

Appendix 7a. Species-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; 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
FrogWatch USA	Association of Zoos and Aquariums	Frogs, toads		X	
Bird Blitz Survey	Audubon Mid-Atlantic	Priority birds		X	
Important Bird Area Stewards	Audubon Mid-Atlantic. Maryland Bird Conservation Partnership	Priority birds		X	X
Saltmarsh Habitat and Avian Research Program	Audubon Mid-Atlantic, MD DNR WHS	Tidal marshbirds		X	X
Lights Out Baltimore!	Baltimore Bird Club	Migrating birds, urban birds		X	
Motus telemetry network	Birds Canada	Birds, bats	X	X	
Secretive Marsh Bird Monitoring	Chesapeake Bay National Estuarine Research Reserve Program	Marshbirds		X	
Marsh Vegetation Monitoring	Chesapeake Bay National Estuarine Research Reserve Program	Marsh plants		X	
Chesapeake Bay Monitoring Program	Chesapeake Bay Program	Water quality monitoring, fish, shellfish, blue crab, plankton, benthos		X	X
Project OspreyWatch	Center for Conservation Biology	Osprey	X		
Foreman's Branch Bird Observatory	Chester River Field Research Station	Birds		X	
Grassland Breeding Bird Ecology Study	Chester River Field Research Station	Grassland breeding birds		X	X
Northern Bobwhite Point Counts	Chester River Field Research Station	Northern bobwhite	X		
A Swift Night Out!	Chimney Swift Conservation Association	Chimney swift	X		
eBird	Cornell Lab of Ornithology	Birds, Breeding Bird Atlas	X		
Golden-winged Warbler Surveys	Cornell Lab of Ornithology	Golden-winged warbler	X		
Project FeederWatch	Cornell Lab of Ornithology	Winter birds		X	
Project NestWatch	Cornell Lab of Ornithology	Birds		X	
Great Backyard Bird Count	Cornell Lab of Ornithology, National Audubon Society, and Bird Studies Canada	Birds		X	

Monitoring Program or Action	Implementation Lead	Target	Monitoring Level		
			Individual Species	Groups of Species	Habitat
Regional Black Rail Survey	Eastern Black Rail Working Group	Black rail	X		
Hawk Counts	Hawk Migration Association of North America	Hawks		X	
Monitoring of Avian Productivity and Survival	Institute for Bird Populations	Songbirds		X	
Winter Water Bird Survey	Jug Bay Wetlands Sanctuary	Waterbirds		X	
National Nightjar Survey	Maine Natural History Observatory; Birds Canada	Nightjars		X	
International Shorebird Survey/Program for Regional and International Shorebird Monitoring	Manomet Conservation Sciences	Shorebirds		X	
BioBlitzes/Targeted Field Trips	Maryland Biodiversity Project	All organisms or targeted groups	X	X	
Migratory Bird Counts	Maryland Biodiversity Project	Fall migration counts at two locations		X	
Bald Eagle Nest Monitoring Project	Maryland Bird Conservation Partnership	Bald eagle	X		
Farmland Raptor Program	Maryland Bird Conservation Partnership	American Kestrel, American Barn Owl, Short-eared Owl	X		
Forest Pest Management Program (Invasive and Non-Invasive)	Maryland Department of Agriculture, U.S. Department of Agriculture	Insects (Asian longhorned beetle, spongy moth, emerald ash borer, etc.)	X	X	X
Fish and Shellfish Contaminant Monitoring Program	Maryland Department of the Environment	Fish, shellfish, crabs		X	
Dredged Material Containment Facilities Surveys	Maryland Environmental Service	Birds		X	
Targeted Field Trips	Maryland Native Plant Society	Priority plants	X	X	
Bird Counts (Winter, Spring Migration, Breeding, Fall Migration)	Maryland Ornithological Society; Central Maryland Audubon Society; Southern Maryland Audubon Society	Birds		X	
Breeding Bird Atlas	Maryland Ornithological Society; MD DNR WHS; Maryland Bird Conservation Partnership	Breeding birds	X		

Monitoring Program or Action	Implementation Lead	Target	Monitoring Level		
			Individual Species	Groups of Species	Habitat
Coastal Fisheries Program fish population monitoring in Coastal Bays and Atlantic Ocean	MD DNR Fisheries	Water quality, recreational and commercial fish		X	X
Commercial Fishery Harvest Monitoring	MD DNR Fisheries	Commercial finfish and shellfish species	X	X	X
Fall and Winter (Fish) Stock Assessment	MD DNR Fisheries	White perch, yellow perch, catfish, forage fish, invasive fish	X	X	
Fish Passage Monitoring	MD DNR Fisheries	Fishes		X	X
Marine Mammal and Sea Turtle Stranding Response Program	MD DNR Fisheries, National Aquarium	Marine mammals, sea turtles		X	
Fisheries Habitat and Ecosystem Program, Habitat Investigations	MD DNR Fisheries	Recreational fish species in tidal waters	X	X	X
Fish Health/Disease Program	MD DNR Fisheries	Striped bass	X		
Juvenile Index Survey	MD DNR Fisheries	Juvenile commercial and recreational species, key forage species	X	X	
Stock Assessment of Selected Adult Resident and Migratory Fish in Maryland's Chesapeake Bay	MD DNR Fisheries	Resident and migratory Chesapeake Bay fishes	X	X	
Survey, Inventory, and Management of Maryland's Coldwater Fishery Resources	MD DNR Fisheries	Brook trout, rainbow trout, brown trout, benthic macroinvertebrates	X	X	
Fish Population Surveys	MD DNR Fisheries Service, Trout Unlimited	Trout (focus on brook trout)	X	X	X
American and Hickory Shad Restoration Surveys in Maryland Rivers	MD DNR Fisheries, Interstate Commission on the Potomac River Basin, USFWS, Washington, DC Fisheries	Shad	X		
Spawning Horseshoe Crab Monitoring	MD DNR Fisheries, Maryland Coastal Bays Program	Horseshoe crab	X		
Aquatic Invasive Species Monitoring	MD DNR Fisheries, MD DNR Resource Assessment Service	Non-native crabs, nutria, other non-native species	X	X	X
Investigation of Anadromous Alosids in Chesapeake Bay	MD DNR Fisheries, MD DNR Resource Assessment Service; USFWS	Alosine species	X	X	
Maryland Biological Stream Survey	MD DNR Resource Assessment Service	Stream fauna biodiversity, including fish, mussels, benthic macroinvertebrates	X	X	X

Monitoring Program or Action	Implementation Lead	Target	Monitoring Level		
			Individual Species	Groups of Species	Habitat
Submerged Aquatic Vegetation (SAV) Population Monitoring	MD DNR Resource Assessment Service, Chesapeake Bay National Estuarine Research Reserve, Virginia Institute of Marine Science	SAV habitat, water quality, water depth		X	X
National Coastal Assessment	MD DNR Watershed and Climate Services, U.S. Environmental Protection Agency	Water quality and condition, contaminants, floral and faunal communities, habitat		X	X
American Woodcock Singing-ground Survey	MD DNR WHS, USFWS	American Woodcock	X		
Bat Hibernacula Surveys	MD DNR WHS	Hibernating bats		X	
Bat Summer Surveys	MD DNR WHS	Bats	X	X	
Bog Turtle Monitoring	MD DNR WHS	Bog turtle	X		X
Brown Pelican Population Monitoring	MD DNR WHS	Brown pelican	X		
Colonial Waterbird Monitoring	MD DNR WHS	Colonial waterbirds		X	
Chronic Wasting Disease Monitoring	MD DNR WHS	White-tailed deer, sika deer	X		
Deer Management Program	MD DNR WHS	White-tailed deer, sika deer	X		
Diamond-backed Terrapin Monitoring	MD DNR WHS, Maryland Coastal Bays Program, other partners	Diamond-backed terrapins	X		
Distribution and Status of Eastern Hellbender in Maryland	MD DNR WHS	Eastern hellbender	X		
Eastern Tiger Salamander Study (distribution, population status)	MD DNR WHS	Eastern tiger salamander	X		
Furbearer Management Program	MD DNR WHS	Furbearer species		X	
Upland Game Bird Species Surveys	MD DNR WHS	Northern bobwhite, American woodcock	X		
Maryland Survey of Bowhunters	MD DNR WHS	Deer, wild turkey, northern bobwhite, furbearer species	X	X	
Mid-Winter Waterfowl Survey	MD DNR WHS, USFWS	Waterfowl (ducks, geese and swans)	X	X	
Mute Swan Surveys (population status and trends)	MD DNR WHS	Mute swan	X		

Monitoring Program or Action	Implementation Lead	Target	Monitoring Level		
			Individual Species	Groups of Species	Habitat
Nongame/Guild Monitoring	MD DNR WHS	Marshbirds, freshwater mussels, forest interior and other priority birds, priority insects, priority small mammals, priority reptiles and amphibians, priority plants	X	X	
Rare Plant Surveys	MD DNR WHS, Maryland Biodiversity Project	Rare and watchlist plants	X	X	
Restoration Site Monitoring	MD DNR WHS, MD DNR Watershed and Climate Services	Restored natural communities	X	X	X
Terrestrial Invasive Species Monitoring	MD DNR WHS, MD DNR Forest Service	Non-native and invasive plants and animals	X	X	X
Wild Turkey Observation Survey	MD DNR WHS	Wild turkey	X		
Rare Species Monitoring, (including federally listed species and rare natural communities)	MD DNR WHS, MD DNR Resource Assessment Service	Rare species and rare natural communities	X	X	X
Masonville Cove BioBlitz	National Aquarium	Various plant and animal species		X	X
Christmas Bird Count	National Audubon Society	Birds		X	
Fisheries Statistics & Economics program (stock assessments, landings)	National Oceanic and Atmospheric Administration-National Marine Fisheries Service	Fisheries species	X	X	
Monitoring in National Parks	National Park Service	Birds, reptiles, amphibians, plants		X	
Piping Plover Breeding Biology, Foraging Ecology and Behavior on Assateague Island	National Park Service	Piping plover	X		X
Targeted Field Trips	Natural History Society of Maryland	Priority species	X	X	
North American Bat Monitoring Program	North American Bat Monitoring Program Partnership	Bats	X	X	
Butterfly Counts	North American Butterfly Association	Butterflies		X	X
Osprey Monitoring	Operation Osprey	Osprey	X		
Otter Point Creek Monitoring Programs	Otter Point Creek – Anita C. Leight Estuary Center	Fishes, herpetofauna		X	X

Monitoring Program or Action	Implementation Lead	Target	Monitoring Level		
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Bluebird, Wood duck, and Winter Feeder Monitoring	Pickering Creek Audubon Center	Birds	X	X	
Project OwlNet	Project OwlNet (Dave Brinker, MD DNR)	Saw-whet owls, owls	X	X	
Project SNOWStorm	Project SNOWStorm (Dave Brinker, MD DNR)	Snowy owl	X		
Migratory Connectivity Project	Smithsonian Migratory Bird Research Center, USGS	Migratory birds	X		
Urban Ecology	Smithsonian Migratory Bird Research Center	Birds	X		
Pickering Creek Audubon Center eBird and Bluebird Monitoring Program	Talbot County Bird Club	Bluebirds, other species	X	X	
Oriole Migration Monitoring	University of Maryland, Baltimore County Department of Biological Sciences	Baltimore and Orchard Orioles	X		
Radar Analysis of Fall Migration Stopover Sites	University of Maryland Center for Environmental Science, Appalachian Lab	Migrating birds		X	
Maryland State Summer Acoustic Bat Monitoring	University of Maryland College Park	Bats		X	
Status of the Bald Eagle in Maryland (mid-winter surveys, nesting productivity)	U.S. Army Aberdeen Proving Ground, USFWS	Bald eagle	X		
National Mid-Winter Bald Eagle Survey	U.S. Army Corps of Engineers	Bald eagle	X		
Nature's Notebook	USA National Phenology Network	Timing of plant and animal seasonal activity	X	X	X
Bald Eagle Population Monitoring Program	USFWS	Bald eagle	X		
Integrated Waterbird Management and Monitoring Survey	USFWS	Waterbirds		X	
Delmarva Peninsula Fox Squirrel Monitoring	USFWS Blackwater National Wildlife Refuge	Delmarva fox squirrel	X		
Waterfowl Population Monitoring	USFWS Blackwater National Wildlife Refuge	Waterfowl	X	X	X
Marshbird Monitoring	USFWS Blackwater National Wildlife Refuge	Marshbirds	X	X	
Wildlife Monitoring	USFWS Eastern Neck National Wildlife Refuge	Waterfowl, songbirds, white-tailed deer. bats	X	X	X

Monitoring Program or Action	Implementation Lead	Target	Monitoring Level		
			Individual Species	Groups of Species	Habitat
Shrubland Right of Way Breeding Bird Survey	USFWS Patuxent Research Refuge	Birds		X	X
Shrubland Right of Way Pollinator Survey	USFWS Patuxent Research Refuge	Pollinators		X	X
Songbird Nest Box Monitoring	USFWS Patuxent Research Refuge	Birds		X	
Wood Duck Nest Box Monitoring	USFWS Patuxent Research Refuge	Wood duck	X		
Anuran Call Survey	USFWS Patuxent Research Refuge	Anurans		X	
Wildlife monitoring at Patuxent Research Refuge	USFWS Patuxent Research Refuge	White-tailed deer, waterbirds, reptiles, amphibians, harvested species	X	X	X
Chesapeake Bay Nutria Monitoring and Eradication Program	USFWS, MD DNR, USDA Animal and Plant Health Inspection Service	Nutria	X		X
Habitat Value of Restored Versus Natural Coastal Marshes and Islands to Migratory Birds in the Chesapeake Bay	USGS Eastern Ecological Science Center	Nesting waterbirds		X	X
Atlantic Seaduck Monitoring Program	USGS Eastern Ecological Science Center	Seaducks	X		
Atlantic Seaduck Study	USGS Eastern Ecological Science Center	Seaducks		X	X
Native Bee Inventory and Monitoring	USGS Eastern Ecological Science Center	Bees		X	
Bird Banding Laboratory	USGS Eastern Ecological Science Center	Birds		X	
Breeding Bird Survey	USGS Eastern Ecological Science Center	Birds		X	
Diving Duck Distribution, Abundance, and Food Habits in Chesapeake Bay	USGS Eastern Ecological Science Center	Diving ducks		X	
Northeast Amphibian Research and Monitoring Initiative	USGS Eastern Ecological Science Center	Amphibians		X	X
North American Amphibian Monitoring Program	USGS Eastern Ecological Science Center	Amphibians		X	

Monitoring Program or Action	Implementation Lead	Target	Monitoring Level		
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Osprey Nesting Platform Monitoring	USGS Eastern Ecological Science Center	Osprey	X		
Disease Surveillance	USGS, MD Dept. of Health	West Nile Virus, Avian Influenza	X		
Eastern Brook Trout Joint Venture	USGS, USFWS, U.S. Forest Service, MD DNR Fisheries Service	Water quality, brook trout populations	X		X