

Outcome:

Goal: Restore, enhance and protect a network of land and water habitats to support fish and wildlife, and to afford other public benefits, including water quality, recreational uses and scenic value across the watershed.

Outcome: By 2025, restore historical fish migratory routes by opening 1,000 additional stream miles, with restoration success indicated by the presence of Alewife, Blueback Herring, American Shad, Hickory Shad, American Eel and/or Brook Trout. The Fish Passage Workgroup is dedicated to restoring connectivity to creek, stream and river habitats for migratory fish through dam removal and fish passage projects. While the Fish Passage workgroup is primarily focused on blockage removals that benefit diadromous species, the group acknowledges the benefits of dam removal to resident species. As such, Brook Trout was added to the Fish Passage strategy target species list.

Long term Target: open an additional 1000 miles by 2025

2 year Target: open 132 miles by 2018

Management Approach 1: During the period 2011-2025, restore historical fish migratory routes by opening 1,000 additional stream miles, with restoration success indicated by the presence of Alewife, Blueback Herring, American Shad, Hickory Shad, American Eel and/or Brook Trout.

| Key Action** <i>Description of work/project. Define each major action step on its own row. Identify specific program that will be used to achieve action.</i> | Performance Target(s) <i>Identify incremental steps to achieve Key Action.</i> | Participating Entity <i>Identify responsible partner for each step.</i> | Geographic Location | Timeline <i>Identify completion date (month & year) for each step</i> | Factors Influencing and/or Gap <i>Identify related factor or gap in Management Strategy</i> |
|---|--|---|------------------------------|---|--|
| 1. Continue dam removal activities in the Chesapeake Bay | Remove Bloede Dam. | MD DNR, NOAA, USFWS, American Rivers | Ilchester, MD | Dec-17 | Lack of incentives for dam owners; the ability to achieve change through fish passage projects is largely limited by a lack of resources |
| | Various dam removal planning, design and implementation projects - many project are in a feasibility study phase where there are no immediate milestones during 2016-2017. | Fish Passage Workgroup | Varies | Varies | |
| 2. Project Development via Incentive Programs | MD DNR will pursue a dam removal incentive program to provide incentives to private owners who allow dam removal. | MD DNR | State of Maryland | Dec-17 | Requires state legislation and funding to be allocated for this purpose |
| 3. Coordinate dam removal activities with the state Dam Safety Programs | Establish or continue relationships with state dam safety programs. | Fish Passage Workgroup | Entire Chesapeake Bay Region | Dec-17 | |

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| <p>4. The Chesapeake Bay Commission will work collaboratively with the Bay Program partners to identify legislative, budgetary and policy needs to advance the goals of the Chesapeake Watershed Agreement. We will, in turn, pursue action within our 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.</p> | | CBC | Entire Chesapeake Bay Region | Ongoing | |
|---|--|-----|------------------------------|---------|--|

Management Approach 2: Document return of fish to opened stream reaches by establishing the presence or absence of target species at a select number of projects within the Chesapeake Bay watershed.

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| <p>5. Monitor NOAA funded dam removal projects for the presence/absence of target fish species (Tier I monitoring)</p> | <p>All NOAA funded dam removals will be monitored.</p> | <p>NOAA, funding recipients</p> | <p>At dam removal sites</p> | <p>Ongoing</p> | <p>Presence/Absence monitoring is required for all NOAA funded projects.</p> |
| <p>6. Conduct Tier II monitoring on select dam removals (Currently, the Patapsco River monitoring is the only river designated as a Tier II site by NOAA).</p> | <p>Conduct Tier II monitoring on the Patapsco River.</p> | <p>NOAA, American Rivers, MD DNR, UMBC, USGS, USFWS</p> | <p>Patapsco River near Ellicott City, MD</p> | <p>Ongoing</p> | <p>NOAA will fund this activity as a project task for each removal.</p> |
| <p>7. Conduct target species monitoring of select dam removals in VA (+/- and relative abundance)</p> | <p>Boat electrofishing upstream of Harvell Dam removal on the Appomattox River.</p> | <p>VDGIF</p> | <p>Appomattox River in Petersburg, VA</p> | <p>Ongoing</p> | <p>Dependent on continued availability of funding for fish passage technician crew.</p> |
| | <p>Boat electrofishing upstream of Embrey Dam removal on the Rappahannock River.</p> | <p>VDGIF</p> | <p>Rappahannock River near Fredericksburg, VA</p> | <p>Ongoing</p> | |
| <p>8. Conduct target species counts at technical fishways in VA</p> | <p>Continue Annual American Shad count at Boshers Vertical Slot Fishway.</p> | <p>VDGIF</p> | <p>Boshers Dam in Henrico County on James River near Richmond, VA</p> | <p>Ongoing</p> | |
| <p>9. Conduct target species monitoring (+/- and relative abundance) at road culverts in VA</p> | <p>Continue annual backpack electrofishing at Claiborne Run nature-like fishway (herring).</p> | <p>VDGIF</p> | <p>Rappahannock tributary: Claiborne Run in Stafford County, VA</p> | <p>Four more of five consecutive years</p> | |
| | <p>Continue annual backpack electrofishing at White Oak Run pool and weir fishway (herring).</p> | <p>VDGIF</p> | <p>Rappahannock tributary: White Oak Run in Stafford County, VA</p> | <p>Ongoing</p> | |

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| 10. Juvenile Alosine surveys in VA | Determine origin (hatchery vs wild) of American Shad juveniles on the James River. | VDGIF | Upstream and downstream of Boshers Dam on the James River | Ongoing (as long as stocking continues) | Dependent on continued funding for stocking American Shad fry in the upper James (and for technician crew). |
| 11. Continue to develop environmental DNA (eDNA) tools to detect River Herring presence | Develop and test tools on frozen and freshly collected water samples. | SERC, UMCES | Frozen samples collected in Choptank, Patapsco, Rappahannock, Pamunkey, and Lower Susquehanna Rivers | Results anticipated by January 2016 | Presence/Absence monitoring is required for all NOAA funded projects. |

| Management Approach 3: Use the Chesapeake Bay Fish Passage Tool that was completed by the workgroup to implement high priority dam removal and fish passage projects. | | | | | |
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| 12. Continue using the Chesapeake Bay Fish Passage Tool to implement high priority dam removal and fish passage projects. | In addition to the high priority dam removal projects already identified by the Chesapeake Fish Passage Tool, the workgroup will also identify high priority watersheds in PA, VA and MD to focus fish passage efforts. | Fish Passage Work Group | Entire Chesapeake Bay region | Feb-16 | The ability to achieve change through fish passage projects is largely limited by a lack of resources. |
| | Conduct culvert and bridge assessments in high priority subwatersheds to determine extent of fish blockages due to road and rail infrastructure. Add information to the Chesapeake Fish Passage Tool. | USFWS, NOAA, Maryland, Virginia and Pennsylvania, American Rivers | Entire Chesapeake Bay region | Dec-17 | |
| | Work with the Bay Program to formally accept the new method for the miles openend metric to the "upstream functional network" definition. | Fish Passage Work Group | Entire Chesapeake Bay region | 17-Dec | |

Acronym Guide (for all workplans)

- AACC – Anne Arundel Community College
- ACFHP - Atlantic Coast Fish Habitat Partnership
- ACJV – Atlantic Coast Joint Venture
- AgNPS – Agricultural Non-Point Source Pollution Model
- Appalachian LCC - Appalachian Landscape Conservation Cooperative
- ASTSWMO – Association of State and Territorial Solid Waste Management Officials
- BayFAST/CAST/MAST/VAST – Federal Assessment Scenario Tool/Chesapeake AST/Maryland AST/Virginia AST
- BDJV – Black Duck Joint Venture
- BKT – Brook trout
- BMP – Best Management Practice

CAC – CBP Citizens’ Advisory Committee
CAFO – Concentrated Animal Feeding Operation
CB – Chesapeake Bay
CBC – Chesapeake Bay Commission
CBF – Chesapeake Bay Foundation
CBIBS – Chesapeake Bay Interpretive Buoy System
CBIG – Chesapeake Bay Implementation Grants
CBP – Chesapeake Bay Program
CBPO – Chesapeake Bay Program Office
CBRAP – Chesapeake Bay Regulatory and Accountability Program grants
CBSAC – Chesapeake Bay Stock Assessment Committee
CBSSC – Chesapeake Bay Sentinel Site Cooperative
CBT – Chesapeake Bay Trust
CCWC – Choose Clean Water Coalition
CEAP – Conservation Effects Assessment Project
Chessie BIBI – Chesapeake Bay Basin-wide Index of Biotic Integrity
CNMP – Comprehensive Nutrient Management Plan
CNU – Christopher Newport University
CRC – Chesapeake Research Consortium
CREP – Conservation Reserve Enhancement Program
CSN – Chesapeake Stormwater Network
CWA – Clean Water Act
DAT – CBP Diversity Action Team
DC – District of Columbia
DCNR – Pennsylvania Department of Conservation and Natural Resources
DE – Delaware
DEP – Department of Environment
DE DNREC – Delaware Department of Natural Resources and Environmental Control
DNR –Department of Natural Resources
DoD – Department of Defense
DOEE – Dist. Of Columbia Department of Energy and Environment
DOF – Department of Forestry
DOT – Department of Transportation
DST – Decision support tool
DU – Ducks Unlimited
EC – Chesapeake Executive Council
EJ SCREEN – Environmental Justice Screening and Mapping Tool
EO Strategy – Executive Order 13508 Strategy for Protecting and Restoring the Chesapeake Bay Watershed
EJ – Environmental Justice
EL – Environmental Learning
ELCSS – Environmental Literacy Challenge for Systemic Sustainability
ERP – Elizabeth River Partnership
EPA – Environmental Protection Agency
Ex Comm - Executive Committee of the Sustainable Fisheries GIT
FERC – Federal Energy Regulatory Commission
FOD – Chesapeake Bay Program Federal Office Directors
FTE – full time employee

FWG – Forest Work Group
FWS – Fish and Wildlife Service
GIS – Geographic Information System
GIT – CBP Goal Implementation Teams
GMU – George Mason University
GSA – General Services Administration
HBCUs – historically black colleges and universities
HSCD – EPA Hazardous Site Cleanup Division
HWGIT – Healthy Watershed Work Group
ICPRB – Interstate Commission on the Potomac River Basin
IPC – Interfaith Partners for the Chesapeake
LCC – Landscape Conservation Cooperatives
LGAC – CBP Local Government Advisory Committee
LL – Local Leadership
LU – Land Use
LUWG – Land Use Work Group
MATOS - Mid-Atlantic Telemetry Observing System
MB – CBP’s Management Board
MD - Maryland
MDE – Maryland Department of Environment
MDSG – Maryland Sea Grant
MOU – Memorandum of Understanding
MSP – Math Science Partnership
MS4 – Municipal Separate Storm Sewer System
MWCOG – Metropolitan Washington Council on Governments
MWEEs – Meaningful Watershed Educational Experiences
MWS – Master Watershed Stewards
NAAQS – National Ambient Air Quality Standards
NALCC - North Atlantic Landscape Conservation Cooperative
NATA – National Air Toxics Assessment
NCBO – NOAA Chesapeake Bay Office
NGO – Non-government organization
NEIEN – National Environmental Information Exchange Network
NERR – Chesapeake Bay National Estuarine Research Reserve
NFWF – National Fish and Wildlife Foundation
NOAA – National Oceanic and Atmospheric Administration
NP – National Parks
NPDES – National Pollutant Discharge Elimination System
NRCS – Natural Resources Conservation Service
NPS – National Park Service
NYS DEC – New York State Department of Environmental Control
ODU – Old Dominion University
ORES – Oyster Reef Ecosystem Services
ORP – Oyster Recovery Partnership
OSSE – Office of the State Superintendent of Education
PA – Pennsylvania
PA DEP – Pennsylvania Department of Environmental Protection

PCB – polychlorinated biphenyl
PMP -- Pollution Minimization Plan
PRFC – Potomac River Fisheries Commission
PSC – CBP’s Principles’ Staff Committee
QA – quality assurance
RFB – Riparian Forest Buffer
RMNs - Regional Monitoring Networks
SAV – Submerged Aquatic Vegetation
SERC - Smithsonian Environmental Research Center
SHWG – Stream Health Work Group
SRBC -- Susquehanna River Basin Commission
STAC – CBP Scientific and Technical Advisory Committee
STAR – CBP Scientific and Technical Assessment Research team
TCW – Toxics Contaminants Workgroup
TEA - Tidewater Ecosystem Assessment Division of MD DNR
TMDL – Total Maximum Daily Load
TNC – The Nature Conservancy
TSCA – Toxic Substance Control Act
UMBC – University of Maryland Baltimore County
UMCES – University of Maryland Center for Environmental Science
UMCES-CBL – University of Maryland Center for Environmental Science-Chesapeake Biological Lab
UMD – University of Maryland
USACE – U.S. Army Corps of Engineers
USDA – U.S. Department of Agriculture
USFWS – U.S. Fish and Wildlife Service
USFS – U.S. Forest Service
USGS – U.S. Geological Survey
UVA – University of Virginia
VA – Virginia
VCU – Virginia Commonwealth University
VA CZM – Virginia Coastal Zone Management
VBOE – Virginia Board of Education
VDGIF – Virginia Department of Game and Inland Fisheries
VIMS – Virginia Institute of Marine Science

Virginia DEQ – Virginia Department of Environmental Quality
VMRC – Virginia Marine Resources Commission
WG – work group
WIP – Watershed Implementation Plan
WQN - Water Quality Network