implementation.	Full support from partners with resources needed to reach 10 restored tributaries by 2025.	The traditional suite of federal, state, local, academic, and NGO partners are coordinating closely and are committed to success. Improvements need to be made in incorporating more diverse partners and interests.

Scientific and Technical Understanding: Learning how oyster reefs benefit the Chesapeake Bay ecosystem and contribute to overall Bay health is important to	NCBO funded a suite of research studies on oyster reef ecosystem services (ORES) and continues field research on oyster reef habitats.	More work is needed to synthesize results of ORES research and communicate results to public and professional audiences.	2.1, 2.2, 2.3	Increased awareness of the ecological and economic benefits of functioning oyster reefs by both partners and public audiences.	Widespread support for large scale oyster restoration, and understanding of why restoration is needed.	The NOAA-led Oyster Reef Ecosystem Services (ORES) project has resulted in solid information on reef ecosystem services, and has been written up in a NOAA Tech Memo. The next generation of this work is now under way.

demonstrate gains from restoration.						

Climate Change: environmental changes like low salinity, extreme precipitation, ocean acidification, increased temperatures are expected to impact oyster growth and mortality.	Research is ongoing to better understand climate impacts. State agencies are collecting data that can help determine any impacts from extreme events, for example, low salinity experienced in the Bay during 2018-19.	Continuing to track environmental changes and how oyster restoration might be adapted in response is needed to support increased oyster resilience.	2.1, 4.1	Informed decisions to support long term success of oyster restoration based on the latest climate science.	Restored reefs are sustaining and contributing ecosystem services long term.	Research is ongoing, including considering how oyster reefs might be used for shoreline erosion enhancement in some parts of the Bay.
Innovative Restoration Techniques: Improving efficiency with more innovation is needed to both keep pace with the timeline and reduce costs.	Direct setting pilot study completed. Efforts to apply alternative substrate are ongoing in MD and VA, based on site-specific conditions. Low relief reefs and windrows techniques (stripes) are being used in VA.	Lower cost, non invasive monitoring methods to evaluate success metrics (e.g. video methods) should be explored over the next two years.	2.1	Increased efficiency in restoration progress at a pace needed to achieve the 2025 outcome.	Appropriate methods, knowledge, and technology in place needed to reach 10 restored tributaries by 2025.	Results from small-scale direct setting field trials were successful; covid set back larger field trials by a year, but these were done in summer 2021 and results will be fully quantified in fall 2022. Initial results are promising.

	ACTIONS – 2020-2021				
Action #	Description	Performance Target(s)	Responsible Party (or Parties)	Geographic Location	Expected Timeline

Management Approach 1: Restoration planning and implementation

1.1	Maryland Workgroup continues planning, restoration, and monitoring in selected tributaries in Maryland, pending funding	Complete blueprints for St. Mary's and Manokin	MD Workgroup	St. Mary's and Manokin	July 2020
		Complete restoration in Little Choptank and St. Mary's	MD Workgroup partners	Little Choptank, St. Mary's	Little Choptank 2020 St. Mary's 2021
		Complete MD monitoring and annual monitoring report	USACE, ORP, NOAA	MD	Complete by Spring annually
		Continue restoration work in Tred Avon, begin work in Manokin, and continue reseeding Harris Creek as needed	MD Workgroup partners	Tred Avon, Manokin, Harris Creek	Summer 2020-2021
1.2	Virginia Interagency Team, and VA Workgroups continue planning, restoration, and monitoring in selected tributaries in Virginia, pending funding	Complete blueprint for Great Wicomico	VA Workgroups partners	Great Wicomico	Fall 2020
		Continue restoration restoration work in Lynnhaven, Piankatank, and Lower York rivers	VA Workgroup partners	Lynnhaven, Piankatank, & Lower	2020-2021

				York River	
		Adopt Virginia oyster monitoring strategies	VA Workgroup partners	VA	Fall 2020
		Begin restoration work in the Great Wicomico	VA Workgroup partners	Great Wicomico	Fall 2021
		Vote to approve selection of 11th tributary and complete construction in the Eastern Branch of Elizabeth River	Executive Committee, VA Workgroup Partners	Eastern Branch of Elizabeth River	Fall 2020
		Conduct post-restoration monitoring based on the success metrics in Eastern Branch of Elizabeth River	VMRC, Hampton Roads Workgroup partners	Eastern Branch of Elizabeth River	2020-2021
Management Approach 2: Coordinate and communicate oyster restoration progress and research					
2.1	Complete research studies on oysters and share results with	Receive diver versus patent tong gear comparison study and use results to inform monitoring	ORP, SFGIT	MD	Spring 2020

	state Workgroups and Sustainable Fisheries GIT	Complete direct setting pilot analysis, write up and share results, and continue testing methods	NOAA	Choptank complex	Field testing Summer 2020
2.2	Communicate results of oyster restoration science for public audiences	Complete MD and VA implementation updates	NCBO Communications	Baywide	Spring annually

		Develop materials to highlight oyster restoration science and good news stories for public audiences	NCBO, CBP, and external partners (Pew, TNC)	Baywide	Ongoing in 2020-21
2.3	Share science about oyster reef ecosystem services (ORES)	Complete ORES synthesis of research and NOAA Technical Memo	NCBO	Baywide	Fall 2020
Management Approach 3: Securing support and resources					
3.1	Continue to seek resources needed to achieve outcome by 2025	Seek alternative finance and funding options for restoration (e.g., finance forum, review BMP report and facilitate implementation)	NCBO, CBP	Baywide	Ongoing
Management Approach 4: Cross-outcome collaboration and multiple benefits					
4.1	Focused nearshore habitat restoration in the Middle Peninsula of Virginia	Use designation of Middle Peninsula of Virginia (York & Piankatank rivers) as a priority watershed for restoration in the USACE Chesapeake Bay Comprehensive Plan with support from Virginia Coastal Zone Management program and NOAA Habitat Focus Area to promote nearshore habitat restoration	NCBO	Middle Peninsula of Virginia (York & Piankatank Rivers)	Ongoing