

Appendix 7b. Habitat-level monitoring programs in Maryland.

This list is presented in alphabetical order by Implementation Lead. Abbreviations are as follows: MD DNR: Maryland Department of Natural Resources; RAS: Resource Assessment Service; USFWS: U.S. Fish and Wildlife Service; USGS: U.S. Geological Survey; WHS: Wildlife and Heritage Service.

Monitoring Program or Action	Implementation Lead	Target	Monitoring Level		
			Individual Species	Groups of Species	Habitat
Alliance Citizen Monitoring Program	Alliance for the Chesapeake Bay	Water quality monitoring			X
American Chestnut Land Trust Water Quality Monitoring Program	American Chestnut Land Trust	Water quality monitoring			X
Water Quality Monitoring	Anacostia Watershed Society	Water quality monitoring			X
Assateague Coastkeeper	Assateague Coastal Trust	Water quality monitoring			X
Important Bird Area Stewards	Audubon Mid-Atlantic; Maryland Bird Conservation Partnership	Threats to habitats, priority birds		X	X
Audubon Naturalist Society Water Quality Monitoring Program	Audubon Naturalist Society	Water quality monitoring, benthic surveys			X
Baltimore County Stream Monitoring	Baltimore County Department of Environmental Protection and Sustainability	Water quality monitoring			X
Water Quality Monitoring	Blue Water Baltimore	Water quality monitoring			X
Baltimore Ecosystem Study – Long-term Ecological Research (LTER) project	Cary Institute of Ecosystem Studies	Ecological indicators (water quality, air quality, vegetation, etc.)		X	X
Chesapeake Bay Monitoring Program	Chesapeake Bay Program; USGS; MD DNR	Water quality monitoring including benthos, nutrients and sediments, freshwater inputs, chemical containments; freshwater flow; SAV		X	X
Water Quality Assessment of Chester River and Tributaries	Chester River Association	Water quality monitoring			X
Project Budburst	Chicago Botanic Garden	Climate change impacts		X	
County Water Quality Monitoring	Counties	Water quality monitoring			X
Periodic Outfall Monitoring	Friends of Sligo Creek	Water quality monitoring			X

Monitoring Program or Action	Implementation Lead	Target	Monitoring Level		
			Individual Species	Groups of Species	Habitat
Water Quality Monitoring and Data Management	Interstate Commission on the Potomac River Basin	Water quality monitoring			X
Stream Monitoring	Izaak Walton League of Maryland	Aquatic insects, chemical contaminants, physical appearance		X	X
Magothy River Creek Watchers	Magothy River Association	Water quality monitoring			X
The Magothy River Index	Magothy River Association	Water quality monitoring, SAV		X	X
Beach Water Quality Sampling Program	Maryland Beaches Program	Beach habitat health			X
Maryland Coastal Bays Volunteer Water Quality Monitoring Program	Maryland Coastal Bays Program, MD DNR, National Park Service	Water quality, algal blooms		X	X
Maryland Coastal Bays Wetland Assessments	Maryland Coastal Bays Program	Wetland condition			X
Shoreline Change and Rate Monitoring	Maryland Geological Survey	Shoreline change			X
Resource Assessment of Atlantic Coast Areas	Maryland Geological Survey	Mineral, water, land resources			X
Bird City/Campus/County Program	Maryland Bird Conservation Partnership	Bird habitat		X	X
Great Herring Bay Stream and Shore Survey	Maryland Save Our Streams	Water quality monitoring			X
Stream Monitoring	Maryland Stream Waders	Water quality monitoring, stream life		X	X
Watershed Water Quality Monitoring	Maryland Water Monitoring Council	Water quality monitoring			X
Acid Mine Drainage Restoration monitoring	Maryland Department of the Environment	Water quality monitoring			X
Forest Pest Management Program	Maryland Dept of Agriculture, U.S. Department of Agriculture, U.S. Forest Service	Forest impacts from insect pests (Asian longhorned beetle, gypsy moth, etc.)	X	X	X
Coastal LIDAR (high resolution elevation data)	MD DNR Watershed and Climate Services	Water quality monitoring			X
Coastal Fisheries Program Fish Population monitoring in Coastal Bays and Atlantic Ocean	MD DNR Fisheries	Water quality, tuna, billfish, other fish	X	X	X
Fisheries Habitat and Ecosystem Program, Habitat Investigations	MD DNR Fisheries	Recreational fish species in tidal waters	X	X	X
Invasive Species Monitoring	MD DNR Fisheries, MD DNR RAS	SAV, non-native crabs, nutria, other non-native species	X	X	X

Monitoring Program or Action	Implementation Lead	Target	Monitoring Level		
			Individual Species	Groups of Species	Habitat
Spawning Horseshoe Crab Voluntary Monitoring Program	MD DNR Fisheries, Maryland Coastal Bays Program	Horseshoe crab habitat	X		X
Forest Certification	MD DNR Forest Service	Forest condition and practices			X
Forest Inventory and Analysis	MD DNR Forest Service, U.S. Forest Service	Forest data			X
Stream Buffers	MD DNR Forest Service	Buffer plantings			X
Conservation Easements	MD DNR Maryland Environmental Trust, local land conservancies and trusts	Easement condition			X
Continuous Monitoring Program	MD DNR RAS	Water quality monitoring			X
Chesapeake Bay Monitoring Program, Ecosystem Processes Component	MD DNR RAS	Water quality monitoring			X
Chesapeake Bay Monitoring Program: Eyes on the Bay	MD DNR RAS	Water quality and habitat monitoring		X	X
Tidal Water and Habitat Quality Monitoring Program	MD DNR RAS	Water quality monitoring			X
Coastal Bays Water Quality Monitoring Program	MD DNR RAS	Water quality monitoring, SAV		X	X
Marcellus Shale Stream Monitoring Coalition	MD DNR RAS	Water quality monitoring in possible hydraulic fracturing area			X
Maryland Biological Stream Survey	MD DNR RAS	Ecological resources and conditions of stream and river habitat	X	X	X
Maryland River Input and Main Bay Monitoring Program	MD DNR RAS	Water quality monitoring, flow rate monitoring			X
Deer Management Program	MD DNR WHS	White-tailed deer; sika deer	X		X
Mast Survey (food supply for forest-dwelling fauna)	MD DNR WHS	Forest-dwelling animals		X	X
Nongame/Guild Monitoring	MD DNR WHS	Marshbirds, freshwater mussels		X	X
Rare Species and Natural Community Monitoring	MD DNR WHS	Rare species and natural communities	X	X	X

Monitoring Program or Action	Implementation Lead	Target	Monitoring Level		
			Individual Species	Groups of Species	Habitat
Restoration Site Monitoring	MD DNR WHS	Restored natural communities	X	X	X
Air Quality Monitoring	Maryland Department of the Environment	Air quality monitoring (ozone, pollutants)			X
Shellfish Harvest Monitoring	Maryland Department of the Environment	Water quality monitoring, disease, contaminants		X	X
Wetland Mitigation Monitoring	Maryland Department of the Environment	Water quality monitoring, SAV, sea-level rise		X	X
Wetland Status and Trends	Maryland Department of the Environment	Water quality monitoring, SAV, sea-level rise		X	X
Water Quality Monitoring Program	Maryland Department of the Environment	Water quality monitoring			X
Water Quality Monitoring	Nanticoke Watershed Alliance, Nanticoke Creekwatchers	Water quality monitoring		X	X
LANDSAT Remote Sensing (land use/land cover)	National Aeronautics and Space Administration, USGS, Maryland Department of Planning	Land use			X
Water Quality Monitoring	National Aquarium	Water quality monitoring			X
Restoration Center Programs	National Oceanic and Atmospheric Administration	Oil spill and contamination monitoring			X
Sea-level Rise Monitoring	National Oceanic and Atmospheric Administration – National Geodetic Survey	Sea-level monitoring			X
National Estuarine Research Reserve System-wide Monitoring Program	National Oceanic and Atmospheric Administration, Chesapeake Bay National Estuarine Research Reserve	Water quality monitoring, weather, land use			X
National Estuarine Research Reserve System Wide Monitoring Program	National Oceanic and Atmospheric Administration, Chesapeake Bay National Estuarine Research Reserve	SAV, water quality		X	X
Assateague Island Geomorphology	National Park Service	Shoreline change			X
Estuarine Tides and Water Levels, Assateague Island NS	National Park Service	Tidal changes			X
Vegetation Change Monitoring, North End of Assateague Island NS	National Park Service	Plants		X	X

Monitoring Program or Action	Implementation Lead	Target	Monitoring Level		
			Individual Species	Groups of Species	Habitat
Water Quality and Threat monitoring	Riverkeepers (statewide)	Water quality monitoring			X
Operation Clearwater	Severn River Association	Water quality monitoring			X
South River Operation Clearwater	South River Federation	Water quality monitoring			X
State of the Beach Monitoring Program	Surfrider Foundation	Water quality monitoring			X
Aberdeen Proving Ground Environmental Monitoring	U.S. Army Aberdeen Proving Ground	Groundwater contaminants, water quality monitoring			X
Disposal Area Monitoring System	U.S. Army Corps of Engineers	Water quality monitoring			X
Poplar Island Restoration Project monitoring	U.S. Army Corps of Engineers	Water quality monitoring, fish, SAV, habitats		X	X
Fort Meade Environmental Monitoring	U.S. Army Environmental Center	Groundwater contaminants			X
Multi-Resolution Land Characteristics	U.S. Environmental Protection Agency	Land cover			X
Chesapeake Bay Benthic Monitoring Program	U.S. Environmental Protection Agency, Chesapeake Bay Program, MD DNR	Water quality monitoring, benthic invertebrates		X	X
Chesapeake Bay Monitoring	University of Maryland Center for Environmental Science, Chesapeake Biological Laboratory	Water quality monitoring, phytoplankton, SAV		X	X
Chesapeake Bay Remote Sensing Program	University of Maryland Center for Environmental Science, Maryland Sea Grant	Water quality monitoring (chlorophyll)		X	X
National Resources Inventory	U.S. Department of Agriculture, Natural Resources Conservation Service	Land use, wetlands distribution			X
Regional Monitoring Network	U.S. Environmental Protection Agency	water quality, stream flow parameters, and biological indicators of aquatic ecosystem health		X	X
National Wetlands Inventory Program	USFWS	Wetland distribution			X
Integrated Deer Population Monitoring	USFWS Patuxent Research Refuge	White-tailed deer habitat destruction	X		X

Monitoring Program or Action	Implementation Lead	Target	Monitoring Level		
			Individual Species	Groups of Species	Habitat
Invasive Plant Survey	USFWS Patuxent Research Refuge	Invasive plants		X	X
Shrubland Right of Way Breeding Bird Survey	USFWS Patuxent Research Refuge	Shrubland right-of-way		X	X
Shrubland Right of Way Pollinator Survey	USFWS Patuxent Research Refuge	Shrubland right-of-way		X	X
Shrubland Right of Way Vegetation Survey	USFWS Patuxent Research Refuge	Shrubland right-of-way		X	X
Effectiveness of Hydrological Restoration Efforts	USFWS Blackwater National Wildlife Refuge	Hydrological changes in marsh			X
Marsh Surface Elevation Trajectory	USFWS Blackwater National Wildlife Refuge	Marsh surface elevation			X
Monitoring Delmarva Fox Squirrel Occupancy (following forest management practices)	USFWS Blackwater National Wildlife Refuge	Forest habitats			X
Maryland Marsh Restoration Project	USFWS Blackwater National Wildlife Refuge, Audubon Mid-Atlantic	Marsh habitats			X
Chesapeake Bay River Input Monitoring Program	USGS	Water quality monitoring			X
Ground-Water Level Monitoring	USGS	Water quality monitoring			X
National Water Quality Assessment Program	USGS	Water quality monitoring			X
WaterWatch (measuring streamflow conditions of Chesapeake Bay tributaries)	USGS	Water quality monitoring			X
Assessing the Relative Habitat Value of Restored Versus Natural Coastal Marshes and Islands to Migratory Birds in Chesapeake Bay	USGS Eastern Ecological Science Center	Water quality monitoring, wetlands health, bird habitat		X	X
NPS Vital Signs Monitoring Program	USGS Eastern Ecological Science Center	Water quality, SAV		X	X
Predicting the Persistence of Coastal Wetlands to Global Change Effects	USGS Eastern Ecological Science Center	Sea-level monitoring			X
LIDAR Topographic Surveys, Assateague Island	USGS, National Park Service	Topographic survey			X
Eastern Brook Trout Joint Venture	USGS, USFWS, U.S. Forest Service, MD DNR Fisheries Service	Water quality, brook trout populations	X		X

Monitoring Program or Action	Implementation Lead	Target	Monitoring Level		
			Individual Species	Groups of Species	Habitat
Hydronet	Climate Resilience Network, University of Maryland College Park	Coastal flooding			X
Submerged Aquatic Vegetation Surveys	Virginia Institute of Marine Sciences	SAV, water quality		X	X