MARYLAND
Smart, Green & Growing

Careers

The Right Path for You



Martin O'Malley
Governor

Overview

Maryland's distinct regions, from the coastal plain in Wicomico County to the mountains in Garrett County mean that the possibilities for equally distinct environmental career opportunities are vast. Maryland's Department of Natural Resources (DNR) encompasses dozens of disciplines and areas of expertise that frame these careers. The Chesapeake Bay and Coastal Watersheds, State Parks, Wildlife and Plants, Fish and Shellfish, Natural Resources Police and Forestry are what we focus on within DNR. However, the environmental sciences are not limited to this. Use your imagination! Volunteering is a great place to begin. Once you have acquired some experience and curiosity you must learn how to apply that intelligently. A college education is necessary for almost all scientific disciplines. Talk to your high school science teachers and guidance counselors to obtain the best course of study, AP classes, and extracurricular activities for you. Maryland is waiting for the next generation of natural resource managers.

The Chesapeake Bay and Coastal Waters

Assessing and restoring the water quality, habitat, and health of the Bay watershed is the focus of this team of ***scientists, engineers, planners, and educators.***

Fields of study: Biology, ecology, geology, chemistry, environmental science, fisheries management, statistics and communications. A Bachelor's degree is required and a Master's degree highly recommended. A Ph.D. in the above areas allows for more advancement opportunities.

Within DNR, the *Resource Assessment Service (RAS)* is one department that works to promote the health of the Bay. RAS monitors and assesses waters throughout the state to provide essential information for restoration and protection programs. Major efforts include monitoring of tidal water and habitat and the Maryland Biological Stream Survey. Maryland Geological Survey, also part of RAS, performs assessments of aquifer water quality and quantity, Bay bathymetry, oyster habitat, shore erosion, and geologic hazards (e.g., sinkholes).

Operation duties: Going into the field to collect biological, chemical and physical data; laboratory analyses of biological and non-biological samples; computer work ranging from data entry to highly technical map production and statistical analyses; and report writing for both technical and public audiences.

State Parks

Maryland State Park Rangers oversee more than 140,000 acres of public lands across the state. The Maryland Park Service manages 66 state parks.

Fields of study and experience: Park operations, recreation, outdoor education, business administration, forestry, social sciences or natural resources related fields. The requirement is one year of experience in park or forest management, recreation, or natural resources management, or in preparing, developing or delivering programs that interpret natural, historical, cultural, or recreational features.

Operation duties: Caring for park facilities, maintaining and managing trails, providing visitors with expert information, conducting environmental education programs, and working with volunteers.

Wildlife and Plants

DNR wildlife ***biologists, botanists,*** *and* ***ecologists*** *manage the health and recreational enjoyment of Maryland's wildlife, including the regulation of hunting and the conservation of rare plants and animals.*

Fields of study: Biology, ecology, botany, environmental science, and statistics. A Bachelor's degree is usually required and a Master's degree preferred for many of the management positions.

The *Wildlife and Heritage Service (WHS)* conserves Maryland's diverse wildlife, plants, and the natural communities that support them using scientific expertise and informed public input.

Operation duties: Fieldwork, collecting biological and survey data, computer work ranging from data entry to highly technical GIS work, and statistical analysis, report writing for both general and scientific audiences, and providing public outreach to a variety of audiences.

Fish and Shellfish

DNR manages the health and recreational use of Maryland's fresh and saltwater fin fish and shellfish. DNR fish hatcheries stock cold water and warm water fish in streams and lakes throughout Maryland.

Fields of study: Introductory courses in botany, zoology, geology, chemistry, physics, computer science, economics, statistical analysis, political science, psychology, and foreign language, and analytical geometry and calculus. Education in this area should be broad enough to provide an understanding of the inter-relationships of the natural resources that make up the environment: the social, political and economic forces that influence natural resource management and the ability to analyze natural resource problems to find realistic, alternative solutions.

Fish and Shellfish management is an area where the scientific specialist is responsible for putting recommendations and "know-how" into language clearly comprehensible to fellow citizens. Addressing service clubs, sportsmen's groups, and the public means being able to communicate.

College Tips

- Save highly specialized courses for your last two years. Concentrate on your requirements and electives in communication skills (writing, speaking, and multi-media), humanities, social sciences, math, and introductory physical and biological sciences. If you are looking forward to graduate study, avoid specialization in undergraduate school. Develop your intellectual capacities and broaden your knowledge. Not seeking a higher degree? At least one year of study after obtaining a Bachelor of Science degree is essential for thorough professional training.
- Being able to communicate to the public scientific and historical aspects of the natural resource sciences is vital. Organizations like DNR communicate to the public and to political entities every day via the internet, written publications, and public speaking.
- Familiarity with Geographic Information Systems (GIS) software is useful in many fields including wildlife biology and park planning, so courses that either focus on GIS basics or apply GIS to one of the pertinent fields of study can be valuable.
- Become fluent in at least one foreign language. Study abroad in your chosen science. You will find that several areas, including forestry, natural resource policing, and state park management, have a need for those who are bilingual or multilingual. It could make a difference in being hired or not.

Natural Resources Police (NRP)

NRP protect the safety and welfare of Marylanders enjoying the outdoors and enforce natural resource laws, including fishing, hunting, boating, and wildlife conservation.

Requirements: All applicants need a high school diploma or GED, a valid driver's license with a satisfactory driving record, to pass a physical fitness test and a written examination, and to be a United States citizen. The minimum age to apply to become an officer is 21. Because NRP meet and interact with the public every day, you must possess excellent communication and verbal skills. The selection process includes an oral interview and medical and psychological examinations because of the nature of your interaction with the public.

Operation duties: The Maryland Natural Resource Police is a public safety agency with statewide authority to enforce conservation, boating, and criminal laws, as well as to provide primary law enforcement services for Maryland's state parks, state forests, and public lands owned and managed by the Maryland Department of Natural Resources. The Maryland Natural Resources Police are also designated as the state's lead agency for homeland security on Maryland waters. The agency's core values are Integrity, Courtesy, Dedication, and Professionalism.

Forestry

The Forest Service restores, manages, and protects Maryland's trees, forests, and forested ecosystems to sustain our natural resources and connect people to the land.

Fields of study: You will need at least a four-year college degree to do anything specialized in forestry. Many colleges and universities offer specific training in watershed management, urban forestry, forest engineering, wildfire and fuels management, forest products, and more. If a college or university has a baccalaureate degree in forestry, the Society of American Foresters most likely accredits them. Applied forestry and forestry research are two different disciplines. Each area requires a different set of talents, background, and temperament, and you will need to talk to advisors and guidance counselors about this. And if an associate, two-year technical degree is something you prefer (at least to start off), forest technicians have a valuable role in forest management, conducting tree inventories, managing wildfires, law enforcement, and reforestation. However, at least a bachelor's degree in forestry is highly recommended. There is a niche for everyone interested in working in forestry.

Foresters manage and conserve forests and are involved in environmental education, policy, research, business development, and computer technology. There are many ways a forester makes a difference and many of these professionals are not called "foresters." They have titles like forest pathologist, soil scientist, forestry consultant, recreation coordinator, forest supervisor, wood chemist, wilderness and trails specialist, wildlife biologist, and habitat specialist.

MARYLAND DEPARTMENT OF NATURAL RESOURCES

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