Outcome: Oyster Restoration

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 increase finfish and shellfish habitat and water quality benefits from restored oyster populations. Restore native oyster habitat and populations in 10 tributaties by 2025 and ensure their protection.

Long term Target: Restore oyster populations (complete construction/seeding) in 10 tributaries of the Chesapeake Bay by 2025.

2 year Target: Complete Harris Creek restoration construction, continue contruction/seeding in the Little Choptank and Tred Avon. Assess past restoration projects in Lynnhaven and Lafayette against the Oyster Metrics. Develop plans and acreage target for the Piankatank River.

2016-2017 Workplan

Management Approach 1: Restoration planning and implementation.

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)*	**Estimated Project Cost** *Best estimate of total project cost (needed)*	**Available funding by Partner**	**Factors Influencing and/or Gap** *Identify related factor or gap in Management Strategy*
Maryland Interagency Team continues restoration and monitoring in the three currenly selected tributaries in Maryland	Harris Creek: Monitor restored reefs for parameters outlined in the Oyster Metrics. Monitor first cohort in Fall 2015 and the second cohort in Fall 2016 for oyster growth and survival.	MD Interagency Team, University of Maryland	Harris Creek (MD Eastern Shore)	Fall 2016 and Fall 2017	$130,000 for 2016	NOAA	# acres seeded will depend hatchery production. Estimate approximately 100 total acres will be seeded between Tred and Little Choptank in 2016
	Harris Creek: May need maintenance seeding of resotration sites TBD depending on monitoring results from 2015.	MD Interagency Team	Harris Creek (MD Eastern Shore)	2016	Estimated combined cost for seeding in Harris Creek, Tred Avon, Little Choptank in 2016: $2,225,000	Estimated for 2016 seeding: NOAA: $1,000,000 MD DNR: $1,225,000	
	MD DNR will continue to collect continuous water quality data at sites in Harris Creek	MD DNR	Harris Creek (MD Eastern Shore)	2016-2017	$53,628 per year	MD DNR	
	Tred Avon River: Continue seeding and reef construction. Seeding planned for 2016 with specific acreage # TBD.	MD Interagency Team	Tred Avon River (MD Eastern Shore)	2016-2017	Estimated combined cost for seeding in Harris Creek, Tred Avon, Little Choptank in 2016: $2,225,000	Estimated for 2016 seeding: NOAA: $1,000,000 MD DNR: $1,225,000	

tributaries in Maryland.							and Little Choptank in 2016.
	Tred Avon River: Conduct a series of meetings and on-water data collection trips with the watermen community and staff/leadership from NOAA, USACE and MD DNR. Finalize the draft tributary plan based on the outome of these meetings.	MD Interagency Team	Tred Avon River (MD Eastern Shore)	early-mid 2016	Staff time	Staff time from NOAA, USACE and MD DNR	
	Little Choptank: Continue seeding and reef construction. Seeding planned for 2016 with specific acreage # TBD.	MD Interagency Team	Little Choptank River (MD Eastern Shore)	2016-2017	Estimated combined cost for seeding in Harris Creek, Tred Avon, Little Choptank in 2016: $2,225,000	Estimated for 2016 seeding: NOAA: $1,000,000 MD DNR: $1,225,000	
	Continue monthly meetings of the MD Interagency Team to discuss progress and future plans in selected tributaries in Maryland.	MD Interagency Team (NOAA lead)	Maryland	Ongoing	Staff time	Staff from NOAA, USACE, MD DNR and ORP	
					Total		
Virginia Interagency Team continues restoration and monitoring in the three currenly selected tributaries in	Lynnhaven River: Complete restoration planning process and develop a tributary acreage goal. Continue evaluating the status of past restoration projects.	Lynnhaven Team (USACE lead)	Lynnhaven River (VA)	Ongoing	Staff time	Staff from USACE, NOAA, VMRC, VIMS, CBF, Lynnhaven River NOW, City of Virginia Beach, Oyster Reefkeepers	
	Lynnhaven River: Add hard reef habitat as part of the Lynnhaven Ecosystem Restoration Project (FY16 and 17). These projects are dependent upon the ability to obtain leases/real estate in the project areas.	USACE	Lynnhaven River (VA)	2016-2017	Depends on # of acres	USACE	Getting leases is driving the process for Lynnhaven.
	Lafayette River: Complete restoration planning process and develop a tributary acreage goal. Continue evaluating the status of past restoration projects.	Lafayette Team (NOAA lead)	Lafayette River (VA)	Ongoing	Staff time	Staff from USACE, NOAA, VMRC, VIMS, CBF, Christopher Newport University, City of Norfolk, Elizabeth River Partnership	

Virginia.	Piankatank River: Complete restoration planning process and develop a tributary acreage goal. Develop a baseline evaluation to evaluate existing reef acreage and inform the tributary acreage goal.	Pianktank Team (NOAA lead)	Piankatank River (VA)	2016-2017			
	Piankatank River: USACE plans to contruct 39-acres of habitat (alternative substrates and possibly larger reef balls).	USACE	Pianktank River (VA)	2016		USACE	
	Pianktank River: VMRC will continue shell maintenance on past restoration sites.	VMRC	Pianktank River (VA)	2016-2017	Approx. $120K per year	VMRC	
	VA Interagency Team will continue to meet quarterly to discuss progress and future plans for restoration in Virginia. Specific tributary teams will continue to meet more frequently as needed.	Virginia Interagency Team (USACE lead)	Virginia	Ongoing	Staff time	Staff time from Lafayette, Lynnhaven and Pianktank Teams and additional stakeholders	
					Total		
Select additional tributaries in Maryland and/or Virginia for restoration.	Interagency teams review selection criteria and recommend candidate tributaries for restoration.	MD and VA Interagency Teams	MD and VA	late 2016/early 2017	Staff time	Staff time from MD and VA Interagency Teams	
	Jurisdictions identify candidate tributaries to go forward for public scoping.	MD DNR and VMRC	MD and VA	early 2017	Staff time	Staff time from MD DNR and VMRC	
	Conduct public scoping to obtain input on tributary selection in Maryland with selection by late 2017.	MD Interagency Team	MD	early 2017	Staff time	Staff from NOAA, USACE, MD DNR and ORP	
					Total		
Track oyster restoration efforts in tributaries that are not currently selected as one the 10 tributaries under this outcome.	Monitor the success of past restoration projects in the Great Wicomico River.	USACE	Great Wicomico River (VA)	2016		USACE	
	Communicate with the Potomac River Fisheries Commission on their efforts around oysters in the Potomac.	Potomac River Fisheries Commission, Fisheries GIT	Potomac River	Ongoing	Staff time	Staff from Fisheries GIT and Potomac River Fisheries Commission	
					Total		

Continue collecting data to quantify ecosystem services on restored reefs.	NOAA Chesapeake Bay Office will continue to administer their grant-funded Oyster Reef Ecosystem Services (ORES) projects. The ORES Principal Investigators will continue to conduct their research to quantidy the ecosystem benefits of oyster reef restoration.	NOAA, VIMS, UMD, UMCES, VCU, SERC	Maryland: Harris Creek, Little Choprtank River, Tred Avon River; Virginia: Great Wicomico River, Piankatank River, Lynnhaven River, Lafayette River	Ongoing through 2017	$690,894 grants to researchers and NOAA Chesapeake Bay Office Field staff time, equipment and vessel operation	NOAA Chesapeake Bay Office	
	ORES Principal Investigators will meet regularly to discuss their research and results.	NOAA, VIMS, UMD, UMCES, VCU, SERC	Maryland: Harris Creek, Little Choprtank River, Tred Avon River; Virginia: Great Wicomico River, Piankatank River, Lynnhaven River, Lafayette River	Ongoing through 2017	Staff time and ORES grant (see above)	NOAA Chesapeake Bay Office and ORES Principal Investigators	
	Communicate Results: Develop a plan for future publication of ORES projects and results. Share results with state management agencies. Post regular research updates on NOAA Chesapeake Bay Office websites.	NOAA	Maryland: Harris Creek, Little Choprtank River, Tred Avon River; Virginia: Great Wicomico River, Piankatank River, Lynnhaven River, Lafayette River	Ongoing through 2017	Staff time	NOAA	
	Continue compiling information on on additional ecosystem services studies and incorporating results where appropriate.	NOAA, MD and VA Interagency Teams	Maryland and Virginia tributaries	Ongoing	Staff time	Staff time from NOAA, MD and VA Interagency Teams	
					Total		

Management Approach 2: Securing support and resources.							
Key Action**	**Performance Target(s)**	**Participating Entity**	**Geographic Location**	**Timeline**	**Estimated Project Cost**	**Available funding by**	**Factors Influencing and/or Gap** *Identify*
Restoration partners will continue to meet with funding agencies and organizations to maximize available resources.	Communicate the progress on current restoration efforts to funding agencies and organizations.	MD and VA Interagency Teams	MD and VA	Ongoing	Staff time	Staff time from MD and VA Interagency Teams	
					Total		
Restoration partners will work collaboratively to promote efficient, streamlined permitting processes.	Discuss how to preserve leases in restoration areas for future restoration efforts planned for those leased area.	VA Interagency Team, Lynnhaven Team	Lynnhaven River (VA)	2016	Staff time, workshop funds?	Staff from USACE, NOAA, VMRC, VIMS, CBF, Lynnhaven River NOW, City of Virginia Beach, Oyster Reefkeepers	

					Total		
Consider the concerns of shell budget and hatchery capacity and how to address future issues.	Apply for funds and if awarded, convene a technical workshop in 2016 to discuss oyster hatchery and water quality issues.	Fisheries GIT	MD and VA	early 2016	Staff time; Estimate $5,000-10,000 for a workshop	Staff time from MD and VA Interagency Teams; **GAP: Workshop funds**	
	Discuss the issue of limited shell resources at the Oyster Summit being planned for February 2016.	MD and VA Interagency Teams	MD and VA	February 2016	Staff time to attend Oyster Summit	NOAA Chesapeake Bay Office will fund Oyster Summit.	
					Total		

Management Approach 3: Future Protection.							
Key Action**	**Performance Target(s)**	**Participating Entity**	**Geographic Location**	**Timeline**	**Estimated Project Cost**	**Available funding by**	**Factors Influencing and/or Gap** *Identify*
Maryland and Virginia natural resources law enforcement agencies will continue to implement and assess the effectiveness of enforcement plans to address poaching.	Improve surveillance techniques and technology where possible.	MD DNR and VMRC	MD and VA	Ongoing	Included in MD DNR and VMRC natural resources law enforcement operating costs		
	Promote increased awareness of consequences of poaching.	MD and VA Interagency Teams, MD DNR, VMRC	MD and VA	Ongoing	Staff time	Staff time from MD and VA Interagency Teams	
	Promote alternative materials/substrate as protection for restored reefs.	MD and VA Interagency Teams	MD and VA	Ongoing	Staff time	Staff time from MD and VA Interagency Teams	
	Tributary teams will identify additional considerations for sanctuary reefs that are in close proximity to harvest/seed areas open to industry.	MD and VA Interagency Teams	MD and VA	Ongoing	Staff time	Staff time from MD and VA Interagency Teams	
					Total		

Management Approach 4: Approaches Targeted for Local Participation.							
Key Action**	**Performance Target(s)**	**Participating Entity**	**Geographic Location**	**Timeline**	**Estimated Project Cost**	**Available funding by**	**Factors Influencing and/or Gap** *Identify*
Conduct outreach to the general public and to stakeholders near selected tributaries or candidate tribuatries to inform them about restoration efforts.	Conduct stakeholder outreach meetings for local communities near selected tributaries during the restoration planning process.	MD and VA Interagency Teams, VMRC, MD DNR	MD and VA	Ongoing	Staff time	Staff time from MD and VA Interagency Teams	
	Utilize resetoration partner websites and the Chesapeake Bay Program website to feature information and progress updates on restoration efforts.	Fisheries GIT	MD and VA	2016	Staff time	Staff time from Fisheries GIT	

	Total		