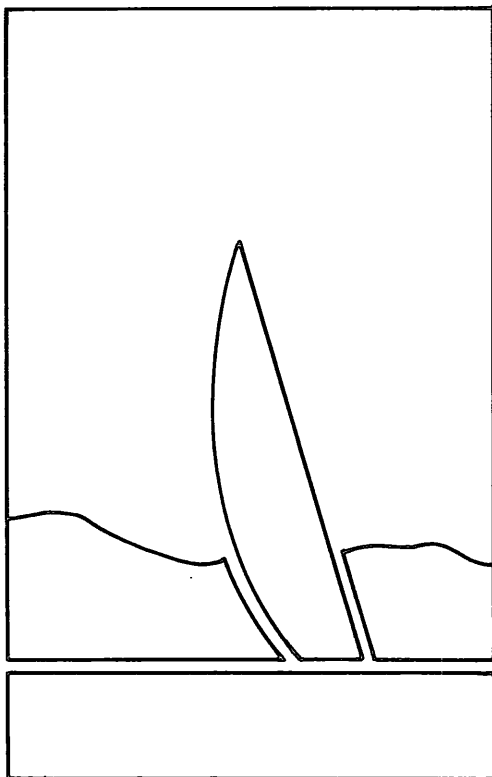


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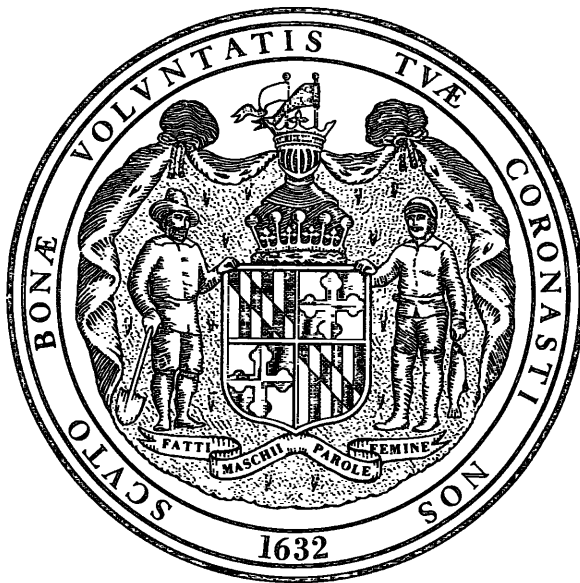


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1984

DEPARTMENT OF NATURAL RESOURCES  
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## STATE OF MARYLAND

HARRY HUGHES

Governor

LOUIS L. GOLDSTEIN

Comptroller of the Treasury

WILLIAM S. JAMES

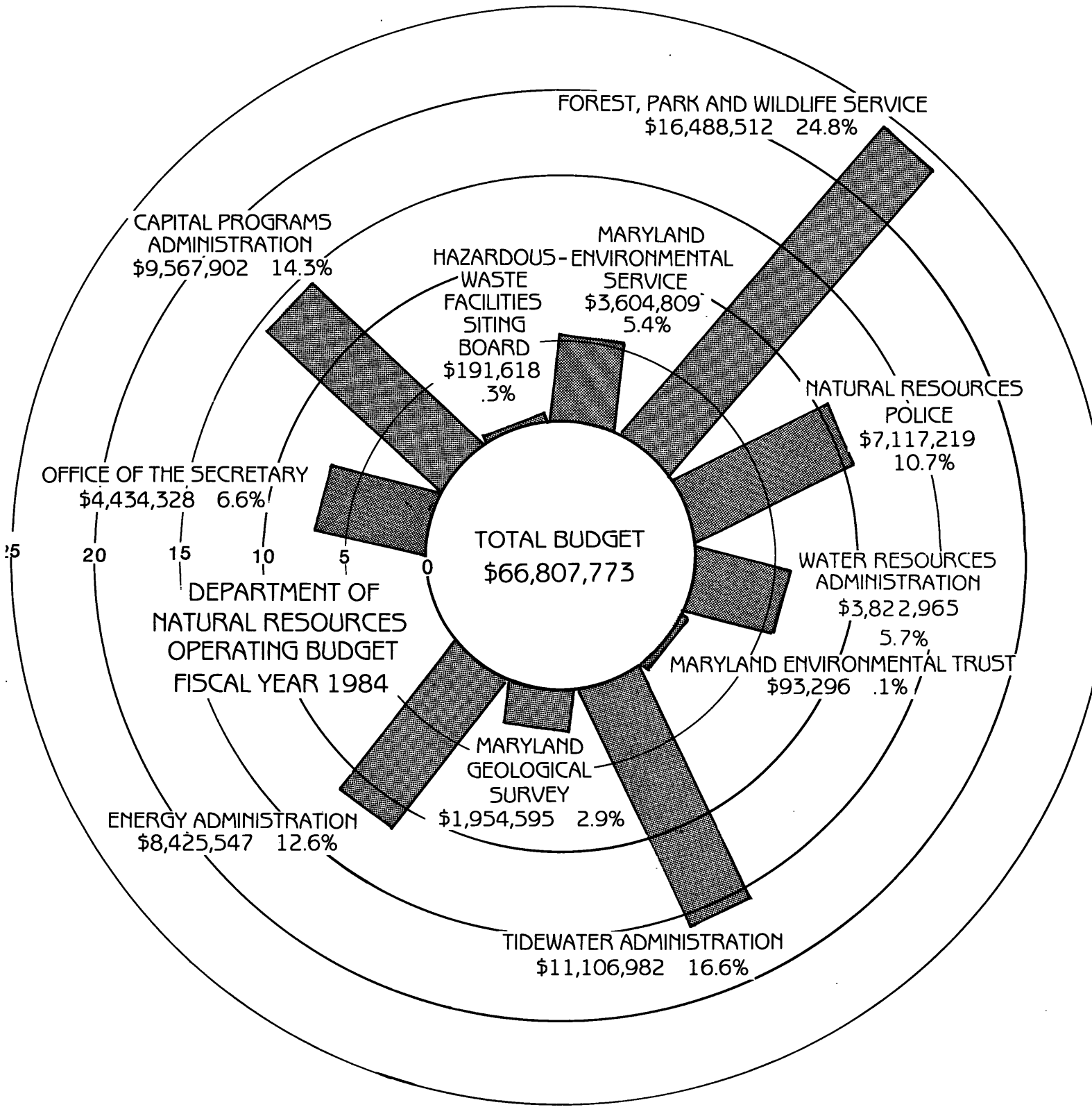
Treasurer

## DEPARTMENT OF NATURAL RESOURCES

TORREY C. BROWN, M.D.

Secretary

MARYLAND DEPARTMENT OF NATURAL RESOURCES  
ANNUAL ACTIVITIES REPORT 1984



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# OFFICE OF THE SECRETARY

## EXECUTIVE DIRECTION

The Secretary, the Deputy Secretary and Assistant Secretaries of the Department of Natural Resources provide the establishment, coordination, administration and direction of departmental policy. The Office of the Secretary has final responsibility for management policy. The Office of the Secretary maintains liaison with various legislative bodies, as well as communication with the public. The units comprising the Office of the Secretary furnish support services to all Department of Natural Resources agencies.

## LEGAL SECTION

The Legal Section has seven Assistant Attorneys General. One is Counsel to the Secretary of Natural Resources and is responsible to the Attorney General for the direction and supervision of the section. The legal staff represents agencies of the Department involved in litigation, and supplies legal advice and approvals inherent in the normal functioning of the Department, such as contracts and regulations approval, interpretation of statutes and regulations, and representation of agency units at administrative hearings.

During Fiscal 1984, the attorneys assigned to the Department continued their active role in the formulation and enforcement of laws protecting and preserving the natural resources of the State. The staff handled cases in the federal courts, initiated cases at the State Circuit Court Level and prosecuted violations in the State District Courts. Assistance and advice was rendered in numerous administrative proceedings at federal and state levels.

## FISCAL AND SUPPORTIVE SERVICES

The Fiscal and Supportive Services program provides assistance and direction to Departmental agencies concerning data processing needs, financial management and personnel services.

The program is responsible for the administration of the Department's annual budget in excess of \$100 million; providing fiscal information to

agency administrators; maintenance of fiscal controls over income and expenditures; development of accounting procedures, controls and systems; and, internal audits of field work centers to insure compliance with State regulations and accountability of Department funds and fixed assets.

Major goals for FY 1985 include the installation of computer equipment in the Procurement Project and the development and implementation of an automated system for federal grant management.

The program consists of the following projects:

### General Accounting

The primary responsibilities of this project are to maintain financial records of the annual budget; receipt and allocate revenues collected by the Department; authorize disbursement of State funds including salaries and wages to employees; collect and maintain records of accounts receivable; and, maintain time and leave records for all personnel.

### Procurement Project

The primary responsibilities of this project are processing service contracts, requisitions, and purchase orders in accordance with Title 21, State Procurement Regulations. Other responsibilities include review of personal service contracts, timber sale contracts and up-dates to DNR Supervisor's Manual.

The project processed 575 requisitions and 1,985 purchase orders totaling approximately \$3,777,183. There were an estimated 242 service contracts (including personal service contracts) reviewed and approved, totaling over \$9,422,077.

During FY 84, the project staff initiated quarterly meetings in Annapolis with the Department of General Services Purchasing Bureau, and also held two regional meetings for the DNR field staff to meet and discuss purchasing concerns with the Department of General Services staff.

### Mail Distribution

This office oversees the operation of the departmental mail room. During

fiscal year 1984 more than 4,500,000 pieces of mail and 20,000 parcels were handled.

### Special, Federal and Capital Fund Management

The Special, Federal and Capital Fund Management section maintains and coordinates for the Department the fiscal and statistical records for five general categories of Federal and State projects. This section serves as Federal Audit liaison and provides cash requirement forecasts for loan funds and income and expenditure projections on Federal and Special funds.

During FY 1984, records were maintained on 512 specific projects representing \$26,284,704 as follows:

Category	No. of Projects	Amount
Shore Erosion Waterway Improvement	49	\$1,154,480
Outdoor Recreation Land Loans	79	3,244,529
General Construction Loans	216	8,662,882
Federal Grant Projects	63	4,938,264
	105	8,284,549

### Supportive Services Section

The Supportive Services Section's primary duty is controlling the real and personal property purchased or otherwise received by each unit within the department. As of June 30, 1984, the value of the land and buildings to which the department holds title exceeds \$224 million with equipment inventory amounting to \$19 million.

### Data Processing

The Data Processing Section maintains a central review authority over all data processing activities of the Department. The Section is directly responsible for all administrative/financial computer applications located in the Office of the Secretary's Fiscal and Supportive Services and Licensing and Consumer Services.

Data processing capabilities are dispersed throughout the Department of Natural Resources. Several units have data processing sections which support the unit. In the Tawes Building, all units share a Four Phase/Motorola

mini-computer system located on B-4. This system is maintained by the Data Processing Section.

Significant accomplishments during FY 1984 included upgrading the Four Phase/Motorola mini-computer system with the addition of a second central processing unit (CPU) and 18 additional CRT's, three letter quality word processing printers, expanded high speed disk storage; the conversion of several major computer applications from Burroughs and IBM equipment to the second Four Phase/Motorola CPU; the installation of micro-computers in the Tidewater Administration, Maryland Geological Survey, and Forest, Park and Wildlife Service; the implementation of an appropriations budget system to provide computer readable FY 1985 budget data to the Department of Budget and Fiscal Planning; the development of a new system to issue Tidal Fish licenses, and the redesign and partial programming of a Water Resources Water Appropriation System.

Goals for FY 1985 include an upgrade to the Four Phase/Motorola mini-computer system; procurement of an IBM system 36 mini-computer to be located in the offices of the Maryland Environmental Service on Admiral Cochrane Drive; the procurement of seven micro-computers for the Natural Resources Police to be located at regional sites and at headquarters, Annapolis; the procurement of Radio Shack micro-computers for the Forest, Park and Wildlife Service; the procurement of a graphics terminal system for the Tawes Building to be connected to the ADC for use with the ADC's Statistical Analysis System (SAS) and the development and implementation of a timecard reporting system for Federal Aid billing for the Wildlife program of Forest, Park and Wildlife Service.

Long range goals include setting up information centers to provide user friendly data processing tools to various non-data processing personnel in the Department.

## LICENSING AND CONSUMER SERVICES

Licensing and Consumer Services administers the State Boat Act and the licensing provisions under the Tidewater Administration and the Forest, Park & Wildlife Service. The section titles and registers all boats; records security interest in boats; issues commercial and sport licenses and permits; collects shellfish taxes and licenses and audits boat and shellfish dealers. The five Natural Resource Service Centers are under the supervision of this section. The unit is also responsible for the Boat Act Fund, the Boat Dealer Assurance Fund, the Publication Sales Fund and the sale of the Guide For Cruising Maryland Waters and certain other Department publications. Licensing and Consumer Services implemented the Tidal Fish License in FY 1984.

The six Licensing and Consumer Services Offices collected gross revenues of \$15,107,936 representing approximately 900,000 transactions. Included were 28,563 applications for Maryland boat titles resulting in \$7,836,981 in boat title taxes collected; 128,335 applications for boat registrations resulting in revenues of \$1,295,880; 5,654 applications for documented yacht stickers totaling \$28,279; also 609,088 applications for various angler and hunting licenses and stamps resulting in deposits of \$4,194,849, and 25,616 applications for commercial license for revenues totaling \$743,869. A total of \$86,878 was collected for the recordation of security interest with \$34,752 deposited to the account of the Comptroller of the Treasury, \$28,960 made available to be distributed to the counties and \$23,166 available to offset costs of the collection and recordation. Gross revenues from publications were \$81,657 of which \$77,330 was generated from the sale of the Guide For Cruising Maryland Waters.

Licensing and Consumer Services Staff processed 128,335 boat registrations of which 18,681 were issued for three years free-of-charge. Also processed were 4,151 oyster and clam dealer reports which accounted for over 1,792,744 taxed bushels of shellfish (1,215,903 harvested bushels) and \$616,773 in severance,

import and export taxes. The Licensing and Consumer Services Staff provides daily direction and interaction between the Department and the 708 licensed boat dealers, 294 fish dealers, 23 clerks of court, 8 hunting and fishing license distributors, 192 hunting and fishing license consignment agents and 500 hunting and fishing license cash agents, as well as the general public.

Licensing and Consumer Services Staff at the five Regional Service Centers, in addition to the issuance of titles, registrations and licenses, provide comprehensive administrative support to the Regional Managers and field personnel of all units of the Department located at the centers. The Regional Service Center in Southern Maryland collected \$12,091 on behalf of the Potomac River Fisheries Commission through sales of Potomac River Fisheries Commission Licenses and deposited the money direct to the Potomac River Fisheries Commissions account.

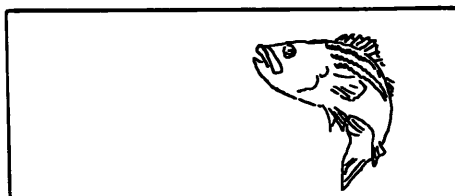
Of the sport fishing and hunting licenses recorded as sold, 28,481 were returned by retail agents resulting in \$150,830 in refunds. Net revenue from anglers and hunting licenses was \$4,044,019.

Of revenues collected during Fiscal Year 1984, \$15,032,133 was used to support the activities of the Tidewater Administration, the Forest, Park & Wildlife Service, the Natural Resources Police and the Office of the Secretary.

Licensing and Consumer Services total costs for Fiscal Year 1984 to accomplish these services was \$1,688,055.

During 1985 Fiscal Year Licensing and Consumer Service plans to increase the availability of licenses to the public by coordination with the Clerks of Court and by incentive programs to agents. The Chesapeake Bay Sport Fishing License legislation, along with the implementation of the first commemorative Chesapeake Bay Print and Stamp Program will be main events in the 1985 fiscal period.

Over the next five years, Licensing and Consumer Services plans to reduce or eliminate the time lag in license issue by installation and implementation of an electronic receipting system, and upgrading data





entry capabilities. This capability will provide more timely information for use by the Marine Police and Department of Natural Resource managers.

Through the use of news media and by enhancing education programs, Licensing and Consumer Service plans to increase public awareness of license requirements. Further plans include efforts to simplify licensing procedures to reach our goal of providing maximum service to the public by the most effective and efficient means possible.

### **NATURAL RESOURCES ASSISTANCE AND INFORMATION**

The Office of Assistance and Information gives the public direct access to the services of the Department of Natural Resources. Also, the Office serves as a public interest center where information about activities of the Department may be obtained. To accomplish its mission, the Office uses traditional communication methods such as media releases, public service messages on television and radio, distribution of pamphlets and brochures, direct mail, telephone responses, circulation of motion pictures, books and slides and public appearances.

In addition, the Office provides support for the line agencies of the Department in their public communication efforts. Capabilities of the Office in this function include coordination of exhibits at fairs, festivals and special

observances; provision of mechanical services at public hearings conducted by the agencies; and assistance in preparation and distribution of required media advertisements and general mailings for the agencies.

During Fiscal Year 1984 the Office of Assistance and Information consisted of these units: General Direction, Library, Graphic Services and Field Operations.

#### **Administration**

The administration of Assistance and Information is the responsibility of the Administration unit. Specifically, in Fiscal Year 1984 Administration maintained contacts with media and officials of other State, Federal, county and public agencies. Administration is aware of all issues and developments in natural resources matters.

The unit conducts the annual Migratory Waterfowl and Trout Stamp Design Contests; prints and revises the Departmental telephone directory; compiles the DNR News, the DNR Calendar of Events, maintains a current register of public participation groups associated with the Department; provides staff support for the Advisory Board of the Secretary of Natural Resources and publishes the Department's Annual Activities Report.

#### **Library**

The DNR Library is on the first floor of the Tawes State Office Building. Its

services are available to DNR employees and the general public. Its activities include maintenance and circulation of the Department film collection; organization of the book collection; service as repository for Departmental publications and reports; participation in the interlibrary loan program; and offering of technical and reference assistance.

The Department film collection includes nearly fifty titles on fish, game, conservation and natural resources activities. Films were loaned for public use on more than 775 occasions during FY 84.

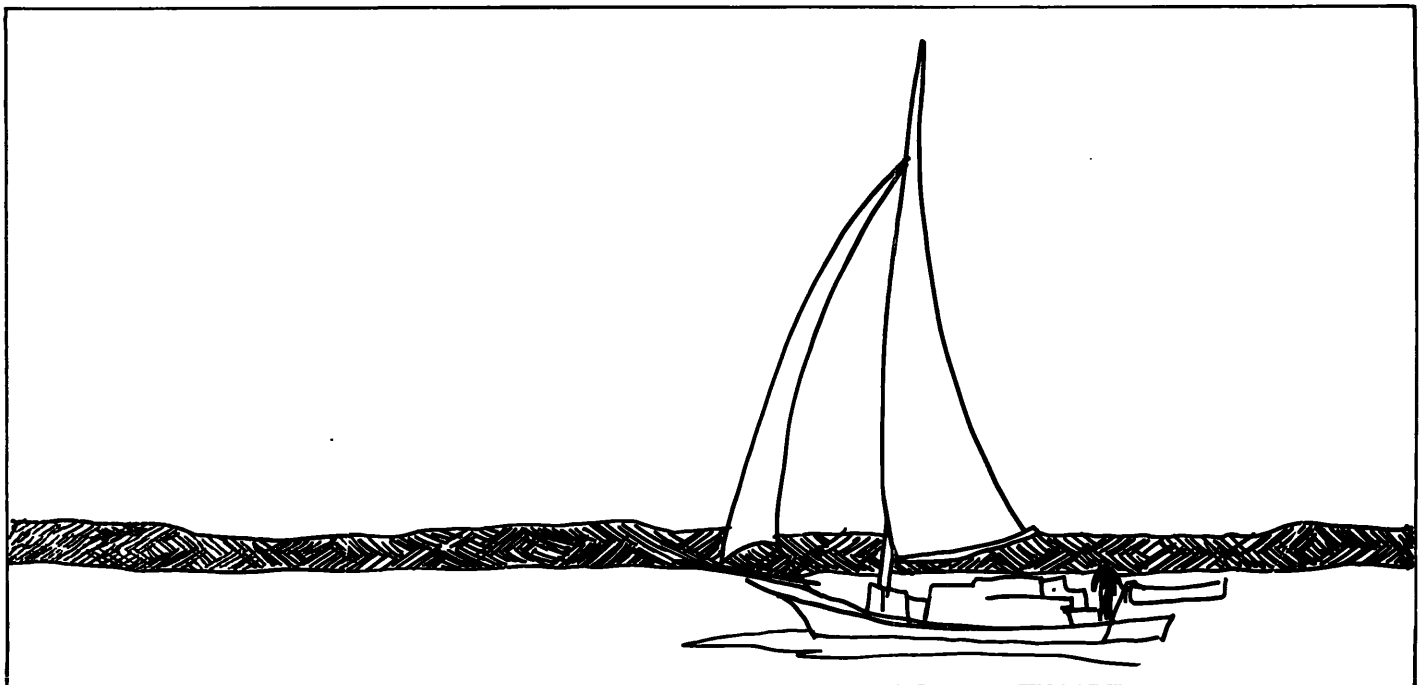
#### **Graphic Services**

Two illustrators provide graphic arts services for the agencies of the Department, producing publications, exhibits, maps, posters and similar elements of communication.

#### **Field Operations**

A director and two field representatives play a major role in bringing the natural resources story of Maryland to the public.

They have conducted teacher training seminars in many counties and the City of Baltimore. The Field Operations staff makes presentations before school pupils, service clubs, community associations and sportsmen's groups. The unit coordinates DNR exhibits at fairs and special expositions. In addition, it conducts orientation programs for employees of the Department.



## PERSONNEL ADMINISTRATION

This Administration is responsible for all personnel for the Department.

PERSONNEL ADMINISTRATION ACTIVITIES	No.
PERSONNEL TRANSACTIONS PROCESSED	
(Appointments, Reclasses, etc.)	3643
RECLASSIFICATION STUDIES	245
Desk Audits	50
CONTRACTS	
Personal Services Salary Certification	72*
SPECIFICATIONS REVISED	1
SUGGESTIONS PROCESSED	6
BLOOD PROGRAM	
Drives	3
Donors	235
Units Produced	224
Disbursement	40
INTERVIEW & MOVING EXPENSE REQUEST	
Out of State Candidates Interviewed	14
Moving	
New Employees	2
Transferred Employees	1
APPLICANT ACTIVITY	
Correspondence	2100
Walk-ins	843
Interviews	201
Telephone Inquiries	3352
Employee Reviews	121
EXAMINATIONS REQUESTED	10
EMPLOYEE GRIEVANCES	
(4th & 5th Step Hearing)	26
NEW EMPLOYEE ORIENTATIONS	8
STATE ACCIDENT FUND ACTIVITY	
First Report of Injuries Processed	180
Workmen's Compensation Hearings Coordinated/Attended	10
Bills Processed	372
MISCELLANEOUS CAMPAIGNS	
(Flu inoculations, various employee benefit programs)	3

\*14 month total

### ONE YEAR GOALS

Increase professional and clerical staff due to increased workload, improvement procedures and processing timeliness of workmen's compensation, unemployment claims and reclassification studies, and increase understanding of personnel function among top management.

### FIVE YEAR GOALS

Improve communications with and services for field employees, improve data processing capability, secure larger office space and capacity for

greater confidentiality, administer all examinations for DNR classifications, increase delegation of authority by the Department of Personnel in certain administrative areas.

### OFFICE OF EEO & MANPOWER

This office advises and serves the Department and its agencies on Affirmative Action and Equal Employment Opportunity.

- It is responsible for the overall equal employment opportunity program and its execution.
- Assists the Secretary of Natural Resources in ensuring that the Department's equal employment opportunity policy is executed.
- Recruitment and reclassification to include revision of job specifications and the filling of positions.
- Assisting units in preparing Affirmative Action Plans and the training of personnel in Equal Employment Opportunity/Affirmative Action matters.
- Provide department-wide leadership to promote the acceptance and cooperation of the Department's equal opportunity policies by its officials and supervisory staff and to stimulate the maintenance of an environment that emphasizes human rights and dignities.

### SUMMARY OF FY 84 ACTIVITIES

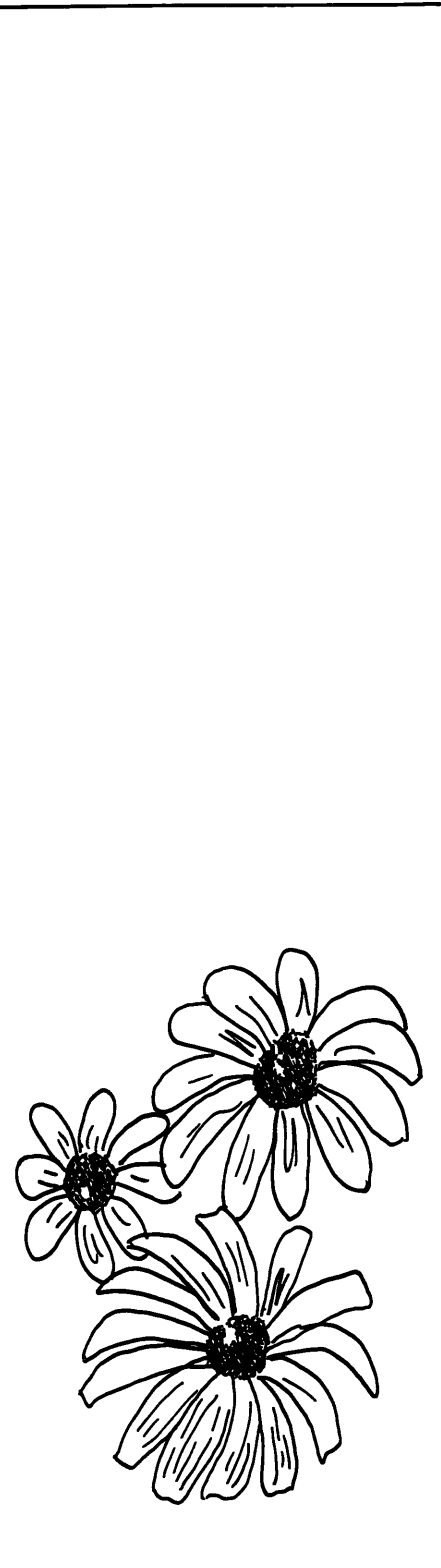
Training Sessions Conducted	
Affirmative Action Training (OUCH)	4
Prevention of Sexual Harassment	1
Structured Interview Guidelines	2
Technical Assistance	13
Personnel Referrals	60
Conference and Workshops	
Attended	8
Career Days	5
Guest Lectures	1
Counseling	40
Advisory & Review Boards	
Served	5
Special Consultations	10
Recruitment Efforts	20
Minority Business Development	8
A.A. Planning in Coordination w/Chesapeake Initiatives	20

### FUTURE GOALS

Make all aspects of the Equal Employment Opportunity and Affirmative Action Program work. Provide

additional training materials, guides and seminars to inform all the Department's employees of their responsibilities in the equal employment opportunity program.

Develop policies in all areas of compliance (e.g. contract compliance, hiring policies, promotions, training, etc.) to ensure that citizens receive equal consideration in all areas and stages of employment.



# CAPITAL PROGRAMS ADMINISTRATION

The Capital Programs Administration consists of five programs; Land Planning Services, Program Open Space, Shore Erosion Control, Land Management and Recreational Development, and General Direction.

The administration provides planning services for state parks, natural resources management areas and recreational facilities. It administers Program Open Space funds under the provisions of the Outdoor Recreation Land Loan of 1969 and Federal Funds provided by the U.S. Department of Interior's Land and Water Conservation Fund, and provides shore erosion control services to public and private landowners.

## **LAND MANAGEMENT AND RECREATION SERVICES**

The Land Management and Recreation Services Program was established within the Capital Programs Administration during November of 1983. It comprises four primary projects: Land Management, Real Property Review and Evaluation, Recreation and Leisure Services, and Enterprise Development.

### **Land Management**

The Land Management Project has responsibility for operation of properties that have been identified for enterprise development, major capital improvement or innovative natural resources management. They include the Merkle Wildlife Sanctuary, Somers Cove Marina, and the Fair Hill and Patuxent River Natural Resources Management Areas.

At Fair Hill, a Concept Plan has been produced that recommends development of the property as an equestrian center which offers a diverse array of public activities. Construction has begun on a privately funded thoroughbred training facility.

Construction was also started on a \$400,000 visitors center at the Merkle Wildlife Sanctuary. The center, scheduled to begin operation in the spring of 1985, will inform the public about the Sanctuary's history, the characteristics of the thousands of Canada Geese that winter at the property and the principles of wildlife management.

The Land Management Project assumed control of the Somers Cove Marina in February of 1983. This 272 slip marina is located in Crisfield and was expanded by the Department's Waterway Improvement Division.

This project is responsible for the management of more than 2,000 acres of land along the Patuxent River and will implement a Natural Resources Management Plan now being prepared for the entire Patuxent River Watershed. This management plan will include recommendations for recreation opportunities, soil conservation, wildlife improvement and forestry management.

### **Real Property Review and Evaluation**

This project is responsible for the execution of all leases, rights of ways, easements and use agreements initiated by the Department for the use of its real property. This section also maintains a Real Property Inventory for the Department, and processes all requests for disposal, razing or change in use of properties.

### **Recreation and Leisure Services**

Recreation and Leisure Services offers technical assistance in planning and conducting recreation activities and programs to agencies of State, Local and Municipal governments, as well as, private corporations, organizations, and members of the general public. This section routinely responds to requests regarding grant sources, land acquisition, program development, lectures and workshops.

Two publications are published by the project to provide information to recreation and park professionals, academic institutions and the public. "Recreation Reflections" is a bi-monthly newsletter that reports on events and new developments in the field of recreation and leisure services. A "Directory of County and Municipal Recreation and Park Boards and Commissions" is compiled annually. It identifies administrators and directors of all recreation departments at State, Local and Municipal levels of government; and includes a roster of all Recreation and Parks Advisory Boards and Commissions.

This project is developing a program that will assist governments and private agencies in providing recreation opportunities and services to Maryland's special populations.

Recreation and Leisure Services maintains a resource library, sponsors a recreation training program for student volunteers, and prepares promotional displays for conferences and festivals.

### **Enterprise Development**

This is a new project for development of state lands by private interests in an enterprise that generates benefits and revenues for both the public and private sectors. These enterprises will be established in a manner that will preserve the integrity of our natural resources, while enhancing their recreational potential and fiscal productivity.

Some examples this project is pursuing are the privately-financed construction of a resort/conference center in Western Maryland, development of an equine training center at Fair Hill, and the conversion and restoration of the Mt. Airy Mansion at Rosaryville State Park into a historic country inn.

### **PROGRAM OPEN SPACE**

The mission of Program Open Space is to provide public recreation and open space areas within Maryland.

Program Open Space coordinates the purchase of land for all units within the Department of Natural Resources. This program also obtains federal grants for land acquisition and development, administers state and federal grants to Maryland's subdivisions for local recreation areas and open space, and coordinates development and maintenance of the Helen Avalynne Tawes Garden.

The fiscal year 1984 Program Open Space allocation approved by the Maryland General Assembly totalled \$16,000,000. By law, one half of these funds (Outdoor Recreation Land Loan) are designated for state land acquisition, Agricultural Land Preservation Easements, and a Direct Grant to Baltimore City for park acquisition, development, or maintenance. The

remaining \$8,000,000 is distributed to the local subdivisions for local park acquisition and development.

**State Share Activity**

During fiscal year 1984 Program Open Space continued to make progress in meeting the Departmental acreage goal of 391,775 acres. An additional 2,142 acres was acquired during fiscal year 1984 leaving 79,278 acres to be acquired. The acreage is as follows:

State Parks	73,263 acres
State Forests	127,833 acres
Wildlife Management Areas	81,740 acres
Fish Management Areas	1,034 acres
Natural Environmental Areas	14,187 acres
Natural Resources Management Areas	14,440 acres
Energy and Coastal Zone	1,064 acres
Fire Towers	52 acres
Natural Resources Police	6 acres
Ocean City Beach Control	5 acres
Tidewater/Waterway	70 acres
Miscellaneous	92 acres
<b>TOTAL</b>	<b>313,786 acres</b>

**EASEMENTS**

Maryland Environmental Trust	17,700 acres
Maryland Environmental	9 acres
<b>TOTAL</b>	<b>17,709 acres</b>

**Local Share Activity**

In fiscal year 1984, 34 acquisition grants were approved for county and municipal governments. Program Open Space assistance was \$4,728,296. Upon completion, these projects will result in an additional 677.83 acres of local park land.

Also 3 development projects or amendments were approved by the Board of Public Works. Program Open Space assistance was \$8,134,761.77.

Since 1970 Program Open Space has provided \$155,800,000 to the local governments for park grants. At the end of fiscal year 1984 the unencumbered balance was \$10,990,687, an obligation percentage of 93 percent.

**LAND AND WATER CONSERVATION FUND**

Program Open Space also administers the annual allocation of federal Land and Water Conservation Funds. Each year since 1966, with the exception of 1982, the Department of the Interior has apportioned a sum of money to the State of Maryland, to be used for the acquisition and development of park and natural resource areas throughout our State. To receive federal funding, the State must submit a detailed project application that conforms with the State's Comprehensive Outdoor Recreation Plan. Upon completion of an approved project, the State receives fifty percent reimbursement of the costs incurred to acquire or develop a specific park site.

In 1973, according to the Annotated Code of Maryland, Sections 5-901 and 5-903, a local governing body of Maryland and the Maryland National Capital Park and Planning Commission are entitled to receive an amount equal to one half of the federal funds allocated to the State of Maryland through the Land and Water Conservation Fund. To comply with this law, the annual allocation is split fifty/fifty between the State and the local governments. Each county receives an apportionment according to a formula created by a committee appointed by Governor Tawes in 1965.

To alleviate the submission of numerous small local projects to the Federal Government, the State submits several major projects to recover the entire annual allocation. The local governments receive their share by submitting to this Department a project application which complies with Program Open Space guidelines and State and local comprehensive plans.

Through fiscal year 1984 the State of Maryland has received apportionments totalling \$60,193,025. Of that amount \$60,170,860 has been obligated on 343 park acquisition and development projects throughout the State; an obligation rate of 99.96 percent.

In fiscal year 1984, \$2,923,229 was reimbursed to the State from the federal Land and Water Conservation

Fund. The local governments expended \$1,243,672 on local park acquisition and development and the State expended \$1,051,958 for further park development.

**PROGRAM OPEN SPACE GOALS**

The following are Program Open Space goals for the next five years:

With the assistance and cooperation of the Department of General Services, Program Open Space will expedite the annual rate of land acquisition to meet the overall State goals for open space and public recreation, park, and conservation lands.

Study, recommend, and implement programs to assist in the purchase of easements for buffer strips around the Chesapeake Bay and its tributaries.

Improve production of status reports, correspondence, and Board of Public Works Agenda administration through the use of computers, word processors, and other labor-savings devices.

Streamline processing of Program Open Space and local grants and federal Land and Water Conservation Fund grants to accelerate processing time and to eliminate storage of bulky files and applications.

Intensify education effort in environmental quality and public open space, conservation lands, and public recreational lands.

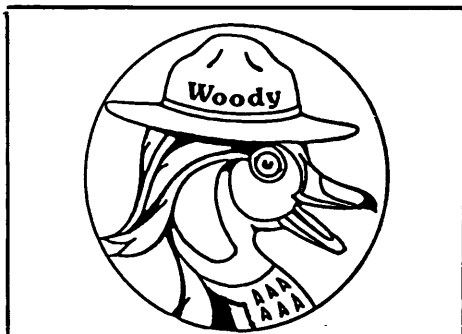
**LAND PLANNING SERVICES**

Land Planning Services provides the Department of Natural Resources with planning, mapping, environmental review, and capital budget services for the acquisition, development, and resource management of public lands and scenic rivers administered and/or managed by the Department.

The activities of Land Planning Services are accomplished through five projects: Resource Planning, Wild and Scenic Rivers, Acquisition Graphics and Research, Natural Heritage and Environmental Review, and Capital Budget Planning.

**RESOURCE PLANNING**

The Resource Planning project develops master plans for new State parks or a recreation use and modification of existing State parks. Resource Planning also conducts detailed property reviews for proposed new



DNR areas, environmental reviews for many DNR projects and lands, and master facilities plans for areas without approved master plans.

Throughout the planning process DNR agencies, interested citizens, citizen advisory committees, elected officials, and federal, state and local government representatives participate in generating, refining, and evaluating the master plans. Public information meetings and the formal hearings are held before a major plan is adopted by the Department.

During fiscal 1984, Resource Planning was actively involved in the development or planning process with the following state parks, natural resource management areas, wildlife management areas, and special projects:

- Chapel Point State Park
- Choptank River Bridge Project
- Cunningham Falls State Park/Catoctin Furnace Complex
- Elk Neck State Park
- Fair Hill Natural Resources Management Area
- Gunpowder Falls State Park
- Hart-Miller Island
- Janes Island State Park
- Merkle Wildlife Management Area
- Patapsco Valley State Park
- Patuxent River Natural Resources Management Area
- Rocky Gap State Park
- Sandy Point State Park
- Seneca Creek State Park
- St. Clements Island
- St. Mary's River State Park
- Susquehanna State Park
- Tuckahoe State Park

#### WILD AND SCENIC RIVERS

The project prepares resource management plans for the nine rivers that comprise the Wild and Scenic Rivers system of Maryland; promotes the wise use of the rivers' land and water resources; improves resource conservation measures; and administers the Youghiogheny Wild River Regulations. This project works with local citizen advisory boards and local governing bodies to develop recommendations for use by the appropriate governing body.

Completed planning projects for fiscal year 1984 included:

Maryland Scenic Rivers - The Severn

Maryland Scenic Rivers -

The Anacostia

Continuing planning projects for fiscal year 1984 include:

Monocacy River

Youghiogheny River

In cooperation with the National Park Service the unit is preparing an inventory and study for 25 additional rivers in the state to determine which possess outstanding scenic, fish, wildlife, and other values of present or potential benefit to the citizens of Maryland.

#### ACQUISITION GRAPHICS AND RESEARCH

The project researches property records (deed, surveys, and land patents) and prepares project boundary maps graphically illustrating privately owned properties legislatively authorized for acquisition to complete public ownership of DNR managed lands. This project also provides mapping and property research for the oil and gas leasing program, and other State agency projects and prepares the Department's acreage report, and is responsible for the preparation of technical guidelines, operation procedures, and drafting of the Chesapeake Bay Critical Areas maps.

Project boundary maps and special project maps completed in fiscal year 1984 were:

Patapsco River State Park

Northern Central Railroad

The preparation of the project boundary map for the Youghiogheny River Scenic Corridor and continuous updating and revising of existing project maps also occurred during this fiscal year.

#### NATURAL HERITAGE AND ENVIRONMENTAL REVIEW

This project systematically collects, records, and analyzes the State's natural vegetation and aquatic diversity including rare, endangered, or threatened species of plants and animals. The Natural Heritage project is also responsible for the preservation of representative elements of the State's natural heritage including rare and endangered species and communities of flora; integration of natural heritage preservation with existing State programs; research and data

acquisition; and distribution of information available from the Natural Heritage Program.

The Natural Heritage project conducts environmental reviews as requested for DNR projects and lands. These reviews include detailed inventories of natural and man-made resources, rare and endangered species, natural conditions and processes, attributes and limitations for use of the area.

The Maryland Natural Heritage program serves as the national model and is the standard for approximately forty state Heritage programs.

During fiscal year 1983, the Heritage staff demonstrated the program to citizens' groups, governmental agencies, and private organizations. Over three hundred data requests were filled. Approximately 50% of these were from divisions of state government. Other requests included federal government agencies, non-profit groups, county governments, consulting firms and academia. It also analyzed existing data to identify significant natural areas and published a report detailing ecological priorities. It became an active member of the Chesapeake Bay Critical Areas Technical Committee, and became responsible for integrating the DNR Upland Natural Areas data base into Heritage activities.

#### CAPITAL BUDGET PLANNING

The Capital Budget Planning project is responsible for preparing the Department's annual Capital Budget request which is submitted to the Department of State Planning. The budget preparation includes organizing and coordinating proposed development projects submitted to Capital Programs Administration by management agencies within DNR. These projects are evaluated and placed into the Five Year Capital Improvements Program according to priority and category.

Supporting data is collected for each project, including cost data and justification. Meetings and budget hearings are required throughout the process.

**GOALS**

The one year goal of Land Planning Services is the completion of 7 park plans, 2 scenic river plans, 5 project boundary maps, and 2 natural heritage publications.

The five year goal of the Program is to develop plans and provide environmental information that will result in a well-balanced Departmental program of acquisition and development and ensure outdoor recreation opportunities in a variety of natural settings.

**Shore Erosion Control**

The Shore Erosion Control Program provides assistance to reduce shoreline erosion on the Chesapeake Bay, its tributaries and the Atlantic coastal region. The Program provides both technical and financial assistance to public and private waterfront property owners.

Technical assistance, provided free of charge, takes the form of on-site visits to assess erosion problems, recommending actions the property owner can take to reduce erosion, providing permit information, designing protective structures, and managing construction contracts for state-funded projects.

Financial aid in the form of interest-free loans for qualified property owners is provided by this Program. Under the Program's Revolving Loan Fund, the qualified property owner receives a 25-year loan covering 100 percent of the first \$50,000 of the project construction costs; 50 percent of the next \$20,000; 25 percent of the next \$20,000 and 10 percent of that portion of the construction costs over \$90,000.

**SHORE EROSION CONTROL  
FY 84 ACCOMPLISHMENTS**

Technical Assistance Actions .....	292
S.E.C. Loan Applications Processed .....	78
Engineering Contracts Awarded .....	38
Construction Projects Bid .....	28
Construction Contracts Awarded .....	20
S.E.C. Loans Processed .....	34
Length of Shoreline Protected by:	
Timber Bulkheads .....	2,397.4 L.F.
Timber Bulkhead Repairs .....	957.0 L.F.
Steel Bulkheads .....	0
Stone Revetments .....	2,007.5 L.F.
Stone Revetment Rehabilitation .....	4,927.0 L.F.
Concrete Wall Repairs .....	422.0 L.F.
.....	10,710.9 L.F.
Total .....	2.03 Miles
Number of Projects Completed .....	13
Number of S.E.C. Loans Involved .....	39
Amount of S.E.C. Funds Loaned .....	\$ 997,433.90
Total Cost of Construction Completed .....	\$1,523,362.87

In conjunction with design and construction tasks, Program personnel obtain hydrographic and topographic data at proposed sites for use during the project design phase. During the construction phase an inspector visits the project site frequently to ensure compliance with the plans and specifications. In addition, Program personnel have overall responsibility for the operation of the Shore Erosion Control Revolving Loan Fund.

**GOALS**

**One Year**

- Fully utilize all appropriated and loan payback funds

- Reduce elapsed time between start of project design and project completion
  - Reduce elapsed time between request for, and provision of, technical assistance actions
  - Increase minority business enterprise participation
  - Fully implement the inspection program for completed projects
- Five Year**
- Improve information activities to insure all appropriate Maryland citizens and groups aware of services provided
  - Pursue additional funding that will allow construction of up to 8 miles of protective structures per year

**SHORE EROSION CONTROL PROJECT STATUS  
AS OF JUNE 30, 1984**

No. of Projects	Project Status	No. of Loans	SEC Loans	Property Owner Contributions	Capital Construction Funds	Total Construction Cost
13	Completed	39	\$ 997,443.90	\$ 30,433.83	\$ 495,495.14	\$ 1,523,362.87
13	Under Construction	30	853,597.43	159,767.76	384,961.00	1,398,326.19
7	Construction Pending	13	529,409.85	25,057.28	0	554,467.13
2	Between Bid & Contract	2	130,000.00*	0	46,365.00	176,365.00
6	Scheduled for Bid	15	464,702.00*	14,952.00*	311,000.00*	790,654.00*
26	Under Design	29	1,450,920.00*	144,230.00*	3,682,349.00*	5,277,499.00*
72	Pending	94	4,638,975.00*	687,675.00*	0	5,326,650.00*
139**		222	\$9,065,038.18	\$1,062,115.87	\$4,920,170.14	\$15,047,324.19

\*Estimated

\*\*Includes 9 projects on state-owned property

# MARYLAND FOREST, PARK AND WILDLIFE SERVICE

In 1984, the Forest, Park and Wildlife Service was created by combining the Forest and Park Service with the Wildlife Administration. The Service works to serve the forest management and recreational needs of the people of Maryland. It is also responsible for the maintenance, management and protection of birds, land-based reptiles and amphibians, and mammals. This includes game species, non-game species, and threatened and endangered wildlife. The Service manages Maryland's natural, cultural, historical and recreational resources by four programs: General Direction, Cooperative Forestry, Forest and Park Management, and Wildlife Management.

## GENERAL DIRECTION

This program provides direction, administrative support and services to the other three programs of the Service. Budget, personnel, purchasing, training, motor vehicle fleet management, radio communications, safety, equal opportunity, public information, and planning and program development functions serve the unit programs.

As a result of legislation enacted in the 1984 General Assembly, money for the non-game program may be raised by the sale of a birdwatching stamp. Purchases of the \$5.00 stamp is voluntary, and funds will be used for conservation of non-game species. The first stamp is expected to be available in January 1985 and will feature a male and female Baltimore (Northern) Oriole.

Several radio and television public service spots were produced by the unit's forestry information and education program for landowners. One PSA was on forest utilization, another about the benefit of good forest management as it relates to improving the quality of the Bay. Additionally, two feature films were produced, "Trees for the Bay" and "Tiffani's Lesson", a forest fire protection film featuring Smokey the Bear. Currently under production is a film on non-game and

endangered species and another about rabies.

## PLANNING AND PROGRAM DEVELOPMENT

Planning and Program Development consists of five major functions:

- Forest Resources Planning
- Wildlife Comprehensive Planning
- Environmental Review and Assessment
- Program Development
- Technical assistance was provided to several counties concerning ordinances and subdivision regulations that dealt with forest land and its protection. An inventory and assessment was conducted in all counties regarding the inclusion of forest land considerations within zoning ordinances.

Wildlife Comprehensive Planning is a new management system to improve services to the public and for the more efficient management of the State's wildlife resources. The Strategic Plan, "Wildlife Management for the 80's", is a start in that direction. This publicly reviewed document presents, by wildlife species, goals, objectives and strategies, to resolve issues. Implementation is through an Operational Plan which is a detailed budgeting system of monies and manpower for specific projects. A Performance Control and Evaluation System was completed and test run, and at the end of this year, began to monitor implementation of the Strategic Plan. Wide distribution will be given the public version of the Strategic Plan set for publication.

Environmental review and assessment of public and private projects is done to determine their effect on forest and wildlife resources of the State. A major aim of the program is reduction of habitat loss. Several major areas of review are wetland permits, highway projects, dredging and PL 566 drainage projects.

Involvement of the formulation of the Bay Initiatives was the year's highlight for program development. Forest land buffers and forest land in

general received much attention from the General Assembly, the Chesapeake Bay Conference and Governor Hughes. The Delivery of Services Committee, appointed by the Director of Forest, Park and Wildlife Service, reviewed combinations of forestry and wildlife services and office locations for more efficient delivery of services to the public. Recommendations have been presented to the Director for consideration.

## Forest and Park Management Program

The Forest and Park Management Program administers and manages Maryland's State forests, parks, scenic preservations, historic monuments, natural environment areas and the Deep Creek Lake, Monocacy and Wye Island Natural Resource Management Areas.

The program provides recreational opportunities, preserves the natural resources and ensures multiple use and sustained yield of forest resources.

Caring for these lands and resources requires expertise in the fields of forestry, horticulture, maintenance, construction, history and administration.

Each year approximately six million people use these areas, and the Forest, Park and Wildlife Service personnel do their best to see that the visitor has an enjoyable time outdoors. Knowledge in law enforcement, first aid and nature interpretation are essential to this effort. The rangers are fully certified, armed law enforcement officers empowered to enforce all State laws on DNR lands. Law enforcement activities include traffic violations, family disputes, disorderly conduct, illegal hunting, larceny and distribution or use of drugs, a growing concern.

Another important aspect of the Service is assisting visitors encountering problems. Approximately 850 first aid cases each year are handled, as well as help rendered for disabled boats and cars, locating lost people and providing help during natural disasters.

Maintenance of buildings, roads, trails, sewage and water systems, swimming pools, beaches, cabins and historical sites is also part of the Service.

Interpretive programs designated to increase awareness of the natural and cultural resources were conducted in State parks, State forests, schools and communities throughout the State. The first arboretum in a Maryland State park was dedicated in May. The arboretum features trees native to Maryland.

Special events in the State parks during the year included cross-country skiing tours and races, Easter sunrise services and Easter egg hunts, guided trail hikes and canoe trips, Civil War Days, military re-enactments, firelock matches, the Civilian Conservation Corps reunion, craft days and festivals.

The management of State forests requires knowledge of size of trees, species, rate of growth, site quality, wildlife populations and other factors to determine the size and type of forest operations. Judgements made now will affect the resource one hundred years in the future. These determinations are vital if Maryland is to have an abundant supply of timber products and wildlife in the future.

New products, creative merchandizing, volume purchasing and renovation of existing concessions have moved the concession program forward to a new concept.

Centralized purchasing and distribution of resale items resulted in savings of 20% on wholesale purchases. Additionally, the product line was upgraded based on sales trends in the gift and souvenir industry. Contacts with the private sector and other state park personnel at nationwide shows have proven invaluable in predicting trends for sales and merchandizing Maryland's products and services.

From an inconspicuous beginning, the concession program has grown into a significant source of revenue providing first class services and merchandise to the public. Profits from the program are returned to the parks and forests to supplement funds for operations and maintenance.

#### FOREST AND PARK USE ATTENDANCE

Green Ridge State Forest	261,038
Pocomoke/Wicomico State Forests	37,322
Potomac/Garrett State Forests	148,747
Savage River State Forest	184,125
Assateague State Park	351,640
Big Run State Park	13,852
Calvert Cliffs State Park	49,206
Cedarville State Forest	54,392
Cunningham Falls State Park	419,757
Dans Mountain State Park	77,901
Deep Creek Lake State Park	124,259
Elk Neck State Park	301,094
Fort Frederick State Park	48,455
Gambrill State Park	217,506
Gathland State Park	47,490
Greenbrier State Park	192,719
Gunpowder Falls State Park	478,094
Herrington Manor State Park	62,653
Janes Island State Park	124,299
Jonas Green State Park	16,120
Martinak State Park	69,236
Matapeake State Park	31,400
New Germany State Park	32,783
Patapsco Valley State Park	496,763
Patuxent River State Park	9,988
Pocomoke River State Park	131,978
Point Lookout State Park	246,939
Rocks State Park	113,050
Rocky Gap State Park	316,942
St. Mary's River State Park	8,470
Sandy Point State Park	541,870
Seneca Creek State Park	97,911
Severn Run NEA	4,572
Smallwood State Park	87,714
Soldiers Delight State Park	5,867
South Mountain NEA	45,213
Susquehanna State Park	135,098
Swallow Falls State Park	103,314
Tuckahoe State Park	89,013
Washington Monument State Park	107,129
Wye Oak State Park	34,964
TOTAL	5,920,883

#### COOPERATIVE FORESTRY PROGRAM

The Cooperative Forestry Program has the responsibility of providing assistance to private forest landowners, municipalities and other governmental units in the management of their forests and individual trees. The program has four major functions: Forest Resource Management, Forest Protection, Urban-Community Forestry, and Utilization.

Resource Management makes assistance available to the 95,800 forest landowners throughout the State. Management assistance to these landowners begins with a plan, prepared by a project forester, which directs overall operation of the forest and continues with technical advice in carrying out the operation. In 1984 project foresters prepared 670 management plans on 34,238 acres, a 33 percent increase over 1983. Timber stand improvement practices improved the growth rate and quality of the remaining trees on 1,636 acres. Site preparation on an additional 2,312 acres readied these sites for forestation.

The Buckingham Forest Tree Nursery at Harmans produced more than 3 million tree seedlings in fiscal 1984. These young trees were sold to private landowners for planting 4,048 acres of open land and cutover forest lands. In addition, 1,021 sapling size trees were produced and sold to municipalities for roadside tree plantings.

Tree improvement, a part of Maryland's forestry program for many years, has changed dramatically in the past year. A forest geneticist was hired to evaluate past accomplishments and implement a tree improvement plan. Treatment work in the loblolly pine seed orchards fully utilized improved seed production. Controlled breeding was started and seed from these crosses will provide a new generation of superior trees for future plantings.

The Resource Protection goal is to reduce forest land loss from fire, insects and disease. In 1984 the Maryland Forest, Park and Wildlife Service responded to 313 wildfires which burned 6,583 acres. The primary causes continue to be debris burning and incendiary. They accounted for a total of 193 fires or 62





percent of the total. Increased emphasis has been placed on prevention in order to reduce fires attributed to these causes. Control techniques for protection from insects and disease is provided to homeowners and forest landowners. Assistance in both surveying and controlling major insect infestations is provided to the Department of Agriculture. The most notable is assistance in the gypsy moth program. In 1984, 109,683 acres were aerially sprayed to prevent heavy defoliation by the gypsy moth.

Urban-Community Forestry efforts continue to emphasize working with developers, builders, architects and city planners during developmental planning and large scale forestry projects. Supervision of utility trimming crews to ensure the proper care of roadside trees continued in FY 1984. The Urban and Community Forestry bill, passed in the 1984 Legislative Session, enables the Department of Natural Resources to cost share with counties and cities that develop their own local urban forestry program.

Forest Resource Utilization emphasizes increasing the availability of wood products through reducing loss in harvesting, sawing and processing, and in making full use of waste wood. The utilization section has played a major role in the increased use of wood for energy in Maryland. In 1984 the General Services Administration and the Department of Corrections were convinced that wood is a good choice for fuel to heat the proposed prison in Somerset County. As of now, the new prison will be wood fired and cogenerated.

### **Wildlife Management Program**

The major goals of the wildlife program are to conserve and enhance the natural environment upon which all wild creatures depend on for food, shelter and their reproduction. Biological programs, a wildlife field service section and a waterfowl restoration project work to meet that goal. The following wildlife management programs are responsible for planning, conducting and evaluating all wildlife surveys, developing and applying management techniques, preparing annual status reports, developing

recommendations for regulating public use and restoring wildlife species.

### **FOREST WILDLIFE PROGRAM**

This program is responsible for management of wild turkeys, whitetail deer, sika deer, ruffed grouse, gray squirrel, eastern fox squirrel and red (Piney) squirrel. These species provide more than 1,000,000 hunter-days of recreation.

Investigations are conducted to determine mortality rates of the whitetail deer and gray squirrel. Population trends of deer, grouse, squirrels and turkeys were studied.

Recent successes with the Eastern wild turkey translocation project are contributing to the restoration of this species throughout the State.

### **FURBEARER PROGRAM**

This program is responsible for the management of 18 species of furbearers in Maryland. Furbearer pelt sales generate an income of approximately \$3,000,000 annually for Maryland's fur harvesters.

Additional surveys and inventories will be undertaken to determine population trends of important fur species, such as raccoon, fox, otter and muskrat. Surveys are also planned to determine the population status of the bobcat, a species which appears to be recovering in Maryland.



### **WATERFOWL PROGRAM**

The wetland wildlife species considered in the Migratory Waterfowl Program include eight species of dabbling ducks, eleven species of diving ducks, five species of seaducks, three species of geese, two species of swans and the American coot, all combined in a category termed waterfowl; plus the common gallinule, six species of rails and jacksnipe.

The number of waterfowl banded in Maryland during the year was 4,539 of which 2,900 were geese. Banding monitors population trends and movements.

Surveys of the changes and conditions in waterfowl habitat indicated a continued decrease in bay grasses from the previous year. Evaluation of penreared mallard releases was continued.

A study initiated last year will help determine survival, mortality, and local and regional movements of Canadian geese wintering in the Atlantic Flyway. The Waterfowl Program's contribution, marking Canadian geese with highly visible neck collars, will aid in collected data required for management of this species.

### **NONGAME AND ENDANGERED SPECIES PROGRAM**

This program includes species of wildlife not legally classified as game birds or mammals and those species classified as threatened or endangered. These include thirty-seven species of amphibians, forty-six species of reptiles, two hundred and eighty species of birds and fifty-one species of mammals.

The coordination of research responsibilities includes planning and project execution for nongame and endangered species. Additional responsibilities include issuing endangered species and scientific collecting permits.

Maryland continues to provide significant year round habitat for bald eagles. The nesting population and productivity continues to increase, and Maryland now has 55 to 60 nesting pairs of bald eagles. The winter population continues to increase.

In 1984 four pairs of peregrine falcons nested in the wild in Maryland. Until recently this bird was extirpated

from the entire eastern United States, but conservation efforts in Maryland and elsewhere are beginning to succeed in restoring this species.

#### UPLAND WILDLIFE PROGRAM

The Upland Wildlife Program is responsible for the management of rabbits, quail, pheasants, doves, woodcock and crows.

Research studies were conducted on hunting mortality rates on quail and rabbits on the Millington Wildlife Management Research Area. Trend surveys were continued on all upland species.

A hunter-use survey of licensed hunters in Maryland is conducted to obtain estimates of number of hunters, efforts expended and harvest for selected game species.

The "Acres for Wildlife" project continues to protect, improve or create upland wildlife habitats on private lands and rights-of-way and create an awareness of what upland wildlife habitat actually is and the need to manage it.

The Wildlife Field Services section performs field operations for the Service. Divided into four regional management units it carries out wildlife management practices on public-owned properties as well as cooperative lands. It also serves other agencies by providing the hands-on-work required for five biological staff programs (data collection for the

various wildlife surveys and inventories, etc.). The program serves the public directly by dissemination of information regarding policy and regulations, technical assistance in planning wildlife management practices and handling animal problems as well as providing areas where the interested public can find hunting and other forms of appreciative recreation. The total acreage of State Wildlife Management Areas is 102,300 acres plus 56,200 acres of leased land under the Cooperative Hunt Program.

This year the Wildlife Field Service helped to train animal control units in the Baltimore-Washington corridor in handling rabid animal complaints. This section continues to cooperate with the Department of Health and Mental Hygiene and various county animal units in the control of rabies problems.

The objective of the "Maryland Waterfowl Restoration Project" is to provide technical assistance to private landowners for developing and managing waterfowl habitats for breeding and wintering ducks. The goals of the project is to improve and augment wetland habitats Statewide for dabbling ducks by providing permanent open water, properly interspersed with food and cover, throughout the year.

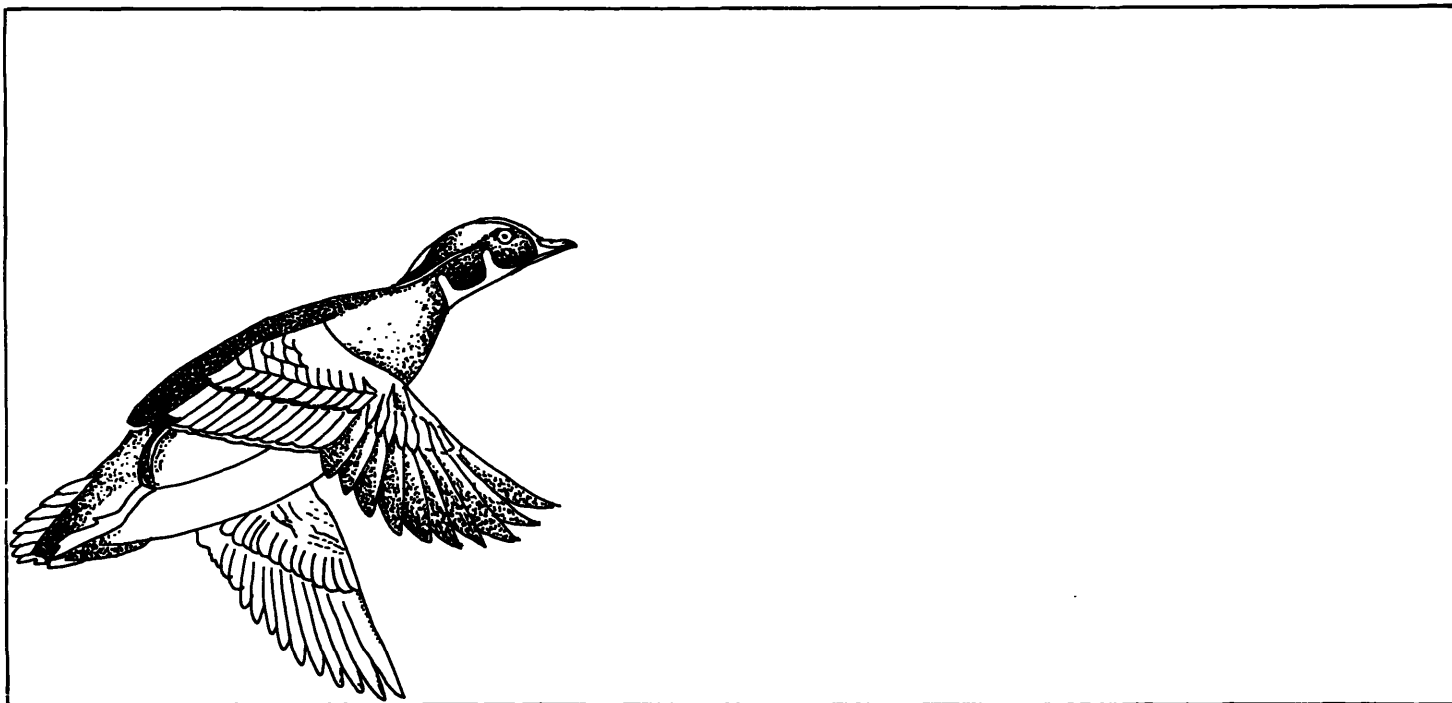
The Waterfowl Restoration Project does not retire cropland from production or open land to the public. This is the prerogative of the landowner or tenant.

Waterfowl habitat improvement on private lands in the State, funded by duck stamp money, is improving and growing. Since 1981 the program has added 123 projects throughout the State totalling 25,000 acres. Waterfowl habitat improvement on private land is an effort to develop and recapture some of the waterfowl breeding and wintering habitat lost to development, erosion, etc.

The second phase of the project, restoration of waterfowl habitat on public lands, has included flooding of impoundments at Fairmount and the repair and improvement of water control structures at Deale Island Wildlife Management Area.

The third phase of the project is the mallard duckling release. During the year 18,000 mallard ducklings were purchased then released in every county of the State.

A significant accomplishment was the establishment of the Waterfowl Research and Development Center at the University of Maryland Horn Point Environmental Laboratory as part of the Chesapeake Bay Initiatives. Money was appropriated for the development of that center along with an educational center. The rearing of non-mallard duck species will be attempted to help augment natural populations. The educational center will be used to educate the public on the needs of waterfowl in the State.



# NATURAL RESOURCES POLICE

The Maryland Natural Resources Police Force has more direct contact with the general public than most DNR agencies. Some citizens equate the police with the Department.

One function of the police is to explain and administer DNR policies to and for the general public. The success of the DNR policy, law or regulation may rest with the relationship between the Natural Resources Police Force and the general public. Public education regarding policies and laws is a significant part of the Natural Resources Police Force activity through various programs.

During the past year, the Natural Resources Police's enforcement program increased the number of warnings written to first offenders thereby reducing the number of citations issued. This action was taken in response to complaints that the law was being too strictly enforced. This policy was successful and the enforcement effort was not hampered.

## INFORMATION, ASSISTANCE AND EMERGENCY RESPONSES

The Natural Resources Police handled 100,627 telephone calls for service or information during FY 1984. Calls included: 19,133 received at the officers' homes, 42,623 to Regional Offices and 38,871 calls received at Headquarters' Communications Center in Annapolis. The public visited officers at their homes on business on 1,207 occasions and the Regional Offices 3,186 times.

Official reports show the Natural Resources Police responded to 1,598 emergency response calls to the general public. Some categories include:

Disabled Boats	174
Disabled Vehicles	159
Injured Persons	47
Boats Towed to Port	618
Boats Escorted to Port	58
Vessels Aground	218
Vessels Freed from Ice	4
Pumped Sinking Boats	36
Firefighting	12
Searches for Overdue Boats	28
Searches for Missing Persons	14
Searches for Drowning Victims	22
Persons Rescued from Boats	4

Persons Rescued from Water	14
Persons Stranded	9

Emergency rescue responses assisted 4,098 people and required 2,976 man-hours. Additionally, other agencies were assisted 227 times for a total of 707 man-hours.

## FIELD OPERATIONS

### Organization

The Field Operations Division is the on-line law enforcement effort. There are five administrative regions consisting of two to five districts each. Each region is headed by a Captain. The regions are grouped under the Western Shore and the Eastern Shore. Each area is administered by a Major who is responsible for the Chief of Operations. The reorganization of September 1981 integrated the traditional marine and inland enforcement units.

### Lifesaving and Rescue

Natural Resources Police continue to provide the primary Search and Rescue service on Maryland's waterways. Some examples from FY 1984 are:

Two officers were commended for saving the life of a child in the Patuxent River.

The Mobile Enforcement Team in the Upper Eastern Shore Region rescued a man and a dog from the ice.

High tides and heavy rains caused flooding in Crisfield and Federalsburg during the spring. Natural Resources Police units assisted in the emergency evacuation.

Natural Resources Police officers assisted in barricade situations involving disturbed persons. In two instances, a Natural Resources Police officer persuaded the person to surrender.

During December, Natural Resources Police officers rescued three duck hunters stranded in a duck blind on the Nanticoke River.

During FY 1984, Natural Resources Police officers recovered bodies of 74 people who had drowned or died from other causes on Maryland's waterways

## Enforcement and Protection

Natural Resources Police personnel worked 283,626 man-hours, including 26,135 man-hours of overtime, drove 1,280,000 miles on patrol, spent 49,604 hours patrolling by boat, patrolled on foot for more than 28,000 hours and flew over 300 patrol hours.

Natural Resources Police issued 8,576 citations and 5,888 warnings during FY 1984. The total of 14,464 cases show a net increase of 29% over last year.

There is strong enforcement of the conservation and boating safety laws and continued emphasis on resource protection. A growing support among the District Courts has led to stronger penalties for violators. Some examples of this trend include:

In the Southern Region, officers have apprehended persons in possession of outboard motors from which the serial numbers have been removed. Prosecutions for this type of violation have been mostly successful, although some cases have been dismissed.

The prosecution of violators under Maryland's new Operating While Intoxicated Law has been successful with convictions over 90% and average fines of \$100.

A "hunting while intoxicated" case in Southern Maryland resulted in heavy fine, jail, probation and suspension of hunting privileges for a year. Jacklighters in the same area are regularly facing fines of \$1,000, 89 days in jail and forfeiture of weapons.

In another southern Maryland county, a man charged with crab pot theft served two months in jail and had his right to obtain any Natural Resources Harvesting License suspended for three years.

Conservation law violators on the Eastern Shore are bringing consistently stiff penalties, especially jacklighting, with fines running approximately \$500 per defendant with many receiving jail time. Also, hunting privileges are being denied for a period of at least two years and weapons are being confiscated.

Many arrests for possession of small oysters were also made.

Cases include 1,946 hunting violations, including 222 jacklighting cases; 2,297 fishing violations, half for fishing without a license and 538 for undersized fish of all species; 1,569 for Personal Flotation Device (life preserver) violations, and 998 for speeding violations.

Oyster violations number 1,016; 714 were for possession of unculled or undersized oysters. There were 938 crabbing violations; 751 were for possession of undersized crabs. There were also 654 cases which did not involve the Natural Resources Article.

The Natural Resources Police routinely investigate and assist other agencies in the investigation of criminal activity not included in the Natural Resources Article. The Natural Resources Police involvement in these matters grows yearly and has become a significant part of the overall law enforcement program in the State.

Some FY 1984 cases include:

A search for a murder suspect in Western Maryland and investigation of another murder on the Eastern Shore. Possession and trafficking in drugs resulted in several seizures and convictions. Larceny investigations are now commonplace, especially near the Bay, and officers in the Southern Region uncovered a ring of thieves operating in the upper part of Anne Arundel County and recovered several thousand dollars worth of stolen property in a case which is still ongoing.

Assaults, hostage situations, driving while intoxicated and other non-natural resource offenses take more time each year.

#### **Aviation**

The Natural Resources Police acquired a larger aircraft and one more suited to specific needs. The aviation section flew 244.2 hours of enforcement duty and utilized video equipment in establishing cases.

There is increased involvement on the part of regular field personnel in aviation type enforcement and a new Observer Program has been implemented.

#### **Cooperative Enforcement**

Officers in Western and Central Regions have been working with the U.S. Fish and Wildlife Service investi-

gating the killing and sale of bald eagles. In all regions, personnel worked with the U.S. Fish and Wildlife Service enforcing migratory bird and waterfowl laws. A number of successful prosecutions have resulted.

The Natural Resources Police regularly work with agencies such as the U.S. Coast Guard, the U.S. Customs Service, the Maryland State Police, Virginia law enforcement agencies, county police and sheriff departments, and various State agencies.

#### **SPECIAL PROJECTS Alcohol Enforcement Program**

Effective July 1, 1983 a State of Maryland law prohibits the operation of a boat while under the influence of alcohol and/or other intoxicating substances.

This law is serving as a model for the nation, since few states have such a statute and because Maryland's is among the most clearly codified. Other states and law enforcement agencies have shown a good deal of interest in Maryland's law.

The Commander of the Southern Region has been responsible for the formulation and implementation of this program. Special training programs to deal with the unique problems encountered afloat have been developed. After a full year it is felt that the program works, and the Natural Resources Police policy of not using a hard-line approach is working. Public education is the key to the success of this program and special emphasis is being made in that direction.

During the year there were 25 OWI arrests, 16 of these occurred in Anne Arundel County and 5 in Garrett County. Out of the 19 cases tried, there have been 16 convictions. The average fine has been \$100 and cost, but in two cases the fines were \$500 and alcohol rehabilitation plus probation was required.

The Natural Resources Police are not using "alcohol check points" or any other sort of direct concentrated enforcement activity, but rather are using public awareness education and cases of individual encounters to get their message across.

After a good start with much public and judicial support, the future of this program looks promising.

#### **Hovercraft**

The Natural Resources Police are testing a Hovercraft to determine its suitability to marine law enforcement, search and rescue, and emergency response situations. The results have been satisfactory with some applications exceeding expectations. It is anticipated that a larger unit will soon be on regular patrol in the Central Bay area.

#### **SUPPORT SERVICES**

This provides support service to the Field Operations Division.

#### **Supply and Maintenance**

This program is responsible for maintenance of the boat fleet and the equipment necessary for proper operation. Purchasing is also handled by this section.

In 1983 the passage of SB 377 raised boat registration fees from five dollars to twelve dollars per year, specifically to fund equipment replacement for the Natural Resources Police.

The Natural Resources Police prepared specifications and sought bids for eight large patrol boats in the 31-32 foot class. Delivery is expected by December 1984.

In April the annual public auction of surplus goods and equipment was held. The sale of obsolete material and equipment netted the Natural Resources Police \$36,985.41.

For the first time, surplus Boston Whalers were sold at the auction. These boats were 15-16 years old and had been unsuited for some time to continue police service. They brought \$1,300-\$1,700 each. It is hoped that the Natural Resources Police can now establish a regular replacement program with a complete turnover every eight to ten years.

Eleven steel boats in the fleet were removed from service after as much as 16 years of service and sold by sealed bid. This sale realized an additional \$40,157.

The 18' Boston Whalers received in June 1983 were placed in service during July and August. An additional six 18' Whalers were purchased and are now in service. Two new 22' Whalers are being prepared for service at this writing.

The ACSB radio communications project is progressing satisfactorily.

The initial equipment was received and the first installation completed in April.

A 26' Stamas boat donated to the State has been renovated as a patrol boat, renamed WYE RIVER and placed in service in Middle River in Baltimore County.

The supply section handled over 3,200 transactions during the year.

### **Police Academy**

The Natural Resources Police Academy is located at the Matapeake Multi-Use Field Station in Stevensville on Kent Island. The Academy is designed to house up to sixteen recruits on a live-in basis and has two classrooms.

The 34th Basic Recruit Class was conducted for 22 weeks from July 18, 1983 through December 16, 1983. Approximately 10,000 man-hours of training were involved.

The ten recruits of the 34th Class, plus eight veteran officers, were certified as Emergency Medical Technicians (EMT). Twenty-five percent of the Natural Resources Police field enforcement officers are now EMT certified. The remainder of the officers are First Responder Certified.

The Natural Resources Police continued mandated in-service training with 183 officers completing 5,078 man-hours of training or an average of 31 hours per person.

The Natural Resources Police Academy also conducted a Maryland Police Training Commission Firearms Instructors Course, bringing the total of Certified Instructors to 15. The Natural Resources Police firearms instruction is among the most stringent in the State, meeting or exceeding all mandated standards.

The academy also provided 587 hours of instruction to 43 students from other agencies.

### **Criminal Investigations Division**

This division is responsible for a wide variety of investigations. In addition to making arrests as a result of investigations, it provides pre-employment investigations for Natural Resources Police recruits and cadets, instructional services, and responds to nationwide inquiries regarding stolen property. This unit supervises covert operations activities and provides

administrative and inter-agency support for field units involved in criminal investigations.

Cases involving special investigative activity include, four apprehensions for undersize crab violations after efforts on the part of regular patrols had failed and apprehension of two adults and a juvenile involved in illegal deer hunting and possession activity. All parties in both cases were convicted.

### **Special Investigations**

The Water Resources Administration detachment continues to provide police support to the WRA enforcement section. The detachment consists of two officers who made 44 cases, won 32 convictions and had 8 cases outstanding at the end of the year.

### **Boat Accident Investigations**

The accident investigator reported the following:

Boat Accidents	196
Boating Injuries	77
Boating Fatalities	31
Property Damage	\$651,167

Boating accidents were down from FY 1983 by 22%; injuries were down by 28%, but fatalities were up 14%. Overall, boating accidents are declining slightly.

### **Public Education**

The Public Education Section operates two major programs: Hunter Safety Education and Boating Safety Education.

### **Hunter Safety Education**

This year was the 18th year of Hunter Education Training, the last seven were compulsory for first time license purchasers. The program's goal is to reduce hunting accidents and to instill a code of ethical behavior in Maryland hunters. The program received another AAA rating from the International Association of Fish and Wildlife Agencies. This is the highest evaluation given by the International Association of Fish and Wildlife Agencies.

There were 19 hunting accidents reported in the State during FY 1984 including seven self-inflicted wounds and two fatalities. This represents a 29% decrease in accidents since last year and is one of the lowest recorded in the history of the program. The mandatory training is a significant

factor in the reduction of accidents.

The Hunter Safety Education program depends on its many volunteer instructors and, for the third year, an Annual Instructor Appreciation Day was held. About 125 instructors attended the event held on the Izaak Walton League premises in Damascus, Maryland in October.

### **Boating Safety Education**

The goal of this program is boating safety education for everyone who engages in water recreation. The program is moving toward a more structured classroom rather than the original home study program. During the year, there were 5,022 home study courses distributed to people requesting it. Only 1,086 people returned the completed course, of which 1,009 passed the course.

On the other hand, in 18 classroom sessions conducted with various grades in Anne Arundel and Charles Counties schools, there were over 1,200 students in Water and Boating Safety Education.

Approximately 2% of the Maryland school student population received formal boating education. Out of 1,775 students taking the basic boating course this year, 1,097 passed.

With the implementation of the new Beginner Basic Boating Course for upper elementary and middle school students, continued use of the standardized Maryland Basic Boating Course for high school students, and with the teacher training in Boating Education, the program will be expanded to include all Maryland schools.

To meet the needs of the general public, a Water and Boating Safety Education Volunteer Instructor Program will be implemented in the coming year and will eventually operate in a manner similar to the Hunter Safety Education Program

Additionally, the program has been conducting special training sessions for agencies which respond to water related emergencies. This program is specifically directed toward the firefighter who operates a boat from his station.

Displays and presentations were and are available for boat and outdoor shows and safety conferences.

# WATER RESOURCES ADMINISTRATION

The Water Resources Administration is responsible for the protection, management and development of Maryland's water resources and accomplishes its mission through four programs: General Direction, Watershed Management, Resource Management and Resource Protection.

## **GENERAL DIRECTION**

The overall direction, supervision and coordination of the policies and operations of the Administration are carried out in this program. Coordination of public notices and hearings, and a public information office are parts of this program.

The Water Resources Advisory Commission met four times in FY 1984 to discuss activities and policies that included sediment stabilization regulations, the stormwater management programs, water supply planning and underground oil spills.

## **WATERSHED MANAGEMENT PROGRAM**

The divisions in this program are Flood Management, Watershed Permits, Erosion and Sediment Control, Dam Safety and Stormwater Management.

### **Flood Management Division**

The Flood Management Division administers the Flood Hazard Management Act of 1976 which mandates comprehensive planning and design of flood management projects and provides for a grant program to aid local subdivisions in the implementation of projects for mitigating flood hazards. Technical assistance is provided on watershed modeling, methods of mitigating flood hazards and damage, and local flood management ordinances. The Division coordinates and promotes the National Flood Insurance Program in Maryland.

Technical watershed studies undertaken in FY 84 include the Big and Little Elk Creeks in Cecil County and the Town of Elkton, and Phase I of the study for the Gunpowder Falls, Baltimore County. Negotiations for studies were initiated in Somerset, Allegany, Anne Arundel and Harford Counties.

Flood insurance contractual studies are underway in Wicomico, Queen

Anne's and Talbot Counties. Studies are also in progress in the City of Salisbury and the towns of Easton, Oxford, St. Michael's, Queenstown, Fruitland, Mardella Springs, Sharptown, Centreville and Queen Anne.

Capital project applications were received from six jurisdictions. Funding was requested by Anne Arundel County for home acquisition in Brooklyn Park, by Baltimore City for home acquisition on Moore's Run, by Montgomery County for flood protection on Turkey Branch, by Frederick County for flood protection along Owens Creek, by Baltimore City for an automated flood warning system, and by the Town of Chesapeake Beach for a tidal floodgate and seawall.

The Division, under the FEMA's State Assistance Program, prepared a model flood emergency warning and response plan; conducted a two day technical workshop on modeling to delineate floodplains; sponsored a flood proofing and flood preparedness seminar; and participated on a Federal Interagency Hazard Mitigation Team.

The Division initiated planning and collection of information necessary for the implementation of an automated local flood warning system (ALERT) along the Jones Falls in Baltimore City. The system will also serve as the National Weather Service's national demonstration project; NWS is participating in the planning and has provided some of the automatic rain gauges.

### **Erosion and Sediment Control Division**

The Erosion and Sediment Control Division directs the State Erosion and Sediment Control Program by reviewing local programs; developing State-wide guidelines; conducting the "Responsible Personnel Training Program", an erosion and sediment control educational effort; and responding to citizen inquiries and requests for technical assistance.

The Statewide Program review and evaluation seeks to ensure the effectiveness of all jurisdictions' erosion and sediment control program.

The "Responsible Personnel" training program promotes an under-

standing of the benefits of clean water and offers training to construction industry field personnel and local government agencies. Effective July 1, 1983, a certified supervisor is required on all construction sites.

The Division worked on the revision of the regulations that would require timely stabilization of disturbed areas. Public hearings were held and an Advisory Committee was established from various interest groups.

### **Watershed Permits Division**

The Watershed Permits Division reviews permit applications for projects that affect non-tidal streams and floodplains, and conducts site inspections and technical evaluations of proposed projects for permit decisions. Advisory services are provided to prospective applicants on measures and alternatives to minimize adverse effects on the environment.

As of July 1, 1983 an amendment to State law allowed the removal of residences from the floodplain without a permit.

Major cases for FY 1984 include:

Fishing Creek Dam Repairs—The City of Frederick was authorized to make repairs on this water supply system. The project involves extensive renovation of the dam structure.

Carroll Creek Flood Control Project—Public meetings were held to review the status of this project. The City of Frederick is proposing construction of a series of four conduits along Carroll Creek to mitigate flooding in the City. The proposal was approved by the Water Resources Administration. Construction will take place over a ten year period. Separate permits will be required for each phase.

MTA-Rapid Transit Crossing of Gwynns Falls—The Gwynnsvale Civic Association and other property owners contested the issuing of a permit for this proposed project contending that studies have not accurately predicted flooding effects to their properties. The matter was still under adjudication as of July 1, 1984.

The Division project reviews for FY 1984 are as follows:

Type of Project	Number
Maintenance and Repairs	112
Temporary Construction	177
State/Federal Erosion and Sediment Control Reviews/Stormwater Management	179
Waterway Construction	208
Waterway Obstruction/Dams	8
Small Ponds	10

**Dam Safety Division**

The State dams program is administered by this division. FY 1984 investigations include:

- Construction inspections at Little Seneca, Crabbs Branch, Fishing Creek, Emmitsburg, Oaks of Harford, Centennial and Frostburg.
- Conducted danger reach surveys and analyses for Lake Linganore, Blairs Valley, Broad Creek and Piney Run.
- Conducted dam safety inspections at Frazer Lake, Cecil County; Lake Waterford, Anne Arundel County; Hunting Creek in Cunningham Falls State Park, and three Harford County flood control dams on Little Deer Creek.
- Continued to inventory small dams and ponds in Maryland.

The Dam Safety Division also helped other DNR agencies to conduct studies utilizing the drill rig, staff geo-technical and surveying experience.

**Stormwater Management Division**

The Water Resources Administration adopted regulations establishing criteria for stormwater management procedures in Maryland. State law also required local governments to adopt ordinances and implement stormwater

management programs consistent with the Statewide criteria by July 1, 1984.

In FY 1984 the Stormwater Management Division's major accomplishments included:

Developing a model ordinance to assist local jurisdictions in establishing and implementing stormwater management programs.

Publishing "Standards and Specifications for Infiltration" and conducting seminars for local jurisdictions and other agencies in the use of these practices and the Soil Conservation Service design procedures.

Initiating review and approval of local stormwater ordinances as they were submitted. As of July 1, 1984, 15 counties and 132 municipalities had not yet adopted an ordinance or acquired program approval.

**RESOURCE MANAGEMENT PROGRAM**

The divisions in this program are Wetlands, Surface Mining and Water Supply.

**Wetlands Division**

This division issues wetland permits and approvals for the regulation of dredging, filling and related activities in private wetlands; makes written recommendations to the Board of Public Works on the issuance of wetland licenses for work in State wetlands, including storm drain systems outletting into tidal waters; administers the monitoring of over-board dredge material disposal projects; and provides comment on matters affecting tidal and nontidal wetlands throughout the State. The

permit and licensing procedures for these activities involve site inspections, technical evaluations, inter-agency coordination and public hearings. The Division provides advisory services to prospective applicants on modifications or alternatives to proposed works that would minimize adverse effects on the environment.

The Wetlands Division oversees preparation and conduct of integrated studies assessing the environmental impacts of the Hart-Miller Islands Containment Facility.

In cooperation with the Coastal Resources Division of the Tidewater Administration, the Wetlands Division works to promote local protection of nontidal wetlands.

The Division made recommendations in 660 projects affecting 227.2 acres of predominantly open water wetlands. 26.5 acres of wetlands were established for shore erosion control and compensation for areas required for development.

**Surface Mining Division**

The Surface Mining Division seeks to assure environmental safeguards in the operation and reclamation of non-fuel surface mines and prevent hazards to public safety from such activities. The Division issues licenses and permits. It establishes permit conditions, reviews and evaluates mining and reclamation plans, and makes an annual review of each permit. Funds received from license fees, permit fees and other sources are held in the Surface Mine Land



Reclamation Fund to be used for reclamation of abandoned non-fuel surface mines. At the end of FY 84, there were nearly 7,480 acres of land being used for surface mining by approximately 240 licensed operators.

Since funds for reclamation of abandoned mines are limited, the Surface Mining Division developed a priority list of abandoned surface mine sites based on the environmental need for reclamation and potential for safety problems.

The Division worked with enforcement personnel of the Resource Protection Program to ensure surface mine operator compliance with permit conditions.

### **Water Supply Division**

Management of the development, conservation and use of the State's water supplies to meet present and future needs while protecting surface and groundwater resources is the responsibility of the Water Supply Division.

The Water Appropriation Permits Section and the Water Supply Planning Section make up this Division.

### **Water Appropriation Permits Section**

This section issues permits for appropriation and use of waters of the State. Permit evaluations are conducted to ensure that adequate quantities of water are available for proposed uses, to protect groundwater supplies and instream values during low river flow and to lessen potential conflicts among water users. The section also provides technical hydro-geologic and engineering assistance

on the availability and efficient development of local ground and surface water supplies.

Major cases during FY 84 included:

- City of Frostburg: After more than four years of investigation, testing, data collection, evaluation and public hearings, the Administration issued the Town of Frostburg a Water Appropriation and Use Permit which authorizes, during periods of projected or imminent surface water supply shortfall, withdrawal of water from two wells at the Frostburg Pumping Station property in Garrett County in an average quantity of 100,000 gallons per day.
- Town of Thurmont: Because apparent oil contamination restricted the use of one of the Town's main water supply wells, the Town of Thurmont contacted the Administration to request permission to appropriate all of the Town's water in High Run. The Town was advised that it would be permissible to use the water as requested. The Town used water from High Run for a period of about 41 days. The Town has subsequently drilled test/replacement wells away from the contaminated area.
- Charles County Commissioners: An increase in appropriation from an annual average use from the Magothy Formation of 2.75 millions per day to 3.35 million gallons per day was approved. In addition, a permit was issued for 600,000 million gallons per day annual

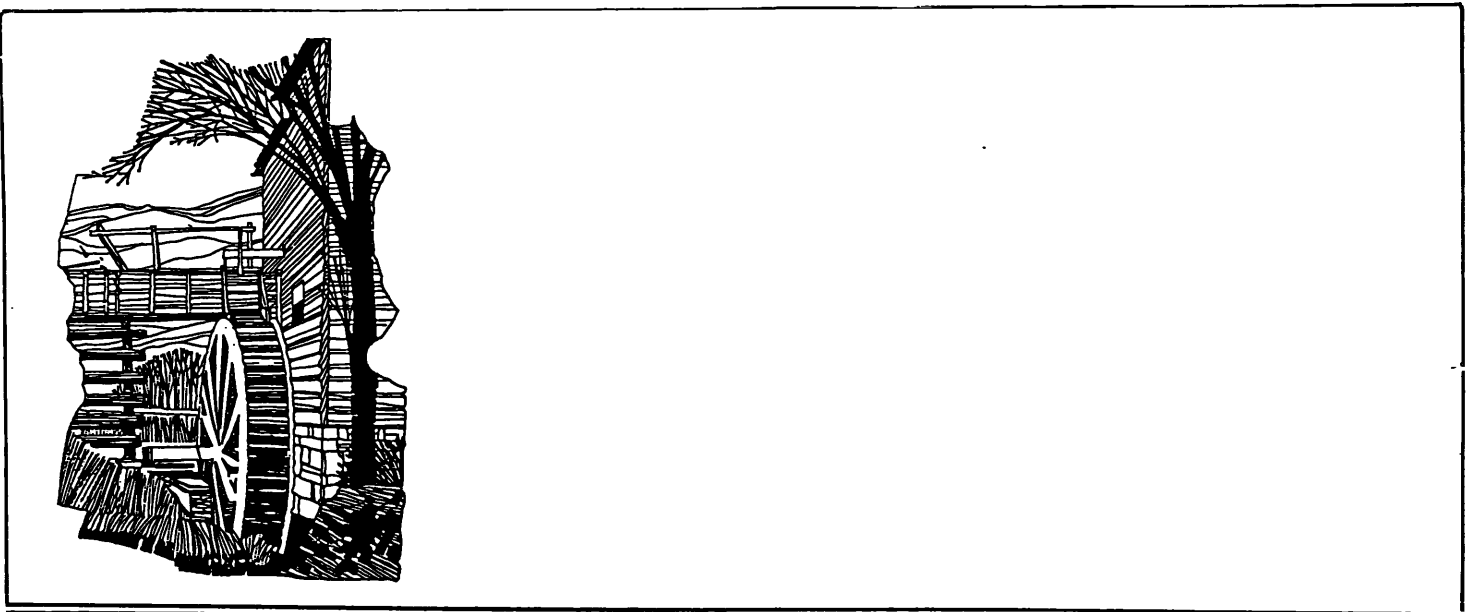
average use from the St. Paul's well in the Patapsco Formation. Water from the St. Paul's well permit is to be used at the permitted quantity prior to any use of water from the Magothy supply.

- Saunders M. Almond, Jr.: This permit for an annual average of 62,000 million gallons per day of groundwater for a 310 unit mobile home park was issued effective December 19, 1983, after two pumping tests, data collection, a public meeting and an adjudicatory hearing. The issuance of the permit was appealed to the Department of Natural Resources Board of Review. The Board of Review has affirmed the issuance of the permit.

The Division, working with the Data Processing Support Group, has developed a computerized file management system for storage and retrieval of information associated with the analysis and issuance of water appropriation and use of permits.

### **WATER SUPPLY PLANNING AND ENGINEERING SECTION**

The Water Supply Planning and Engineering Section's activities include development of comprehensive water supply management plans; Statewide water conservation and management planning; multi-agency and interstate coordination of water supply planning and engineering activities; surveys of water supply and demand and review of county water and sewage plans, landfill siting plans and Clearinghouse projects. The section provides hydro-





geologic and engineering assistance on the availability and efficient development of local ground and surface water supplies, quantification of low-flow characteristics and aquifer modeling.

Major activity for FY 84 was:

- Charles County Water Supply Planning - A draft was completed of the Charles County Water Supply Resources Development and Management Plan. The comprehensive plan addresses major water supply issues confronting the county including declining potentiometric surfaces in the Magothy Aquifer, saltwater intrusion into groundwater at Indian Head, development of the Patapsco aquifer and regional water use conflicts. Utilizing state-of-the-art aquifer computer models and economic analysis techniques, numerous water supply development alternatives were evaluated in the plan.

#### RESOURCE PROTECTION PROGRAM

The divisions in this program are Enforcement, Oil Control and Laboratory Services.

##### Enforcement Division

Twenty-four inspectors are responsible for the inspection and enforcement activities of the Administration authorized under the Natural Resources Article Title 7, 8 and 9. Enforcement actions, either administrative or legal, are based on the nature, extent and impact of violations. Primary emphasis is given to direct "in the field" corrective action.

#### SUMMARY OF ADMINISTRATIVE ACTIONS

	TOTAL
Complaints and Orders issued for violations of Maryland law and regulations	804
Inspections for permitted activities	13,606
Complaints received and follow-up actions	896
Cases referred to the Attorney General for action	98
*The two Natural Resources Police Assigned to WRA work with the enforcement inspectors conducting and issuing citations for violations of WRA laws	
Citations/Criminal Summons-Issued/Served	44
Oil Transport Inspections	380
Total Fines Paid	\$3,100

##### Oil Control Division

The Oil Control Division issues Oil Operations Permits, Oil Vehicle Operator's Certificates and Oil Terminal Facility Licenses and carries out follow-up field enforcement work related to these activities. The Division is supported by the Maryland Oil Disaster, Containment, Clean-up and Contingency Fund. This special fund is maintained by license fees charged for oil storage facilities over 3,000 barrels.

The Division developed and obtained equipment to respond to, contain and clean up oil spills on inland and open waters of the Chesapeake Bay and its tributaries.

A 24 hour duty roster is maintained to respond to oil spill emergencies.

##### SPILL RESPONSE

Spills Responded to by WRA	396*
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\*Including 107 underground spills

The Water Resources Administration stored spill equipment and absorbent materials statewide for use by local fire

departments and other State, county and local agencies to combat minor oil spills.

Training and instruction was provided statewide to help industry and others prevent and control oil spills. Nineteen presentations were made to volunteer firemen, high school students, State highway personnel and petroleum tanker truck transfer personnel.

The Ad Hoc Committee on Oil Spills in Open Water met seven times to discuss and advise the Administration on oil control policies and new equipment. The committee spent considerable time working with the Water Resources Administration on proposed regulations to control and prevent leaks from underground tanks.

The Administration continued an effort to develop more stringent regulations for construction and monitoring of underground storage tanks.

##### Laboratory Services Division

This division conducts the bacteriological and chemical analyses necessary to assist a variety of Department of Natural Resources programs. The Laboratory is in the Tawes State Office Building in Annapolis. The Annapolis Laboratory performed the following analyses:

Maryland Environmental Service—	
Sludge	816
Maryland Environmental Service—	
Operations & Maintenance	7,682
Maryland Tidewater Administration—	
SOS Program	679
Maryland Tidewater Administration	758
Water Resources Administration	207

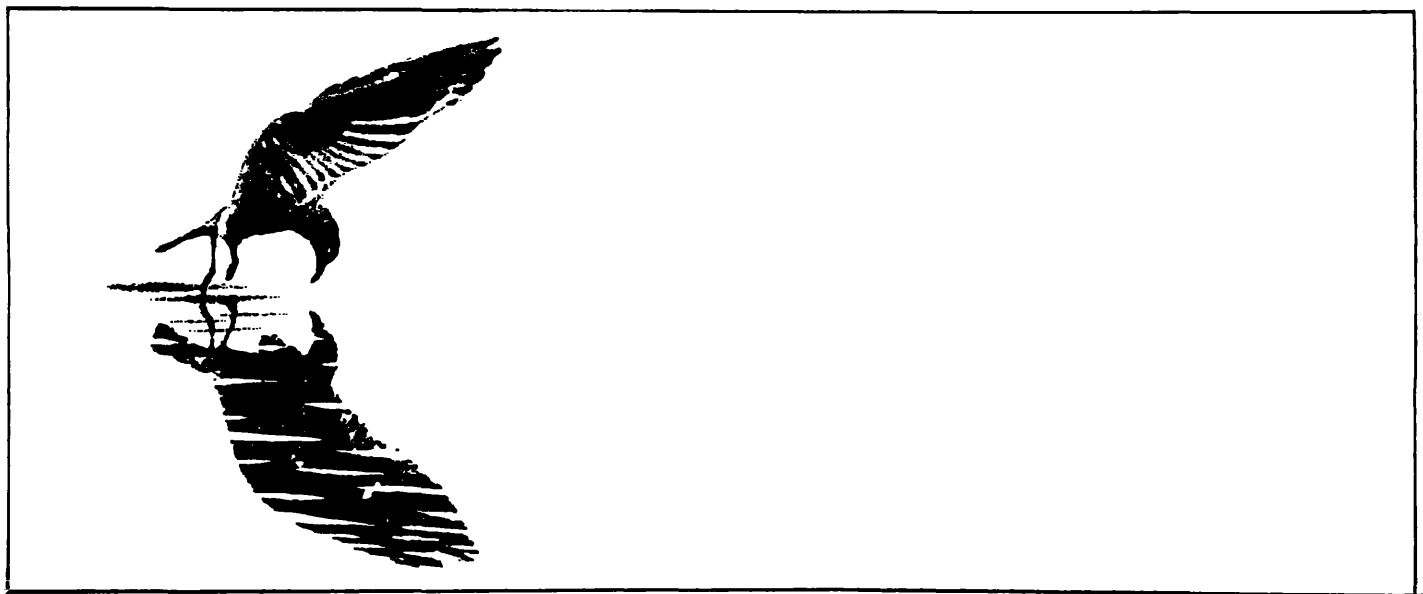


CHART OF ORGANIZATION FISCAL YEAR 1984

SECRETARY  
TORREY C. BROWN, M.D.

DEPUTY SECRETARY  
John R. Griffin

WILDLIFE HABITAT COORDINATOR  
Bernard F. Halla

INTERGOVERNMENTAL RELATIONS  
Bruce A. Gilmore

SPECIAL PROJECTS  
Mark M. Bundy

BOARD OF REVIEW

BOARDS AND COMMISSIONS

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Assistant Secretary  
ADMINISTRATION  
Herbert M. Sachs

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Equal Employment Opportunity  
W. Wallace Baker

Assistant Secretary  
CAPITAL PROGRAMS  
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Shore Erosion Control  
Leonard Larese-Casanova

Land Management and Recreation Services  
Michael J. Nelson

Capital Development  
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Assistant Secretary  
NATURAL RESOURCES  
Thomas C. Andrews

Water Resources Administration  
James W. Peck

Maryland Geological Survey  
Dr. Kenneth N. Weaver

Hazardous Waste Facilities Siting Board

Energy Administration  
Paul O. Massicot

Maryland Environmental Service  
John D. Seyffert

Assistant Secretary  
NATURAL RESOURCES  
Verna E. Harrison

Tidewater Administration  
Lee E. Zeni

Forest, Park, and Wildlife Service  
Donald E. MacLauchlan

Natural Resources Police  
Roy W. Rafter

Maryland Environmental Trust  
Robert L. Beckett

# MARYLAND ENVIRONMENTAL SERVICE

The Maryland Environmental Service (MES) is unique in its status as both a State agency of the Department of Natural Resources and as a non-profit public utility corporation. Since its creation in 1970, MES has been providing services in the areas of water supply, wastewater treatment and solid waste management - to local communities, political subdivisions, and the private sector. The major operating areas of MES are the provision of water supply, wastewater treatment, energy and resource recovery from wastes, sewage sludge management, compost marketing, and hazardous waste management.

MES was created in response to a need for the State of Maryland to offer planning, operating, and management services to the State's smaller communities and industries which were having difficulties developing and operating water supply and wastewater treatment facilities. In FY '84, MES was a \$16,000,000 enterprise. The Service is essentially self-supporting; with income derived from fees paid by State and non-State corporate clients.

State funds pay the cost of operating State-owned water supply and wastewater treatment facilities (parks, hospitals, correctional institutions) and provide limited planning and technical services for local governments and State agencies.

Corporate revenues are derived from fees for services charged non-State clients, and represent the major share of the total MES operating revenues.

The MES organizational structure and operations are similar to those of a private corporation. MES has been granted substantial autonomy from its parent agency, the Department of Natural Resources in its internal management and external operations. The Agency is able to sell revenue bonds for MES related projects, enter into contracts and leases, and is able to charge a fee for its services. The responsibility of the Service to operate and manage environmentally sensitive projects within Maryland places a great variety of requirements on its staff. The corporate affairs of MES are

managed by a three member Board of Directors, one of whom is the Director of the Service.

## **GENERAL DIRECTION**

This program is responsible for project development, administration, and for setting MES policy and goals. General Direction also provides administrative services to the other five program areas. Legal service, legislative liaison, contract administration, personnel and benefits administration, and safety and health are functions of General Direction. The MES Corporation Board of Directors is included in this program.

## **FINANCE**

The Finance section is responsible for financial accounting and control, procurement, and electronic data processing for all Maryland Environmental Service State and non-State operations. It prepares budgets and reports for management, determines direct and indirect costs to be charged to customers, prepares payrolls, and participates in contract negotiations. Other functions include cash management of Service funds, negotiations with lending institutions and the financial administration of contracts which includes cash flow analysis, billing, debt retirement, consolidated purchasing and coordination of grant administration. In order to provide management with the tools it needs to offer the services required by its customers, the data processing function continues to be enhanced. Data processing enhancements currently in process include full automation of project accounting and billing, control of fixed assets and depreciation, automated payroll, computer order entry and billing systems. Finance also provides automated budgeting capabilities, and data processing assistance/support to the MES operating programs.

## **ENGINEERING SERVICE**

The Engineering Service Program provides engineering capabilities for the planning, design, and construction of Maryland Environmental Service (MES) projects; in addition, this

program provides the operation and maintenance of special projects involving dredged material, hazardous waste, composting and land restoration projects.

In FY '84, the new 1.3 MGD sewage treatment plant for the Maryland Correctional Institute at Hagerstown was substantially completed. Construction started on the new sewage treatment plant and sewer systems for the Fort Frederick State Park and the Crownsville Hospital Center. Both projects were funded with grants by the U.S. Environmental Protection Agency at 85% of the total construction costs. Project engineers worked to develop plans and specifications for the new sewage collection and treatment works for the University of Maryland Center for Estuarine Studies at Horn Point, and the Point Lookout Sewer System which will serve two D.C. summer recreation camps.

The upgrading of the Baltimore County Resource Recovery Facility (BCRRF) and the construction of the new Refuse Derived Fuel (RDF) Feed Station at the BG&E C. P. Crane Power Generating Station in Essex was completed. The BCRRF currently processes over 1000 tons per day of municipal solid waste of which 650 tons of RDF, 50 tons of ground glass and 40 tons of ferrous metals are recovered and sold. The RDF Feed Station at C. P. Crane started daily operation in February, 1984, and provided over 30,000 tons of RDF in FY '84. It is estimated that over 130,000 tons of RDF will be burned during FY '85.

In late spring 1984, construction started on upgrading the Western Acceptance Facility, trash collection and transfer station for Baltimore County. The project not only includes new truck scales and trash handling equipment, but includes an on-site facility where county residents can dispose of trash and large bulky items. Receptacles are also provided for used oil and controlled hazardous substances.

Program staff have continued their work in the monitoring and restoration of sewage sludge entrenchment sites

and are working with county and state officials in the active development of the first non-agricultural site utilization subsequent to disposal operations.

During FY '84, MES personnel disposed of approximately 110,000 tons of chrome ore tailings from the Allied Corporation, in an operation dedicated to this waste stream.

In 1984, MES assumed responsibility for the operation and maintenance of the Hart-Miller Island Dredged Material Containment Facility. Operation began on May 15, and during FY '84 the site received approximately one million cubic yards of dredged material as part of a 4.5 million cubic yard maintenance dredging project undertaken by the Corps of Engineers in the Baltimore Harbor. The facility is sized to accommodate the 50 million cubic yards that will result from deepening the Baltimore shipping channels from a depth of 42 feet to 50 feet.

As part of the facility operation, MES provides full time inspection of the dredged material unloading and handling operations, laboratory and staff for on-site analytic services, and equipment and manpower for maintenance of the perimeter and internal dikes. MES is developing a predictive water quality model, and will work towards complete facility efficiency and developing crust management techniques.

### **OPERATIONS & MAINTENANCE**

The Maryland Environmental Service's Operation & Maintenance program provides trained and licensed personnel to operate and maintain nearly 100 water supply and wastewater treatment facilities. These facilities are divided into three categories according to ownership; those owned by the State of Maryland, those owned by local governments, and privately owned facilities. The result is a wide variation in the size and technology of facilities being operated by MES. Private Sector Clients include a Giant Food Ice Cream manufacturing facility, and Wild World Recreation Park.

Operations and Maintenance is organized into five geographic regions for efficiency of operations.

The Operation and Maintenance staff includes skilled and specifically trained

licensed personnel able to make in-house, immediate and cost effective emergency repairs to electronic and mechanical equipment including flow meters, pumps, and chlorinators.

The Operations and Maintenance Capital Improvement Program is presently contracting for design of a state-of-the-art nitrification/denitrification wastewater treatment facility to serve the complex at the Maryland House of Correction. This project is a cornerstone of the Agency's Chesapeake Bay Initiative. Total cost of the project is estimated to be eight million dollars. Also under design are replacement wastewater treatment facilities for Bowie State College, Montrose School, and Southern Maryland Pre-Release Unit. These facilities will utilize spray irrigation and will, therefore, remove a source of pollution from the Chesapeake Bay.

The successful completion of the wastewater pumping station to serve the Maryland Wholesale Food Market allowed the market to open as scheduled. Cost of the project was approximately \$400,000.00.

### **TECHNICAL SERVICES**

This program manages and carries out projects and studies assigned to the Maryland Environmental Service by the Department of Natural Resources, by State law, and by resolutions of the Maryland General Assembly. These projects include management of the Maryland Used Oil Recycling Program and activities required under the Hazardous Waste Facilities Siting Law. The program also conducts planning and feasibility studies that may become the basis for implementation of waste management projects by the State, local government, or private entities, and it provides statewide assistance for solid waste recycling programs, assistance in the development of solid waste management plans and technical assistance consultation with local governments and individuals on waste management problems. It also provides staff support for MES participation in some inter-agency policy discussions and program coordination activities.

A recycling newsletter is published every three months by the staff of the Technical Services group. Through this

publication, greater awareness and participation in the program has occurred. The recycling directory has been revised and published.

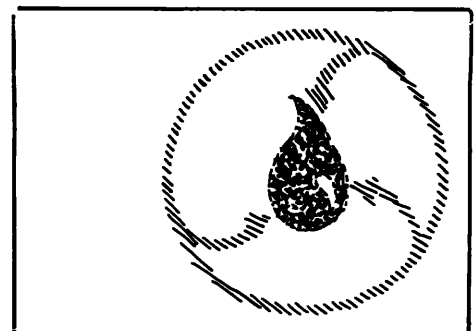
In calendar year 1983, Marylanders returned 11.2 million gallons of used crank case oil for recycling as compared to 6.1 million gallons collected in 1978 when the program was begun. There are now 700 collection facilities statewide, and MES operates a toll-free oil recycling information line.

In May 1984, Technical Services presented 3 recycling workshops, (Hagerstown, Salisbury, and Silver Spring), attended by more than 75 public works and other government officials.

### **MARKETING**

Fiscal 1984 saw the introduction of the new Marketing Program. Marketing will aggressively promote the Agency's technologies and services to state and local government institutions, as well as the private sector. One continuing successful marketing project is the three year old ComPRO Marketing Program. MES has demonstrated that large volumes of sewage sludge compost can be successfully marketed directly from sewage sludge composting facilities. ComPRO Marketing sells the sewage sludge compost produced at MES and other client operated sludge composting facilities under the trade name ComPRO. The compost is utilized as a soil conditioner and fertilizer and is purchased by local landscapers, institutions, golf courses, and nurseries. ComPRO is also available retail, bulk, or packaged at area garden centers and chain hardware stores.

The ComPRO Marketing Program is managed similarly to a small business. During the past three years the Program has increased product sales volume by 20% or more each year.



# MARYLAND GEOLOGICAL SURVEY

## GENERAL DIRECTION

The mission of the Maryland Geological Survey is to conduct topographic, geologic, hydrologic, and geophysical surveys, and to prepare topographic, geologic and other types of maps to meet specific needs. The Survey prepares reports on the extent and character of the geology, mineral, and water resources of the State, and supervises provisions relating to archeology. The Maryland Geological Survey engages in, sponsors, and coordinates archeological research in the State; encourages preservation of archeological resources, and disseminates information about the archeology of Maryland.

Through scientific investigation and analysis, the Survey seeks to obtain a better understanding of the geology, archeology, water resources, and mineral resources of the State; and to apply this knowledge to practical problems related to the earth sciences.

Publications are the primary way in which the Survey makes its information available to the public.

Exhibits illustrating Survey activities were displayed at the Pikesville Gem and Mineral Show and Chesapeake Appreciation Days. At the latter event, the public showed great interest in the display of pairs of aerial photographs which when seen through a stereoscope, make the terrain appear three-dimensional.

Through its Director, the Survey is represented in intrastate and state-federal advisory activities. These functions include the Mid-Atlantic Governor's Coastal Resources Council; Association of American State Geologists; Interstate Mining Compact Commission; Interstate Oil Compact Commission; Board on Earth Sciences of the National Academy of Science; Maryland Mining Council; State Topographic Mapping Committee; Frederick-Montgomery-Howard County Boundary Line Ad Hoc Committee; Land Reclamation Committee; and Outer Continental Shelf Policy Committee. The Maryland Geological Survey Commission advises the Director on any matters within the Survey's jurisdiction.

## HYDROGEOLOGY AND HYDROLOGY

Projects of the Hydrogeology and Hydrology Program are carried out under the auspices of the U.S. Geological Survey-Maryland Geological Survey Cooperative Agreement whereby funds, budgeted by the State and participating intrastate agencies, are generally matched by the Federal government on a 50/50 basis.

The Hydrogeology and Hydrology Program is responsible for the maintenance of a Statewide water data network and the investigation of the hydrologic and geologic characteristics of Maryland water resources. The water data network provides necessary information on minimum, maximum, and average stream flows for the planning of water supply and sewage facilities, water power projects, dams, bridges, and other public and private works; and ground-water levels in selected wells throughout the State for monitoring the hydrologic effect of long-term changes in pumpage, land-use patterns, and precipitation.

In addition to the Statewide network activities, site-specific projects are undertaken to determine ground-water and streamflow characteristics and their rates of replenishment. Applied research projects of this type are often supported by special matching funds from County or State cooperators. During FY 84, investigations were underway in areas of Anne Arundel, Cecil, Charles, Frederick, Garrett and Queen Anne's Counties.

### Stream-Flow Gaging Network

During the year, operation and maintenance of 85 continuous-record stream-gaging stations were continued. In addition, 12 crest-stage and 33 low-flow stations were operated. Data from these stations for the 1983 water year were compiled and published in "Water Resources Data for Maryland and Delaware", U.S. Geological Survey Water-Data Report MD-DE-83-1.

### Ground-Water Data Network

This project maintains a continuous inventory of ground-water levels in aquifers and selected springs of the State and relates changes in ground-

water levels to withdrawals and precipitation. The regional distribution of observation wells is:

	Wells
Appalachian Region	11
Piedmont Province	17
Coastal Plain Province	
Western Shore	52
Baltimore Industrial Area	14
Eastern Shore	47
TOTAL	141

There are also several hundred wells being periodically measured as part of other Program projects that supplement wells comprising the regular network. The following projects were active during the fiscal year:

### Anne Arundel County

About 9 million gallons per day of ground water is being pumped from the Patapsco and Patuxent aquifers in the Glen Burnie area. In FY 84 a project was initiated to define more precisely the recharge areas of these aquifers and to quantify the effects additional pumpage will have on water levels, streamflow, and salt-water intrusion.

### Baltimore Harbor Area

The Patuxent aquifer has been contaminated by brackish-water intrusion from the Patapsco River estuary. A roughly circular plume of contamination, about 5 miles in diameter, has developed in response to pumpage and centers in the Harbor district. Questions concerning the movement of this plume in response to increased pumpage at Glen Burnie, Marley Neck, and Sparrows Points are being addressed by means of a digital flow model.

### Cecil County

In Maryland, Cecil County is unique because it is broadly divided into two distinct hydrogeologic provinces, the Piedmont and the Coastal Plain. In the Piedmont part of the County the hydrologic basin is the study unit. As in Frederick County, the streamflow characteristics and aquifer properties of each basin are being investigated so that water-supply estimates under drought conditions can be made. On the Coastal Plain the water table aquifer and several artesian aquifers are being studied. A quantitative

assessment of their flow systems, transmissive and storage properties and natural water quality is underway. The impact of future water demands in several areas of the County, including Elkton, Elk Neck, and Chesapeake City, will be studied in detail using computer simulation techniques.

#### **Charles County**

In FY 84 the Maryland Geological Survey participated in the hydro-geologic analysis of a deep well (1,650 ft) drilled near Waldorf. The objective of the project was to test a water-bearing zone below the Magothy aquifer. The Magothy aquifer is experiencing substantial water-level declines due to increased pumpage. The lower Patapsco aquifer, which consists of several sandy intervals between 1,000 feet and 1,425 feet was successfully tested. It has the potential of providing an alternate water supply for the Waldorf area. Additional work is planned to determine how much additional water the Patapsco aquifer can provide for future use.

#### **Frederick County**

To provide a better basis for future water-supply planning, the County has been divided into about twenty hydrologic basins. The streamflow characteristics of each basin are being analyzed with emphasis on low-flow (drought) conditions. In addition, the transmissive and storage properties of the aquifers underlying each basin are being investigated. During the course of the study, water samples are being collected for chemical analyses.

#### **Garrett County**

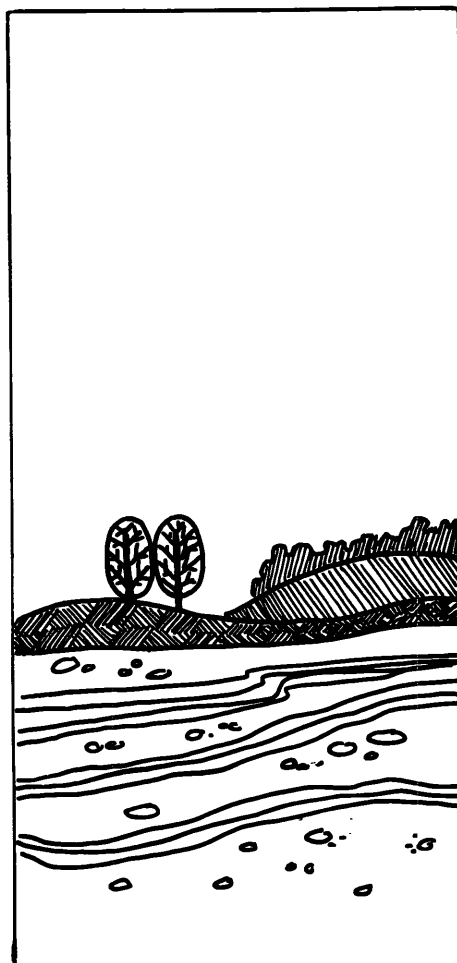
Thirteen observation wells and three stream gages were operated in FY 84 to monitor the effects of dewatering at the deep Mettiki Mine. To date, water levels in one cluster of observation wells located within several hundred feet of a side entry of the mine have dropped significantly. The greatest decline was more than 370 feet in a well open above the Upper Freeport coal seam. The amount of decline decreased upward and was about 77 feet in the shallowest well of the cluster. In addition, sections of Laurel Run, which drains the mine area, were found to contain losing reaches.

#### **Queen Anne's County**

Brackish water in the Aquia aquifer occurs on northern Kent Island. As additional development of Kent Island occurs, ground-water use will probably increase significantly. If this demand is met through larger withdrawals from the Aquia, heads will be lowered further below the Bay level and brackish-water intrusion will become an increasingly serious problem. A study to assess the present situation, predict future consequences of higher pumpage rates, and examine possible alternatives is underway.

#### **Other Areas of Investigation**

These include Deep Creek Lake in Garrett County where the hydro-geologic conditions which result in the buffering of acid mine drainage are being investigated; Zekiah Swamp Run in Charles County where preliminary study of the hydrologic characteristics of this ecologically important basin is being conducted; and Southern Maryland power plant sites at Chalk Point, Morgantown, and Calvert Cliffs where the effects of ground-water pumpage on water levels are being monitored.



#### **ENVIRONMENTAL GEOLOGY AND MINERAL RESOURCES**

This program has the responsibility for geologic and environmental mapping and research, topographic map revision, mineral and energy resources investigations, and dissemination of geologic information. Studies provide the basic framework for delineating and managing the State's mineral and land resources and generate the geologic data necessary for prudent land-use decisions. A relatively new approach in environmental mapping is the Mineral Resource and Mined-Land Inventory Maps and maps of the Geologic Factors Affecting Land Modifications.

The following investigations were in progress or completed in FY 84.

#### **GEOLOGIC AND ENVIRONMENTAL MAPPING**

Geologic field mapping continued in the Lonaconing, Lineboro and Finksburg 7.5 minute quadrangles, the Calvert County Geologic Map, and the roadside geologic log. Work was completed in the Littlestown, Cumberland and Cresaptown Quadrangles. Manuscript maps were prepared for the printer in Port Tobacco, Bristol and Lower Marlboro Quadrangles and the Somerset County Geologic Map. Maps were being reviewed for publication in the Woodsboro, Hereford, and Union Bridge Quadrangles, and the Cecil County Geologic Map.

#### **TOPOGRAPHIC MAPPING**

The Wicomico, Talbot, and Garrett County Topographic maps were published and work continued on the Baltimore, Caroline, and Somerset maps in anticipation of their being published in FY 85. Allegany, Dorchester and Worcester Counties are scheduled for revision in FY 85.

#### **MINERAL RESOURCES**

A revised and simplified Directory of Mineral Producers was initiated and is scheduled for completion in FY 85. Work began on a consolidated stratigraphic chart of Maryland. A leaflet about "Gold in Maryland" was published. Field work began on a physiographic mapping and terrain analysis project in the Blue Ridge to prepare county land use limitation maps and as a long range objective, a physiographic

map of the State. An information circular is being prepared which describes map products of the Survey. NATIONAL CARTOGRAPHIC INFORMATION CENTER (NCIC)

Maryland became a state affiliate of the Federal NCIC in FY 83 and now has a full time employee to receive citizen inquiries about most types of cartographic data (maps, air photos, space imagery).

#### OFFSHORE ATLANTIC COAST

Three wells were drilled on the federal Mid-Atlantic Outer Continental Shelf (OCS) in FY 84, all operated by Shell Oil Company and all in record water depths—as deep as 6,952 feet of water. The wells were drilled to intersect ancient buried reef prospects about 100 miles offshore. All were reported to have encountered no commercially productive hydrocarbons.

#### WESTERN MARYLAND GAS

Gas continued to be taken from eight wells in two gas fields in Garrett County. Negro Mountain Field is apparently off production and more than likely depleted. At year's end a wildcat well was being drilled in Garrett County near the town of Avilton.

#### OTHER

The survey hosted the 20th Forum on the Geology of Industrial Minerals in Baltimore May 15-18, 1984. Two days of technical sessions and two days of field trips were attended by over 100 people from the United States, Canada, Europe, and North Africa.

#### COASTAL AND ESTUARINE GEOLOGY

The Coastal and Estuarine Geology Program has the responsibility for basic and applied geological investigations in the coastal zone of Maryland. The overall objectives are to determine the processes altering the shorelines of Maryland and to characterize the physical and chemical aspects of the recent sediments of the Chesapeake Bay.

#### SEDIMENTOLOGY OF TANGIER SOUND

This project is a continuation of the Chesapeake Bay Earth Science Study to map the sediment distribution within the Chesapeake Bay system. Field operations to collect sediment samples on a uniform grid were

conducted during this fiscal year and laboratory analyses begun. A second phase of the project, to investigate the geologic structure of the Tangier Sound sand shield, was also initiated with preliminary geophysical profiles.

#### GEOCHEMICAL ENVIRONMENTS OF CHESAPEAKE BAY

Four major geochemical environments were defined for Chesapeake Bay using data collected during the EPA Chesapeake Bay Program. The four environments are River-Dominated, Transitional, Near-Marine, and

Quartzose. These environments serve as the basis for a qualitative model of geochemical behavior.

#### GEOCHEMICAL REACTIONS WITHIN A SMALL WATERSHED

Field efforts continue in the collection of rainwater in a small watershed of Baltimore County. Laboratory analysis of the major cations-anions began this fiscal year. Results and accompanying report will be available next fiscal year.

#### HART-MILLER ISLAND ENVIRONMENTAL ASSESSMENT

Efforts continued to assess the physical and geochemical changes associated with the Hart-Miller Island Diked Disposal Area. The first year interpretative report was submitted for final review and accepted. Discussions for a third year of monitoring have been initiated.

#### DREDGED SPOIL MONITORING

This is a continuing study to investigate the distribution of overboard disposal of dredged material in the northern Bay. The first year report has been accepted with a second year of effort underway with the collection of field data. A third year of effort is in the discussion phase.

#### GEOLOGIC FRAMEWORK OF THE INNER CONTINENTAL SHELF

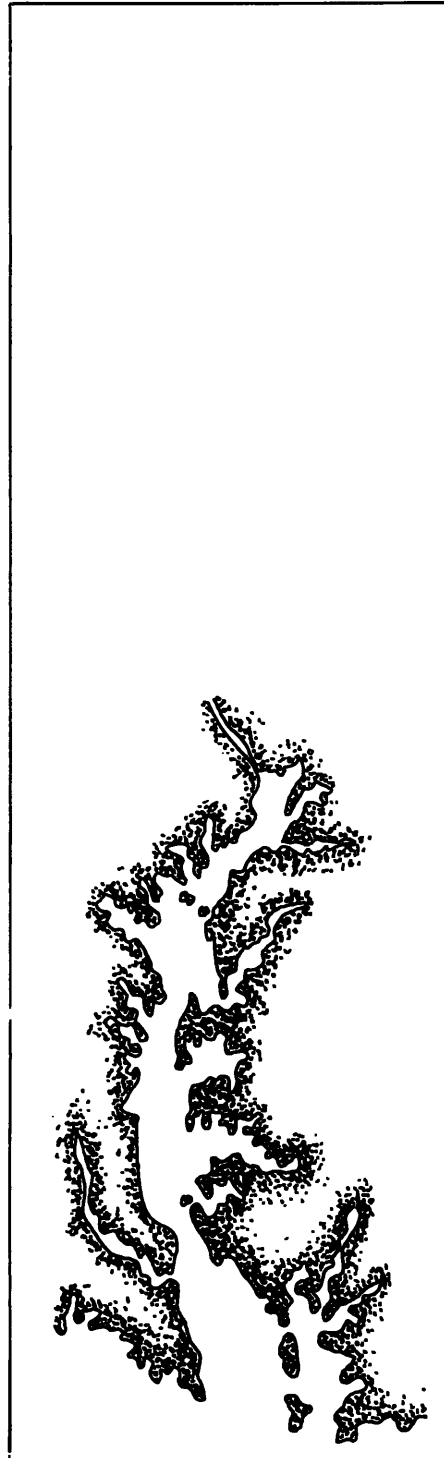
A small grant has been received from the Texas Bureau of Geology via the Mineral Management Service (U.S. Department of the Interior) to study the geologic framework of the inner continental shelf. The initial phase of this study was a literature review. Actual field operations will begin next year.

#### GEOLOGIC HISTORY OF CHESAPEAKE BAY

A five year, cooperative study with the Virginia Institute of Marine Science and the U.S. Geological Survey was agreed to in principle. Major efforts will begin next fiscal year.

#### FIELD OPERATIONS

The R/V Discovery logged approximately 1200 hours of operation in support of scientific field operations for various agencies. Besides the Geological Survey, the Tidewater Administration and the Office of Environmental Programs were the primary users.



## DIVISION OF ARCHEOLOGY

The archeology program is responsible for research in Maryland archeology, for coordinating professional and amateur archeological activities in the state, and for administering the permit system for archeological investigations on State lands, as provided in the Maryland Archeological Resources Act of 1968. The Division maintains a reference library, records of all known archeological sites and investigations in the State, and collections of historic and prehistoric artifacts from all sections of the State. Its resources are available to the public, governmental agencies, and professional archeologists through publications, lectures, and open files.

In addition to general investigations and service activities, the Division conducted several special projects during FY 84.

### EASTERN SHORE

#### CONTACT PERIOD SITES

A project initiated in FY 83 has the objective of locating and investigating archeological remains of 16th through 18th century Indian settlements in the Choptank and Nanticoke river drainages, primarily eastern Dorchester County. Although such settlements are mentioned in historic records, none had been identified archeologically prior to the initiation of this project. Investigation of a site on Locust Neck was accomplished during the Fourteenth Annual Field Session in Maryland Archeology carried out in cooperation with the Archeological Society of Maryland. The Field Session at Locust Neck revealed a series of pits containing oyster shells, animal bones, late prehistoric Indian pottery (Townsend Ware), chipped stone artifacts, and a few pieces of lead shot of Euroamerican origin believed to be associated with the aboriginal materials in the pits and dating to the seventeenth century.

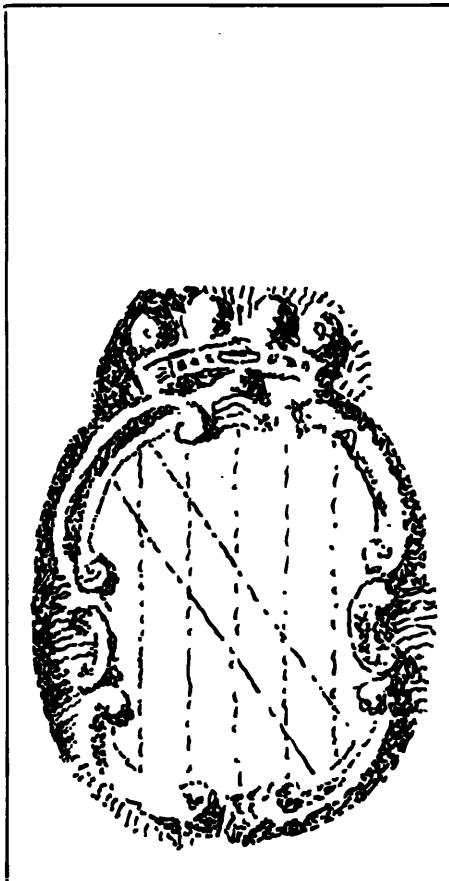
### HIGHWAY STUDIES

Archeological investigation of proposed highway projects has continued since 1975 with funding provided by the State Highway Administration. During FY 84 field reconnaissance studies were completed for four highway projects in as many counties.

More extensive field work was completed at a late prehistoric village within the proposed approach alignment of a new Potomac River bridge on Md. Rt. 51 in Allegany County, and at a portion of the eighteenth century Oxon Hill Manor to be affected by proposed improvements of the Washington Beltway in southern Prince Georges County. Oxon Hill is an exceptionally significant archeological site because of its early construction date, association with the colonial elite, and abandonment since late in the nineteenth century. At the end of FY 84 field work was being completed at two 19th century sites to be affected by improvements to Md. Rt. 2/4 in Calvert County. Nine formal reports on various highway projects were completed and distributed during FY 84.

### MASON-DIXON MARKER STUDY

A dedicated volunteer and small grants from the Maryland Historical Trust have enabled the Geological Survey to complete an inventory of monuments along the Maryland-Pennsylvania line in accordance with the Survey's legislative mandate. Begun in 1981, the study has now turned to planning for the preservation of threatened markers.



## OTHER ACTIVITIES

The number of archeological sites recorded in the Maryland Archeological Site Survey increased from 5,001 to 5,216 during FY 84. Two permits were issued for archeological investigations on State lands. Among 13 artifact collections donated to the Division during the year, especially outstanding was a large collection of seventeenth and eighteenth century artifacts excavated from a site in Kent County.

The Division reviewed many projects and reports submitted by private and government organizations, responded to general information queries, and made a number of brief field investigations.

The Division continues to maintain close and active relationships with organizations of vocational and avocational archeologists working in Maryland. During FY 84 Division staff served as officers, board members, publication editors/advisors, and program organizers for the Council for Maryland Archeology, the Archeological Society of Maryland, and the new Underwater Archeological Society of Maryland. The Underwater Society was formed in a successful effort by the Division and the Advisory Committee on Archeology during FY 84 to improve communication of the professional archeological community with sport divers, dive shop owners, and commercial divers in Maryland.

A traveling exhibit on Maryland Archeology, developed last fiscal year with the aid of funds from the Maryland Humanities Council, concluded its period of formal circulation and concurrent public forums early in FY 84. Since then, the exhibit and associated literature has been in continuous demand and will be circulated as long as interest continues.

The Advisory Committee on Archeology, composed of five citizen archeologists, counsels the Maryland Geological Survey on archeological matters. It met in July and October, 1983, and in January and April, 1984, to review and make recommendations on the work of the Division of Archeology.



# TIDEWATER ADMINISTRATION

The Tidewater Administration encompasses the Waterway Improvement Division, the Coastal Resources Division and the Fisheries Division. These three working programs deal with the resources of the Bay and its tributaries, boating, aquatic life and land-water interface.

During FY 84, the fresh water fishery was transferred to the Tidewater Administration, bringing together all fisheries related activities within one agency. It is the responsibility of the Tidewater Administration to manage resource restoration and enhancement projects to restore traditional fishery species of Maryland waters to their previous abundant levels. Cooperation with other states and the federal government in this important task is being accomplished.

## GENERAL DIRECTION

This program is responsible for the overall direction, supervision and coordination of activities within the Administration.

## Administration and Support

This group provides administration in all phases of the operation. Budgets, contracts, personnel and purchasing are included within this function.

## Boards and Commissions Coordination

This program serves as liaison between the many multi-state efforts to productively manage bays, rivers and other estuaries. All of the boards and commissions affect the Chesapeake Bay or its tributaries and contain representatives from states in the drainage basin whose waters flow into Maryland. Also associated with Boards and Commissions is the ocean fishery in which Maryland is becoming increasingly involved because of its abundance of marine life and its growing economic impact on the State.

## Tidewater Vessels and Facilities

The State vessels under this group, during FY 84, were the AURORA and the FIFTY-FIFTY. They were used for promotion of the Chesapeake Bay and other Maryland waters. Numerous cruises were conducted throughout the year for the benefit of Maryland and its citizens.

The facilities under control of this group include 69 Prince George Street, the Cambridge Boat Yard, the Matapeake Water Port and the State Pier in Annapolis. These facilities are operated and maintained for the benefit of the State.

## WATERWAY IMPROVEMENT PROGRAM

The mission of the Waterway Improvement Program is to develop, finance, improve and promote the recreational and commercial capabilities, conditions and safety of Maryland's waterways for the benefit of the general boating public.

The Waterway Improvement Program administers the provisions of the Maryland State Boat Act through four projects.

## Hydrographic Operations

Hydrographic Operations is responsible for hydrographic engineering services in establishing, maintaining, and charting regulatory buoys and aids to navigation, surveying and charting pound nets, oyster seed planting areas, and private oyster leases, and breaking ice during the winter for shellfish operations.

Hydrographic Operations receives requests concerning the placement of regulatory, navigational, and special buoys in the Chesapeake Bay and its tributaries. The Fisheries Division requested the installation of additional clam, oyster, crab line, dredge line and territorial limit buoys/markers. The Project also received requests from other Waterway Improvement Projects, the DNR Police, the State Health Department, State Parks and counties/municipalities as to the placement of channel markers, shoal/hazard, speed limit, swimming, and restricted areas as well as buoys for special projects/events such as Chesapeake Appreciation Days and the Maryland 350th Celebration Ceremonies.

In addition, Hydrographic Operations worked with the Fisheries Division to establish the Restricted Area Legislation adopted in Fiscal Year 1984. The Project is also responsible for determining the precise geographic position of each of the above mentioned buoys/markers and charting their

locations for use by government organizations as well as the general boating public.

A summary of the performance record for the placement of buoys/markers in FY 1984 is as follows:

Regulatory	1,282
Aids to Navigation	238
Special	52

Hydrographic Operations performed the following work in regard to surveys, pound net locations and construction of new triangulation stations:

Survey Corners of Private Oyster Leases	1,028
Survey Shell and Seed Plantings	22
Pound Net Location Surveys	28
Construct New Triangulation Stations	16

At the request of the Natural Resources Police, the project verified locations and gave witness testimony in a number of court cases.

In FY 84, Hydrographic Operations completed the Bay Bottom Survey chart work, filed new charts with the respective courts, and provided copies to watermen, watermen's associations and to law enforcement divisions. In preparing the new Natural Oyster Bar Charts, the Fisheries Division collected the biological data, had it plotted by Hydrographic Operations, and then determined the new boundaries for the oyster bars. These boundaries were then geographically defined by Hydrographic Operations with metes and bounds, and then charted.

In the process of updating the old lease charts, 16 new private oyster lease charts were completed.

Upon completion of the Bay Bottom Survey, Raydist Electronic Surveying System operations were terminated and equipment will be removed from transmitting locations and all DNR motor vessels.

Hydrographic Operations purchased one Loran C navigational aid unit for the purpose of providing assistance in marking lease grounds, natural oyster bars and for general navigation. The unit was thoroughly tested and found effective, reliable and accurate. These units are slated for installation in all

Hydrographic Operations motor vessels and field survey boats during FY 85.

In FY 84, 23 days were spent in ice-breaking operations to keep an ice free channel to Smith Island and in other selected harbors throughout the State of Maryland so commercial watermen could continue their winter fishing operations. In addition, Hydrographic Operations tested an experimental hover barge to determine if such a vessel could break ice more effectively than existing motor vessels. The barge was found inadequate for this purpose and was returned to the vendor.

In FY 85, Hydrographic Operations anticipates continued increases to the number of regulatory, navigational and special buoys due to increased demand for such services by other State programs, local municipalities and the general boating public. In addition, the project will continue to update the private oyster lease charts and install Loran C navigational aid units in all motor vessels and field survey boats.

### **Dredging**

The Dredging Project is responsible for State waterway projects involving the dredging and protection of channels and harbors that are not maintained by the U.S. Army Corps of Engineers. Activities include development of hydrographic and topographic surveys at proposed channel areas, comment on the design and permit of all State-funded dredging and break-water projects, and surveys of previously completed channel dredging sites.

In addition, Dredging reviewed the Fort Washington Marina and Matapeake Breakwater projects in conjunction with the Coastal Resources Division.

During Fiscal Years 1963 through 1983, 129 projects were completed at a cost of \$7.8 million. In Fiscal Year 1984, 7 projects were completed at a cost of \$464,000.

The Dredging Project currently has 21 active projects in various stages of development with an estimated construction value of \$1.8 million.

### **Waterway Grants and Project Planning**

Waterway Grants and Project Planning is responsible for the recreational access development of the Chesapeake Bay and its tributaries with particular emphasis on projects and activities directly related to the general boating public. Specific activities include liaison with Federal, State, county and municipal governments in promoting, designing, constructing and financing marine facility projects.

To fund projects beneficial to the general boating public, this project administers and distributes the Waterway Improvement Fund in the following ways: matching funds (50% Waterway Improvement Division, 50% requesting governing body); 100% funding by the Waterway Improvement Division for the construction of marine facilities located in DNR-owned property; \$5,000 and \$25,000 grants; and interest-free loans for the creation of tax districts to governing bodies for financing waterway improvement projects.

During Fiscal Year 1984, engineering began for two Calvert County boat ramp facilities located at Hallowing Point and Solomons. Construction started at the boat ramp facilities at Assateague, Cunningham Falls, Herrington Manor, Greenbrier and St. Mary's Lake State Parks.

Various construction projects were completed including Phase B Development which adds 50 slips and a new marina services building to the development of Somers Cove Marina. Construction of the St. Clements Island Pier and overlook was completed on schedule for the 350th Anniversary Celebration in March.

In addition, Waterway Grants and Project Planning worked in conjunction with the Coastal Resources Division in the review of the Fort Washington Marina project.

A total of 148 Waterway Improvement projects with a construction value of \$3.7 million were partially funded or completed during FY 1984. To date 1,996 projects have been completed in this program at a cost of \$20.1 million since its inception in 1966.

The project also funded 92 debris and derelict boat removal projects during Fiscal Years 1976-1984 totaling \$3.8 million.

Waterway Grants and Project Planning's one year goals include maintain-

ing a high priority on the continued development of Somers Cove Marina, initiating the planning and construction of another regional marina project at Ocean City, and continuing the development of the State-owned boating facilities located throughout the State.

The Project's 5 year goal is to locate appropriate sites for the development of Statewide Regional Boating Facilities and Harbors of Refuge and to implement their planning and construction.

### **Marine Services**

Marine Services is responsible for general waterway maintenance conducted in channels, harbors, and areas of the Chesapeake Bay that are not maintained by the U.S. Army Corps of Engineers. Activities include the removal of debris and derelict vessels from the Chesapeake Bay and its tributaries; installation of daymarker piles used as aids to navigation; repair and maintenance of public-owned facilities such as piers, bulkheads, boat launching ramps and small dredging operations associated with the above projects. Winter activities also include ice-breaking operations.

During FY 84, eight State vessels were hauled at the Cambridge Terminal railway for general maintenance and repairs. Of these vessels, six were from the Waterway Improvement Division, one was from the Fisheries Division (M/V Miss Kay) and the other was from General Direction (M/V 50-50).

The marine construction crew completed or began the following dredging projects in FY 84:

#### **COMPLETED PROJECTS**

Choptank Marina, Caroline County	7,400 cubic yards
Watts Creek, Martinak, Caroline County	4,500 cubic yards
Island Creek, Oxford, Talbot County	1,400 cubic yards
Cambridge Terminal, Dorchester County	600 cubic yards
<b>PROJECT UNDER CONSTRUCTION</b>	
Ganey's Wharf, Caroline County	1,000 cubic yards

In addition, the construction crew removed a 109 foot sunken steel hulled vessel (NEWARK) from the Wye River, completed a ramp and pad for the DNR Police Hover Craft at Sandy

Point, placed 289 feet of culvert pipe and two catch basins at Somers Cove Marina, assisted in winter ice-breaking operations, and performed other miscellaneous work at previously State funded marine facilities.

### **COASTAL ZONE MANAGEMENT PROGRAM (CZMP)**

The Coastal Resources Division is the designated coordinator of the CZMP. Funding from the Federal government to the Division is distributed to provide financial assistance to local governments and State agencies to integrate and address issues of coastal concern, to improve the data base for better decision-making and to ensure that State and local activities are consistent with the goals and objectives of the CZMP.

The CZMP is built upon existing State laws and regulations for the 16 coastal counties and the City of Baltimore which provide the legal and administrative bases for activities in the coastal zone. The Program brings together the activities and functions of six departments with respect to the CZMP: Agriculture, Economic and Community Development, Health and Mental Hygiene, Natural Resources, State Planning and Transportation.

The Division is divided as follows: Direction and Coordination, Project Evaluation and Environmental Review, Resource Enhancement and Land and Water Activities.

#### **Direction and Coordination**

This portion of the Division coordinates Coastal resources management efforts among six state departments and pertinent agencies of the Federal governments. Memoranda of Understanding, negotiated each year, provide the framework for this coordination. Work on the 404 Regulations with the U.S. Army Corps of Engineers, with EPA and the U.S. Fish and Wildlife Service on a Chesapeake Bay Wetlands Conference, and with the National Park Service on acquisition of the Fort Washington Marina are examples.

This project also coordinates 16 coastal county contracts, as well as one each for the City of Baltimore, the Regional Planning Council and the Tri-County Council of Southern Maryland. These contracts provide funds for local jurisdictions to conduct special studies

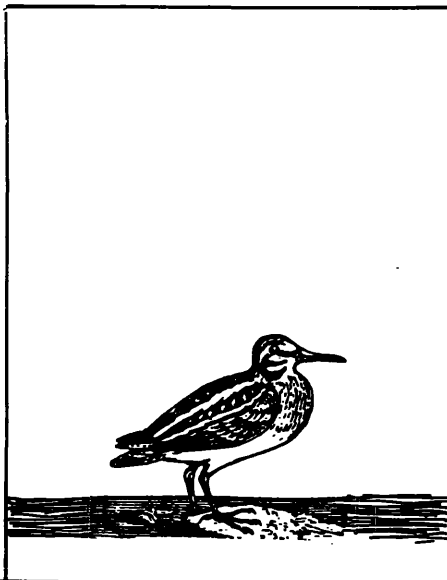
of coastal issues and/or to maintain a coastal county planner on their staff who addresses coastal issues.

Other activities of Direction and Coordination include: Informing the public about the CZMP and how they can become involved; educating through special publications and displays on coastal matters, and providing support for the 100 plus members of the Coastal Resources Advisory Committee. Four Coastal and Bylines and a new exhibit covering the Chesapeake Bay Initiatives have been developed.

#### **Project Evaluation and Environmental Review**

This Program of the CRD, reviews major development projects, A-95 review projects and projects that could affect, but are outside of, the coastal zone, to ensure consistency with State coastal resources policy. Specific review of Federal actions through the use of Federal Consistency determinations are also made. Approximately 5000 projects were evaluated this past year.

Another aspect of this responsibility is the review of projects dealing with variances, re-zoning, and subdivision requests at the local level as part of the Interim Findings procedures established under the Chesapeake Bay Critical Areas Act. This portion of the CRD is responsible, along with other departments, for the review of local decisions on these projects in the 1000' critical zone and for recommending whether or not the State should intervene on a project to meet the objectives of the Act.



#### **Resource Enhancement**

The purpose of this portion of the Coastal Resources Division is to focus on management tools, hands on management techniques and special investigations to fill data gaps and help the policy processes in dealing with our natural resources. Specifically included are: special projects involving the use of LANDSAT, submerged aquatic vegetation, non-structural approach to shore erosion; the National Estuarine Sanctuaries Program and; the Non-Tidal Wetlands Program.

Focus for the special projects is in several issue areas of Coastal concern including: dredging and dredge material placement, critical areas management, aquatic resources management, watershed management, economic development, recreational boating, and shore-front access. This year, LANDSAT was used as a management tool to assess land use. It will be expanded as a management tool to assess and provide a data base for the two designated estuarine sanctuaries and selected non-tidal and tidal wetland critical areas.

A new program for submerged Aquatic Vegetation replanting also began. Techniques for planting and the success of different types of vegetation will be assessed with focus initially given to the Susquehanna Flats and Choptank River areas.

In addition, a non-structural approach to shore erosion was created which will provide the opportunity to use wetland vegetation on a 50/50 grant basis for property owners to handle low energy erosion problems along river banks. Work with the Soil Conservation Districts is being closely coordinated for this project.

The Estuarine Sanctuaries Program has as its purpose, the identification of a series of sanctuary sites around the Bay for research and education purposes by the public, special, academic and State interests. Two sites were designated in FY 83; The Rhode River in Anne Arundel County and the Little Monie Bay in Somerset County. Management plans have been developed for both sites and Memoranda of Understanding between the State and the property managers have

been negotiated and will be signed next fiscal year.

The Non-Tidal Wetlands Program was developed last fiscal year to provide assistance to local governments in the design and implementation of non-tidal wetland management programs. A non-tidal wetland resource assessment and monitoring system is being established to provide a quantitative analysis of wetland types. Criteria are being established for incorporating non-tidal wetlands protection measures in soil and water conservation plans developed for farms.

#### **Land and Water Activities**

The Recreational Boating Section oversees the review of project permits dealing with ramps, piers and marinas. It is also responsible for several coordinative efforts throughout the State.

The first includes an expansion of the information presented in the publication "Marina Siting Guidelines and Considerations" offering more complete guidelines to promote environmentally sound development efforts.

The second effort involves working with the Boat Act Advisory Committee, Coastal Resources Advisory Committee and other boating or citizen groups to determine important recreational boating issues and to clarify unclear State policies.

A third effort is to expand the State's communication with boating industry representatives as well as boater groups. This will augment sharing information with education value to the boating public and promote exchange of thoughts, ideas and positions around important issues.

The Shoreline Improvement Section administers a new program initiative authorizing funds for projects which will improve the shoreline of the Chesapeake Bay. Seventy-five percent of the grant funds can be used by local governments for restoration or improvement of existing public waterfront property; abatement of eroding shoreline; establishment or creation of environments or habitats for wildlife or aquatic resources; facilities for public access to the shoreline for recreational and educational purposes; restoration of waterways and streams, and the removal of debris.

Presentations to the local governments to acquaint them with the Program and projects totalling \$2 million will be made.

The Public Access and Planning Section is the coordinator of access activities which take place in the various departments under CZMP. Policies are being developed for the State on access and this work will culminate in a report to the General Assembly in 1987 outlining policies and suggestions for access and reforestation around the Bay.

The Outer Continental Shelf (OCS)/Coastal Energy Impact Program (CEIP) section administers Federal coastal energy impact funds which assist State and local governments in dealing with fiscal, economic, environmental and recreational impacts of a coastal energy facility. These funds also provide monies for the State to assess any Outer Continental Shelf oil and gas activity of the Department of the Interior. This year, CEIP funds were used to construct a public recreational pavillion and pier facility at Bettertown Beach, public access piers for fishing and boat dockage at Hull and Boston Streets in Baltimore Harbor, Master Plans and Enhancement Plans for city and county governments and energy related environmental assessments.

#### **TIDAL FISHERIES**

The Chesapeake Bay is one of the most productive estuaries in the world. Maryland's portion of the bay has historically been a major producer of oysters, blue crabs, and soft shell clams. It is also the spawning ground for the majority of the east coast's stock of striped bass.

Over thirty-five thousand commercial licenses are sold each year to people who earn a part of their livelihood from the State's tidewater resources. In addition an estimated 900,000 recreational fishermen contribute millions of dollars to the State's economy in their pursuit of Maryland's excellent game fishing. Combined, the commercial and sport fisheries have an economic impact on the states' economy that far exceeds their direct expenditures.

The Tidal Fisheries Division has a broad range of responsibilities. It monitors species abundance and the

environmental conditions affecting their populations. It also regulates harvesting activities and administers programs to increase production of oysters and fish. To achieve these goals it conducts research and education programs to ensure that available funds are spent in the most effective manner.

The goal is to maintain optimum condition of fisheries stocks for purposes of harvest and ecological balance, and to encourage the greatest return for the citizens of Maryland.

#### **Special Projects**

Recreational/commercial fisheries and special projects encompass programs and projects that interact with other Fisheries Division Programs, and cooperative interaction with other agencies.

Major initiatives include sportfish enhancement and habitat creation and a stream classification system that is directed to fisheries potentials. The Maryland Youth Conservation Corps engages youth in natural resources conservation projects. Continuing programs of commercial and sport-fishing catch statistics and economics, and habitat investigation support other programs of the Fisheries Division.

#### **FISHERIES STATISTICS**

Commercial finfish and shellfish landings from all Maryland tidal waters totalled 91.5 million pounds in 1983, a 10% drop from 1982. The decline was mainly due to lower oyster and menhaden landings. For the first time, the dockside value of blue crab landings (\$22 million) exceeded that of oysters (\$12.9 million). Dockside value of all finfish and shellfish was virtually identical to 1982 (\$51.5 million). The responsibility for collecting dockside prices for finfish and crabs was transferred from the National Marine Fisheries Service to the Fisheries Statistics Project during FY 1984.

Recreational finfish harvest and economic impacts were measured using methods similar to those in 1979 and 1980. Unlicensed sport crabbers were included in the survey for the first time. Reports on both will be available during FY 1985.

Analytical and presentation capabilities were greatly enhanced by the

purchase of a graphics plotter and the associated software. Most long-term historical and current biological data bases collected by Fisheries Division biologists have been computerized for statistical analysis.

Considerable effort was expended in estimating the effects of harvest restrictions on striped bass. Models were developed for estimating the effects of area and gear closures, gill net minimum mesh size restrictions, the effect of maximum gill net length regulation and for defining a mathematical relationship between DNR's annual recruitment survey index and subsequent landings.

### Habitat Investigations

This project has redirected its activities during fiscal year 84 away from the crisis response to acute fish kills and towards the identification and investigation of the long term, more chronic problems affecting the bay's fish stocks. These multi-faceted assessment studies have involved the histological examination of finfish and shellfish tissue, microbiological screenings and chemical analyses of water quality and specific fish organs. To include this variety of scientific disciplines it has been necessary to involve the cooperative investigative efforts of such organizations as the University of Maryland, the Department of Health and Mental Hygiene, the Environmental Protection Agency, the U.S. Fish and Wildlife Service and the National Marine Fisheries Service.

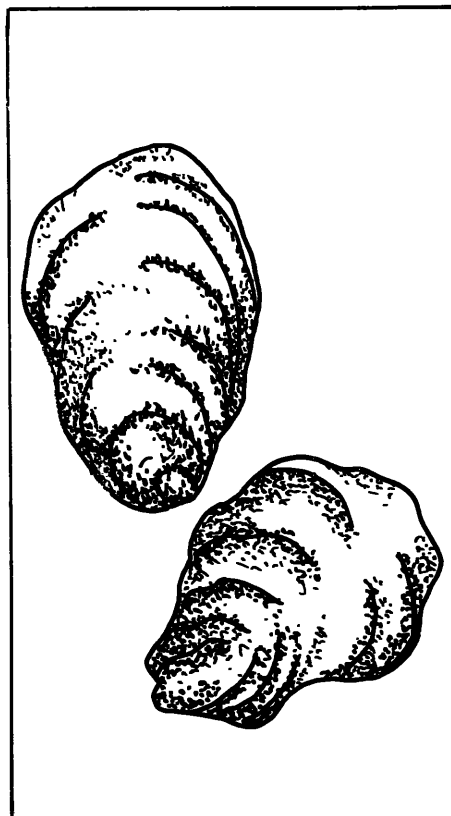
In addition to annual cooperative monitoring projects, several intensive and specific assessments were undertaken this year. An investigation of the suspected contamination of some species of resident finfish due to the pesticide Chlordane was conducted with the cooperation of the University of Maryland Hospital and the Department of Health and Mental Hygiene. In efforts to assess both human and fish health, fish were chemically analyzed to determine risk to human health and histologically examined to determine if sublethal changes had occurred which could compromise the fish's survival in the wild.

A continuing study of the annual spring menhaden mortality involved the cooperative work of the National

Marine Fisheries Service and the University of Maryland at College Park. Since the identification of the virus Infectious pancreatic necrosis (IPN) as the causing agent of this phenomenon, other species of marine and estuarine fish are being found to suffer mortalities in which this virus may play a major role.

An intensive cooperative effort focused this spring on the spawning and larval development of striped bass in the Choptank River. For six weeks the talents of the Environmental Protection Agency, the University of Maryland and the Department of Health and Mental Hygiene were combined.

The laboratory unit monitors Bay shellfish for the presence and intensity of approximately 40 infectious and non-infectious diseases of oysters and clams. *Minchinia nelsoni* (MSX) was detected last year in areas of the upper Bay causing heavy mortalities. Monitoring of these areas continues to determine changes in the prevalence or intensity of the mortalities. A neoplastic disease of soft clams, *Mya arenaria*, has been detected in several areas of the Bay. This disease, which is new to the Bay, is being studied extensively in cooperation with the National Marine Fisheries Service.



## SPECIAL PROJECTS

### Save Our Streams

Project staff have developed a time frame for reviewing the concept of a resource driven stream classification system. The concept is to move away from a "what is" or status quo stream classification, and towards stream protection and restoration that realizes stream fisheries management potential.

A citizen's action manual for stream preservation and management is under preparation and will be published soon.

### Stream Classifications

Field sampling was conducted to determine which streams support spawning migrations of anadromous fish. These surveys identify what species use the stream and the areas they use. In addition, stream surveys were also conducted identifying stream blockage and adverse watershed conditions affecting anadromous fish passage and reproduction.

Collection sites for acid rain analyses were established and a coordinated media campaign was conducted to familiarize the public with the potential damage to anadromous fish species from acid rains.

River herring age and growth data was collected for certain areas and special requests for special investigations of anadromous fish spawning areas were conducted.

### Saltwater Sport Fishing Survey

Work is progressing on the 1984 Maryland Saltwater Sportfishing Survey Report. This report, like the previous Tidewater Administration Sportfishing Survey Reports, will contain detailed information on the harvest of fish caught by recreational fishermen. It will also contain a biological characterization of the fish caught and an analyses of how fishing success varied with season, location, and method.

Preliminary computer analyses indicate that the recreational striped bass harvest was considerably lower in 1983 than in 1979 or 1980. For example, in 1983 during May and June the Catch Per Unit Effort (CPUE) (striped bass/hour) for rental boat fishermen was 0.005 compared to 0.019 in 1980.

During this same period, May and June 1983, 6.7% of all surveyed fishermen said they were fishing for striped bass and only 10.2% of these trips actually caught striped bass.

These percentages increased greatly during the fall when more striped bass from the relatively abundant 1982 year class were available to the sportfishermen. Nearly 20% of the fishing trips were directed toward striped bass and about 53% of these trips actually caught striped bass.

As in previous survey years, bluefish were the most sought-after species except for the November and December period.

### **Sport & Commercial Fisheries Liaison**

The Maryland Sport Fishing Tournament - Sport Fishing Information Office provided the news media and citizens with more than 40,000 news releases and broadcasted recordings during the last fiscal year. In addition, the office personnel issued over 200,000 pieces of educational material and distributed this material stressing the conservation of Maryland's marine resources and their proper utilization.

Over 100,000 people participated in outdoor fishing shows, and seminars. Many sportfishing tournaments, both salt and fresh water were directed and conducted by this Division.

Maryland Sport Fishing Tournament continues to enjoy great acceptance for Maryland residents and tourist anglers. The number of citations issued amounted to 1,687 in salt water and 658 in fresh water bringing the 19th year total of citations issued to 74,300.

The Commercial Fisheries Advisory Service has conducted four conferences for different segments of the seafood and marina industry in Maryland. This unit has continued to publish the Tidewater Fisheries News for the use of those who utilize our aquatic natural resources. Many special projects were performed by this unit in support of other Tidewater Administration projects.

### **Maryland Conservation Corps**

The Maryland Conservation Corps accomplished a great deal in its first year. Eight hundred disadvantaged youths between the ages of 14 and 21

were hired to work in over eighty locations throughout the State, clearing streams and tributaries of the Chesapeake Bay, working on soil erosion problems and other conservation projects.

In Baltimore City, the two main target areas were the Patapsco River and Herring Run. Truckloads of garbage were removed from streambeds and banks and rip-rap put in place to prevent further erosion.

On the Eastern Shore, part of the Deal Island Oyster Hatchery was renovated, vegetation control was put into effect at wildlife management areas, trails were rebuilt or cleared and fire trails were maintained or constructed.

In the Susquehanna region, work was begun on the rehabilitation of the Town of Elkton Hatchery, many trails in state parks were rebuilt or cleared, soil erosion was stopped along some bay shoreline, and ditches and culverts were renovated.

In Western Maryland, the Corps members cleaned up trash along streams, seeded logging roads and fire trails to prevent erosion, cleared ditches and culverts, installed water breakers to divert water into wooded areas to prevent dirt and debris from washing into streams that run into the Potomac and the elimination of illegal fire trails.

Next year, the program will focus entirely on projects that will lead to improving the quality of the Chesapeake Bay.

### **Aquatic Habitat Modification Evaluation and Technical Assistance-Environmental Review Program**

The Environmental Review Program reviews projects forwarded by Federal, State and other Department agencies. Comments are made on the effects of aquatic habitat alteration relative to fisheries resources. Projects which are reviewed include wetlands licenses, watershed permits, toxic materials permits, highway projects, surface mining permits, water quality certificates and U.S. Army Corps of Engineers 404 permits.

Issues which have been addressed in the past year include:

- I-97 mitigation in the area of Crownsville, Maryland

- Environmentally acceptable spoil disposal for the Barren Island Gap dredge project
  - Monitoring of the Long Point channel dredge project (Kent Narrows approach)
  - Review of several low head hydroelectric projects
  - Continuing participation in acid rain workshops and Potomac River dredge spoil placement discussions
- Additionally, the program has been designated to lead the State's review of the U.S. Navy's proposed E.M.P.R.E.S.S. II Project.

### **SHELLFISH**

#### **Oyster Project**

The oyster harvest of 868,000 bushels for the 1983-84 season was the lowest on record. The low harvest is attributed primarily to poor reproduction and 1982-83 mortalities due to the reappearance of the oyster disease "MSX".

Surveys conducted to determine the level of "MSX" indicate that it has declined to a level where no new mortalities have resulted from infections.

A poor spat-set occurred during the summer of 1983, affecting both State reserved seed areas and public bars. As a direct result of the poor spat-set only 48,171 bushels of seed were transplanted during the spring of 1984. The cost of transplanting this seed was \$36,722.00.

Again, this year the Kent County Watermen's Association and the County Commissioners contracted to plant seed oysters on Kent County public bars. The seed was taken from a seed area of Broad Creek located on the Choptank River.

The C.J. Langenfelder Company planted 300,687 cubic yards of dredged shells for the State of Maryland. Included are 33,007 cubic yards for the Patuxent River special rehabilitation project and 32,534 cubic yards for the Potomac River.

Additional funding provided by the Chesapeake Bay Initiatives allowed the purchase and planting of 109,050 bushels of fresh shells.

Elections for county tongs and dredgers committees' were held during the winter of 1984, and a new Statewide oyster committee consists

of the chairman of the county committees.

### Bay Bottom Survey

The field work phase of the survey was completed in October of 1982, with verifications finished by the end of the calendar year. Final public hearings were held during 1984, and charts certified to reflect the boundaries of the public natural oyster bars. The acreage of the natural oyster bars totals 249,979. These figures do not include the Potomac River.

The Potomac River was surveyed during the summer and fall of 1983. During this time period approximately 24,531 acres of oyster bottom were surveyed and charted for the Potomac River Fisheries Commission.

### Soft Clams

Maryland's 1983 soft-shell clam landings increased to approximately 150,000 bushels. Upper Bay clam bars in Queen Anne's, Kent and Anne Arundel counties were the major producing areas.

Juvenile surveys initially indicated a strong 1982 year class, however, a severe die-off occurred in late August. During 1984, harvesting will again be centered in the upper Bay with a decline in landings.

### Hard Clams

Hard clam harvesting efforts and catch per day appeared similar to 1981 when 80,000 pounds of clam meats were landed. Landings were curtailed by a lack of availability of small clams and a sustained market for large chowder-sized clams.

### Blue Crab Management Project

The 1983 blue crab harvest got off to a very slow start. Through mid-May crabbers were catching only ½ to 3 bushels of crabs a day. During this early part of the season, prices for crabs were averaging \$50 a bushel for premium crabs, more than twice the summer average.

This early shortage of crabs was foreseen by the Tidewater Administration and stated in the annual report of the Blue Crab Management Project dated January 1983. This shortage was due primarily to a mediocre 1981 year class of crabs which was the primary source of the commercial catch during these early spring months.

While the hard crab catch was down bay-wide during the spring, the peeler crab fishery in Maryland's lower bay area was hitting record highs because of the up-bay migration of crabs from the 1982 year class. This year's class of crabs was very strong and provided for this early record peeler crab harvest and, later in the season, contributed heavily to the hard crab fishery. It was estimated by local watermen in the Crisfield area that the peeler catch in the spring of 1982 was two times larger than normal.

The hard crab fishery began improving in June and by early fall was very good.

The reported Maryland blue crab landings, in pounds, by month, for 1981 through 1983 are as follows:

	1982	1983
April	170,374	291,956
May	2,058,310	1,524,372
June	9,473,698	9,511,337
July	14,112,754	13,124,792
August	14,443,129	14,905,725
September	8,359,904	11,946,068
October	3,381,316	8,433,616
November	929,795	2,150,301
December	No estimate	No estimate
TOTAL	52,929,280	61,888,167

The 1984 spring and early summer harvest of blue crabs was below normal. From all over the Chesapeake Bay crabbers reported a "slow" season thru June. The wet, cool spring and early summer were responsible for the slow start.

The blue crab project continued its annual blue crab population survey in the spring of 1984 to determine the abundance of each new year class of crabs. Preliminary samples indicate that the 1983 year class of crabs was strong. In fact, it may be the best year class since 1976. It is anticipated that late summer and fall catches of crabs in 1984 will be above normal.

During the 1983 legislative session a major change in the license requirements for catching blue crabs was passed. This change provided for the following:

To catch crabs for sale:

1. Up to 50 pots, trotline, nets, dip nets, traps, pounds, scrapes \$50.00
2. More than 50 pots 150.00
3. Consolidated license—all equipment in 1 & 2 above 175.00

To catch crabs for non-commercial purposes: limit 3 bushels per person not to be sold-unlimited trotline and up to 50 collapsible crab traps:

1. Non-resident 20.00
2. Resident 5.00
3. No license required for collecting 1 bushel per day for personal use —

Several regulation changes were made during 1983:

- (1) A regulation amendment was passed that redefined the crab pot buoy free channel in Bodkin Creek, Anne Arundel County.
- (2) A regulation amendment was passed that provided for an increase in the size of scrapes or dredges to a maximum width of 60 inches and deleted the weight restriction.
- (3) A regulation amendment was passed prohibiting diving to catch crabs.
- (4) Several regulation amendments were passed allowing fishing of crab pots in water less than 4 feet deep in certain areas in Pocomoke and Tangier Sounds.

### ESTUARINE FISHERIES PROJECT

This project collects and analyzes basic data on the population status and dynamics of finfish in the Chesapeake Bay. This data is used to decide courses of action regulating commercial and sport fisheries, in habitat protection, and planning long range management. The goal of the project is to perpetuate the finfish resources in fishable abundance throughout their geographic range and generate the greatest net economic and social benefits from their harvest and utilization.

The annual recruitment survey of estuarine fish determines relative abundance of important species and the success of spawning of several anadromous species. In 1983, reproduction of striped bass, white perch, herring, and shad continued to decline.

In the Choptank River, a study of white perch and striped bass eggs, larvae and young continued to document the distribution, abundance, development and mortality of these vulnerable early stages. The objective is to determine the factors which influence survival of the young and to increase their survival.

At the Manning Hatchery, various techniques of producing striped bass in a culture situation are being tested and factors responsible for poor fertilization are being examined. In 1983, 540,000 striped bass and striped bass hybrid fry were stocked into culture ponds and natural waters. Survival and growth potentials were compared for striped bass and hybrids. The feasibility of stocking into an open system such as the Chesapeake Bay is being studied. Hatchery produced striped bass which are released into Bay rivers were marked in order to assess their contribution to the wild population.

Decline of striped bass along the East Coast has prompted a multistate effort to manage the fishery. Recommendations from an Interstate Striped Bass Management Plan, prepared by Tidal Fisheries staff, have been enacted in Maryland and other States. A new interstate effort seeks to further cut coastal harvests by 50%. A cooperative effort between commercial fishermen and project biologists continues to study the winter commercial fishery for striped bass. Sampling of the Maryland Chesapeake adult striped bass stocks mirrors the poor reproduction over the past 13 years documented by reproductive surveys. The spawning areas, first closed to fishing in 1982, are being monitored to determine the composition of the spawning population and their relative abundance. The number of females in the spawning population is reduced and the bulk of egg production is from striped bass 12 years old and older.

Application of the Plan's recommendations should produce beneficial changes in the age, sex, and size structure of the striped bass population and an increase in the egg production potential. The population must be monitored to ensure that the scheme is having the desired effect.

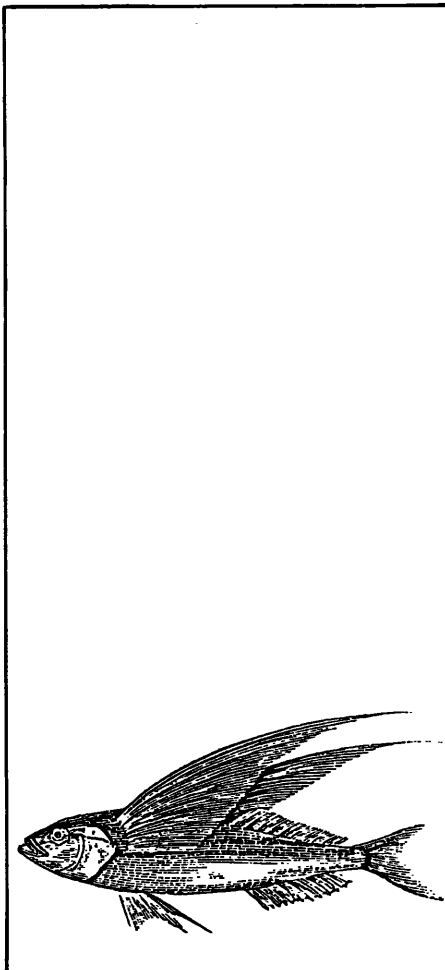
A 1983 report for the middle portion of the Patuxent River drainage in Anne Arundel, Prince George's and northern Calvert counties was published and distributed to state and federal management agencies.

Streams in the upper Choptank drainage were surveyed for stream barriers and other factors affecting fish

propagation potential. Barriers were inventoried and selected for removal or mitigation to enhance fish passage on approximately 36 streams.

Scale samples taken in the spring of 1984 were processed and interpreted to assess the structure of adult spawning populations of the alewife and blueback herring in the Fishing Bay area. The adult spawning migration of river herrings and shad was monitored in 26 streams of the upper Choptank River.

On the oceanside, the seasonal elver study was completed, indicating a good return of the young eels to the coastal tributaries. A similar study of adult eels indicated that rainfall rather than lunar cycles was responsible for the migration of adults out of fresh water streams. A study on colored antifouling treatments on crab pots was completed and indicates that there is a definite crab pot color preference by blue crabs. Assistance was given to the National Park Service in establishing and monitoring a small viable oyster bar in the coastal waters adjacent to Assateague Island National Seashore.



Construction of the Hart-Miller dredge spoil containment facility required a biological monitoring project to assess changes in adjacent waters. The project has used a variety of sampling gears to collect representative finfish species as construction proceeds.

The goal of the American Shad Project is to assess the upper Chesapeake Bay stock of American shad and to establish appropriate restoration management strategies. Assessment includes estimation and characterization of adult spawning shad, a sport fishing survey designed to note changes in angling success and a juvenile recruitment sampling to determine reproductive success. The 1983 estimated adult population was 7,127, an increase of 5% over 1982. There were more females and a shift in spawners to five year old fish in 1983 as compared to 1982. An increased contribution from the 1978 year class was probably responsible for these changes. The estimated shad catch by sport anglers from the lower Susquehanna River decreased by 50% in 1983 to 132. No juvenile American shad were collected during 1983.

Shad project personnel are participating in the Atlantic States Marine Fisheries Commission effort in writing an east coast shad and river herring management plan scheduled for completion in 1985.

## FRESHWATER FISHERIES

### Coldwater Fisheries Project

The Cold Water Fisheries Project is responsible for the proper management of the cold water fishery resources of the State. These resources include brook, brown, and rainbow trout, as well as the biota and habitat associated with these fish. The goal of the program is to provide the greatest amount of public trout fishing within existing economic and environmental limitations while striving to preserve and enhance the natural trout resources of Maryland.

During Fiscal Year 1984, 192,000 catchable size (8-15 inch) trout weighing 89,164 pounds (44.6 tons) were released into 42 streams and 28 impoundments to provide public trout fishing. The combined production of the Albert M. Powell Hatchery and the



Cushwa Rearing Station was 142,850 trout (69,806 pounds). The Bear Creek Rearing Station produced 49,151 trout (19,358 pounds). Experimental transplants of brown trout eggs were conducted on select streams in order to provide additional trout resources. Approximately 18,000 two-year old (12-15 inch) trout were included in the 1984 stocking program. These trout were "held over" at State facilities to provide a bonus to the trout fishing public. In 1984, federal trout allocations to the State were eliminated. To compensate for the loss of these fish from the federal government, a "put-grow-and-take" trout stocking program was continued. Under this program, surplus fingerling brown and rainbow trout were stocked into selected streams where they would survive on a year round basis and grow to a catchable size.

The "Urban Trout Fishing Program" was continued within those areas which were stocked in previous years.

Field operations of the Cold Water Fisheries Program are conducted under Federal Aid Project F-36-R, "Survey, Inventory and Management of Maryland's Cold Water Resources." These activities include biological studies of selected watersheds, angler surveys, and continual monitoring of the status of known natural trout populations. During the past year,

intensive studies were conducted on the following streams: Beaver Creek, Carroll Creek, Deer Creek, Gunpowder River, Hunting Creek, Paint Branch, Patuxent River, and Savage River. Routine monitoring of other native and recreational trout streams was also conducted as part of this Federal Aid Project. The Cold Water Fisheries Program continued to cooperate with the Department of Natural Resources' Water Resources Administration and the Department of Health and Mental Hygiene's environmental review of proposed projects associated with Class III and IV waters of the State.

## FRESHWATER FISHERIES

### Warm Water Fisheries Project

The Warmwater Fisheries Section manages 10 gamefish, 15 panfish, and 65 rough and forage fish species. Gamefish species include:

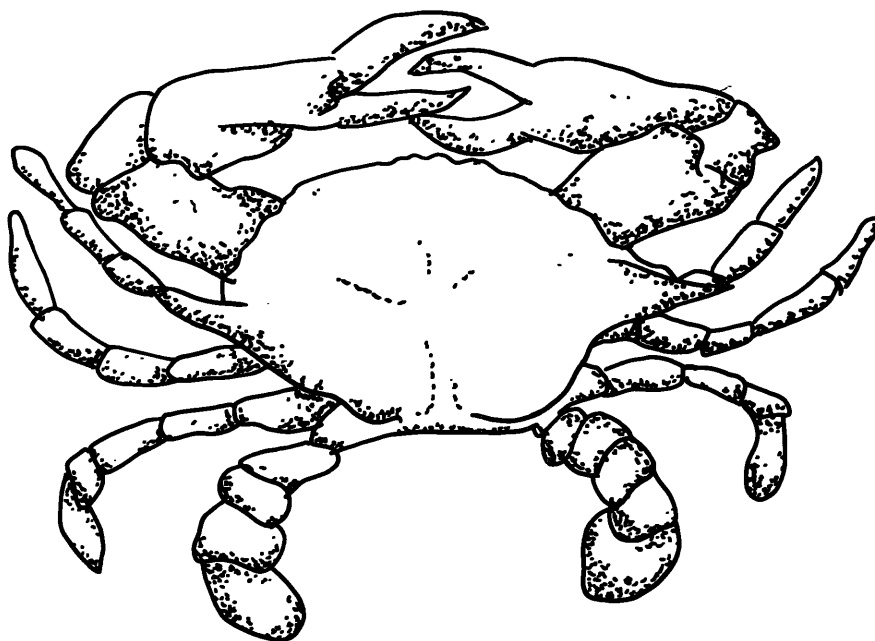
- largemouth bass
- smallmouth bass
- walleye
- northern pike
- striped bass
- striped bass x white bass hybrids
- striped bass x white perch hybrids
- yellow perch
- tiger muskie
- channel catfish

The walleye stocking program now being carried out on Deep Creek Lake

has resulted in an abundant walleye population and record numbers were caught in FY 1984. Walleye successfully spawned for the first time in Deep Creek Lake in 1982 and again in 1983. This has accounted for the high walleye population now present and many fish are now entering the fishery.

Fishing for smallmouth bass and largemouth bass was the best in years at Deep Creek Lake during the spring of 1984. A strong year class that entered the fishery in 1983 is furnishing excellent fishing.

Bass tournaments are becoming increasingly more popular in Maryland waters. Tournaments are held each week at Deep Creek Lake during the spring and early summer, with several tournaments being held on a given weekend. Numerous tournaments are also being held on the Potomac River and upper Chesapeake Bay area. The total number of tournaments held each year in Maryland is unknown, but is increasing each year. In several States, it has become necessary to require registration of bass tournaments due to the intense fishing pressure they have generated on certain bodies of water. Catfish have been purchased and stocked for the recently completed fishing rodeo commitment. Goldfish have been trapped and moved to Baltimore for stocking in Patterson Park.



The Hatchery Division is in the process of meeting all the Inland Fisheries Management requirements for fish. Striped bass and striped bass hybrids, produced in the Joseph Manning Hatchery, were stocked in nine impoundments and two river systems. Sampling efforts by Warmwater Fisheries personnel indicate that striped bass x white perch hybrids are attaining the best length-weight relationship, followed by striped bass x white perch hybrids, with striped bass having the poorest relationship. The striped bass x white bass hybrid rated first, striped bass x white perch second, and striped bass last in stocking survivability and angler vulnerability. It should be noted that all striped bass production was accomplished in addition to fresh water management requirements and not as a replacement of our inland commitments.

Striped bass and striped bass hybrids provided an additional sport fishery to Maryland anglers in FY 1984 and have become a popular sport fish in water where they have become well-established. Impoundments where striped bass and striped bass hybrids have been stocked are:

- Liberty Reservoir
- Piney Run Reservoir
- Rocky Gorge (Duckett) Reservoir
- Broadford Lake
- Triadelphia Reservoir
- Blairs Valley Lake
- Lake Elkhorn
- Wilde Lake

The walleye stocking program was extended in FY 1984 to include Loch

Raven Reservoir, Liberty Reservoir, Rocky Gorge, Bloomington Reservoir and Savage River Reservoir, in addition to Deep Creek Lake and the Potomac River.

Smallmouth bass were stocked in one impoundment and two river systems. Largemouth bass were stocked in seven rivers, 34 impoundments, and 235 farm ponds. Bluegill were stocked in seven impoundments and 190 farm ponds. Channel catfish were stocked in 71 farm ponds, for 15 rodeos, and two impoundments.

The following numbers of warmwater fish species produced in the Manning Hatchery, Lewistown and Unicorn facilities were stocked into selected waters of Maryland during FY 1984:

SPECIES	SIZE	NUMBERS/ POUNDS
Largemouth bass	Fingerlings	14,650
Largemouth	Fry	125,935
Smallmouth	Fingerlings	14,550
Channel catfish	Adult	3,700
Channel catfish	Fingerlings	12,644
Bluegill	Fingerlings	189,150
Bluegill	Adult	1,068
Redear sunfish	Fingerlings	227,000
Tiger muskie	Fingerlings	11,200
Walleye	Fry	3,530,000
Walleye	Fingerlings	59,285
Striped bass	Fingerlings	130,789
Striped bass x white bass hybrid	Fingerlings	102,531
Striped bass x white perch hybrids	Fingerlings	720

An intensive effort started in FY 1981 to monitor and evaluate the results of stocking largemouth bass in

upper Chesapeake Bay was continued. Data collected in FY 1984 indicates that this program has increased the numbers of harvestable bass in tidal waters.

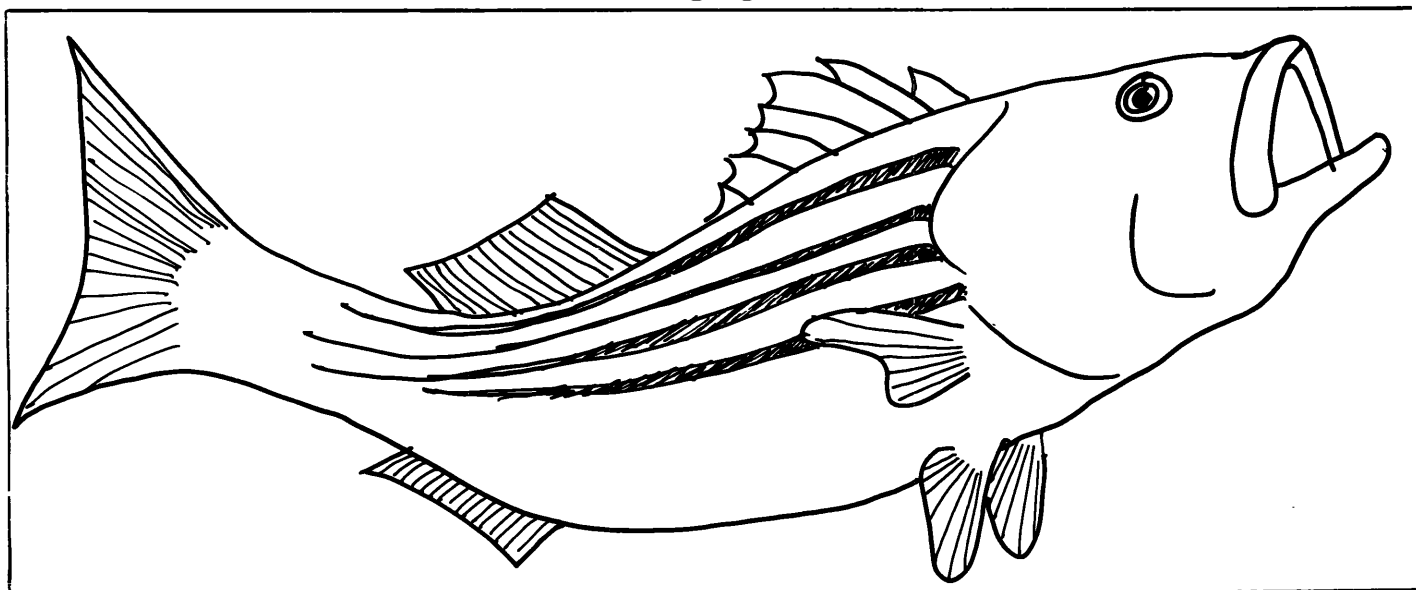
Studies to measure and evaluate basic physical and chemical characteristics of Maryland lakes and ponds for species suitability and their capability to sustain fish populations; and to determine species composition, relative abundance, food habits and age and growth; to produce information necessary in preparing management plans for each water surveyed were continued. Surveys were conducted on the following impoundments:

- Bloomington Lake
- Clopper Lake
- Rocky Gorge Reservoir
- Liberty Reservoir

A Statewide survey initiated during 1980 to provide information on physical-chemical characteristics, species composition, distribution, relative abundance of benthic macro-invertebrates and fish in various river basins was continued in FY 1984. Streams surveyed were Town Creek, Nanticoke River, Monocacy River, and Patapsco River.

Final reports and management plans were completed for Evitts Creek and the Youghiogheny River.

Warmwater Fisheries personnel assisted the Estuarine Fisheries Program in conducting striped bass and shad surveys and the Hatcheries Program in stocking trout and rearing and stocking of warmwater species.



# MARYLAND ENVIRONMENTAL TRUST

The Maryland Environmental Trust was established by the General Assembly in 1967 to conserve, improve and perpetuate the State's natural, scenic and cultural qualities. Activities of the Keep Maryland Beautiful program were also transferred to the Trust in 1967. Programs and policies of the Trust are defined and supervised by a volunteer board of trustees consisting of 12 citizens and three ex-officio members (Governor, President of the Senate, Speaker of the House).

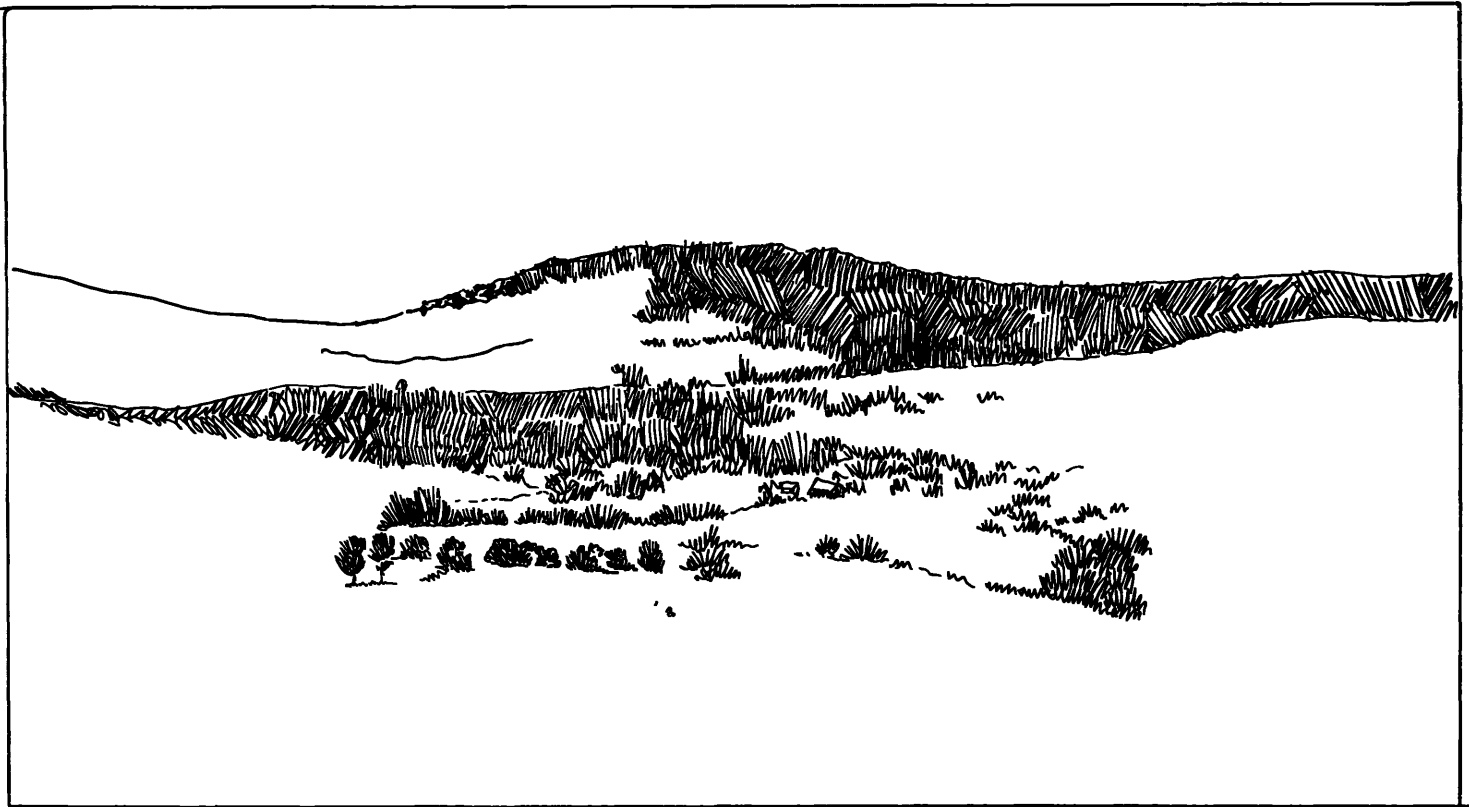
For eleven years the Trust's major program has been acquisition of easement donations on properties of recognized public conservation value. Private properties protected by conservation easements include farmland, woodland, waterfront, marshes, streams and ponds, scenic views, wildlife and plant habitat, historic properties, archeological sites, and properties of educational or recreational value. The Trust has accepted conservation easements on 87 properties statewide encompassing approximately 17,000 acres. Easements presented to the Trust are reviewed and approved by the Board of Public Works prior to acceptance.

During FY 84 the Trust proposed a Chesapeake Bay easement initiative as part of the Governor's overall Bay clean-up strategy. The initiative as approved directs a substantial part of the easement program into the Bay area and includes an educational/marketing component involving the cooperative assistance of the Chesapeake Bay Foundation. Through the Bay Initiative the Trust expects to place conservation easements on 2,000 acres of worthy properties annually - twice the average area protected yearly on or near the Bay in the past. The easement initiative will be phased into the Trust's regular program and will be fully operational beginning FY 86. The Trust participated in a number of ways to draw public and legislative support to the Bay program package, including testimony before House Environmental Matters on the critical areas of legislation.

The Trust received 59 easement inquiries in FY 84, down 20% from FY 83. A total of six easements were documented, accepted and recorded in FY 84, covering 657 acres. Two of

the properties are adjacent to prior easement sites, two have frontage on Bay tributaries, three have historic homes, one is in a rural historic district, and all include farmland. Two additional easements, 481 acres, were completed but not recorded in FY 84. While easement completions for FY 84 were down from the previous year, a surge in program interest toward the end of the fiscal year resulted in the assumption of three easement cases by citizen trustees. Voluntary activities of this type highlight the significance of the unique public/private structure of the Trust.

FY 84 was a year of uncertainty with respect to the IRS's interpretation of federal tax laws designed to encourage charitable giving for conservation purposes. Proposed IRS tax regulations were carefully analyzed by the Trust in consultation with numerous public and private land trusts throughout the County. The Trust testified before the Treasury in September, followed by written submission. Lobbying was done with the Treasury and on Capitol Hill both to affect the outcome of the final regulations (still not published) and to support or tailor pending conservation legislation.



Trust staff appeared before school classes, clubs, organizations and other groups to review the easement program, tax regulations and other related conservation matters. A reference room is maintained with environmental documents and films for public use. The Keep Maryland Beautiful committee continued to work on the reduction of visual pollution in the State—particularly along the highways. The committee (and the Trust) supported mandatory deposit legislation during the '84 session. The committee supported billboard removal initiatives: gathering information and monitoring legislative proposals to that end.

During most of FY 84 activities were carried out by four permanent employees. Trustees donated labor for administrative and policy meetings, service on commissions, and conservation easement negotiations. The Board of Trustees met eight times during the year. The by-laws were amended to permit the appointment to MET of up to six (non-voting) area

representatives for the purpose of broadening its base. Four area representatives were appointed in FY 84.

The Trust is supported by eleven local volunteer committees and affiliates in Allegany, Baltimore, Charles, Dorchester, Howard, Kent, Montgomery, Prince George's, St. Mary's, Somerset, and Worcester counties.

#### ONE YEAR GOALS

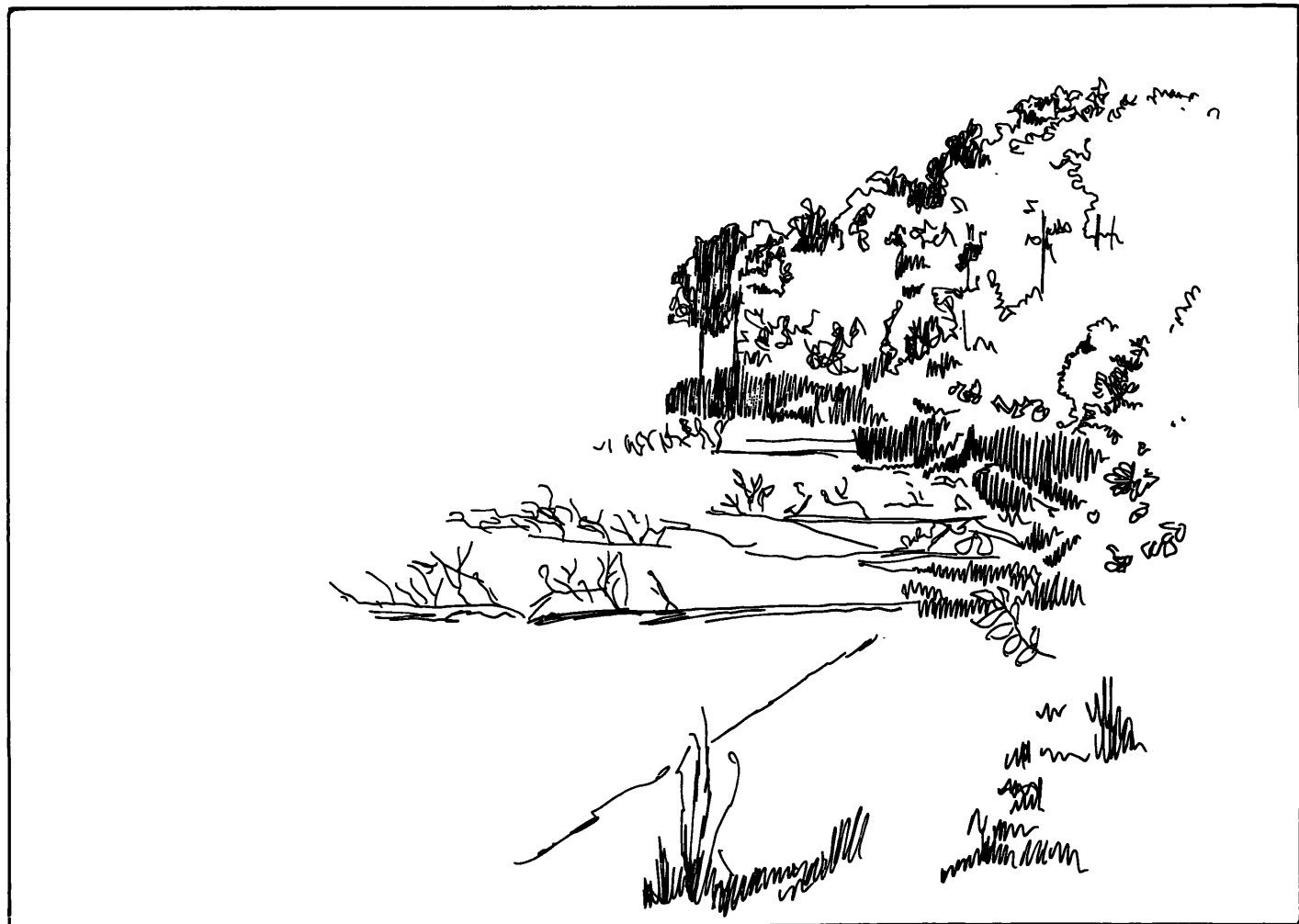
- Revise standard easement deed
- Develop, standardize and index for word processor special easement provisions re: flood prevention, forestry management, buffer strips, agricultural practices, wildlife habitat, etc.
- Track IRS conservation tax regulations and proposed federal conservation legislation
- Strengthen easement documentation to better meet IRS conservation "tests"
- Initiate a focused easement solicitation drive in cooperation with the

Chesapeake Bay Foundation (e.g. waterfront property owners, ad-joiners to existing easements, etc.)

- Select remaining area representatives
- Improve easement monitoring, including where possible, the assistance of trustees, area representatives, local affiliates and volunteer conservation groups
- Publish and distribute MARYLAND LANDSCAPE directed toward land conservation issues

#### FIVE YEAR GOALS

- Revise MET policy document
- Revise and reprint brochure and conservation easement booklet
- Establish a revolving conservation fund for bargain sale purchases, supported by gifts, bequests, etc.
- Consider MET non-voting membership categories and a membership drive
- Sponsor one or more land conservation conferences for the public, including a technical program for attorneys, appraisers, government officials and conservationists



# ENERGY ADMINISTRATION

The Energy Administration's mission is to evaluate and facilitate the production and conservation of energy while minimizing adverse environmental effects. This is accomplished by determining the environmental impact of existing and proposed power plants, promoting public and private participation in energy conservation, maintaining balanced fuel allocation within the State in accordance with the needs of the consumer, regulating the environmental impacts of active coal mining, and reclaiming abandoned coal mines. These tasks are the responsibility of three operating programs within the Administration which are the Power Plant Siting Program, the Bureau of Mines, and the Maryland Energy Office.

## POWER PLANT SITING PROGRAM

The Power Plant Siting Program provides technical information and recommendations to regulatory agencies concerning actions necessary to minimize the environmental impact of the siting and operation of power plants and associated facilities, without imposing unreasonable costs on the production of electricity. The law provides for:

- Consolidated decisions that incorporate inputs from various economic, environmental, health, and planning agencies into a single action of the Public Service Commission;
- A dependable fund source for the program by placing a small surcharge on electricity produced within the State.

### Ongoing Activities Are:

- Prediction of the impact of future power plants at proposed sites.
- Environmental review of all proposed high voltage transmission lines.
- Assessment of the environmental impact of operating power plants.
- Identification, evaluation and acquisition of suitable power plant sites for holding in the Site Bank.
- Preparation of long-range forecasts of future electric power demands.
- Evaluate generic issues related to the environmental impact of power

plant siting and operation.

### Major FY 84 Activities

- Review of applications for the Chalk Point and Wagner Power Plants to determine the need for modifying cooling systems.
- Sampling of environmental media from the Susquehanna River and Chesapeake Bay to determine the radiological impact of the Peach Bottom Atomic Power Station and the Calvert Cliffs Nuclear Power Plant.
- Participation in Federal Energy Regulatory Commission (FERC) relicensing of the Conowingo Dam in order to resolve contentions concerning flow regimes, water quality, anadromous fish restoration, and fish passage facilities.
- Continuation of studies to identify a potential power plant site in Western Maryland.
- Assessment of environmental impact of active and abandoned ash disposal sites to evaluate various design techniques.
- Reconnaissance of existing and in-construction transmission line corridors to determine the effectiveness of recommended construction and maintenance practices.
- Initiation of a study program to determine the pattern and impact of acid deposition.
- Development of a mixing height model to predict meteorological parameters affecting dispersion of power plant plumes under stable conditions.
- Continuation of long-term monitoring programs to evaluate the effects of the operation of the Calvert Cliffs, Morgantown, R.P. Smith, and Dickerson power plants on nearby biological communities.
- Initiation of studies to evaluate the suitability of the Baltimore Gas & Electric Company's proposed Perryman site.
- Evaluation of several small scale hydroelectric projects, and presentation of recommendations to FERC.
- Completion of project to evaluate the effects of high voltage electric

shocks, such as can be induced near high voltage transmission lines, on people.

- Completion of load forecast for the Potomac Electric Power Company (PEPCO).
- Investigation of the effect of time-of-day pricing on non-residential utility customers.

### GOALS

The major goals for the coming year include:

- Continuation of the Conowingo Dam relicensing
- Completion of Western Maryland site acquisition study
- Evaluation of the Perryman Site
- Completion of water quality certification studies for Wagner & Chalk Point power plants.
- Assessment of existing methodologies for forecasting electricity demand
- Determine chemical forms and fates of radionuclides in Susquehanna River/Chesapeake Bay System

The major goals for the next five years are completion of acquisition for the Site Bank and anticipated licensing evaluations of new facilities for the PEPCO and BG&E systems.

### BUREAU OF MINES

The Bureau of Mines (BOM) has two distinct areas of responsibility: Environmental control of active mines, and reclamation of abandoned mines.

### Comparative Activity

	FY 83	FY 84
Number of		
Active Mines	117	117
● Tons Mined	2,700,000	2,865,000
● Acres Permitted	1,136*	125*
● Acres Reclaimed	896*	917*
Forfeited Mines		
Reclaimed	4	1
Abandoned Mine Projects	3	6

\*Based on calendar year

### Active Mines

The Bureau evaluates mining plans for proposed deep and surface coal mines. Environmental controls are

established and permits are issued before mining operations can begin. Active mines are monitored for compliance with the law, regulations, and the approved mining permit.

In accordance with Maryland's Federally approved program, 98 coal mines submitted repermit applications, in November 1982. Processing of these applications was completed June 29, 1984 with 82 of the applications being approved, 11 withdrawn and 5 denied. Additionally, 10 new permit applications and 8 significant amendments to existing permits were processed and approved.

The State Land Reclamation Committee and Members of the Bureau of Mines staff visited southern West Virginia in late October 1983, to observe steep slope mining techniques and reclamation. This trip was organized because the coal mining industry has expressed interest in repealing the Maryland Statutory prohibition on mining on steep slopes.

#### **Abandoned Mines**

The Bureau administers two programs to reclaim abandoned coal mines in Maryland. These two programs are similar in goals and scope, but utilize separate funding sources. The programs expend both State funds and Federal Funds. In the State funded program, State legislation provides for monies collected from a surcharge on coal mined in Maryland to be used for reclamation of those abandoned mines which cause severe environmental problems.

During FY 84, State funds were utilized for two abandoned mine projects, totaling \$31,500. Construction was completed on one of the projects and partially completed on the other.

In the Federally funded program, federal legislation (PL95-87) places a fee on coal mined to be used for reclamation of the adverse impacts of past coal mining practices. On July 16, 1982, the U.S. Department of Interior, Office of Surface Mining, approved Maryland's Abandoned Mine Reclamation Plan.

During FY 84, the Bureau requested and received Federal funding, totaling \$682,473, for four abandoned mine reclamation projects. Construction was

completed on two of the projects in early July 1984.

#### **GOALS**

Within the next year, the BOM expects to revise regulatory program regulations to comply with changes mandated by required federal regulation amendments and to revise permit application forms. Additionally, 10 abandoned mine projects are to be developed for eventual reclamation.

In the next 5 years the Regulatory Program Regulations will be evaluated and modified appropriately to enhance environmental protection while reducing some of the provisions which are burdensome both to the State and the mine operators without providing substantive environmental benefits.

#### **MARYLAND ENERGY OFFICE**

The Maryland Energy Office (MEO) promotes energy conservation programs to benefit all sectors of Maryland's population. It is also responsible for emergency energy planning within the State and has statutory responsibility to effect the storage of #2 heating oil for use by State agencies.

MEO works with other State agencies, local governments, citizen's groups and private contractors to achieve exposure of its programs. Among these are the Department of Economic and Community Development, the Department of Transportation, the University of Maryland Agricultural Extension Service, Baltimore City and many municipalities throughout the State.

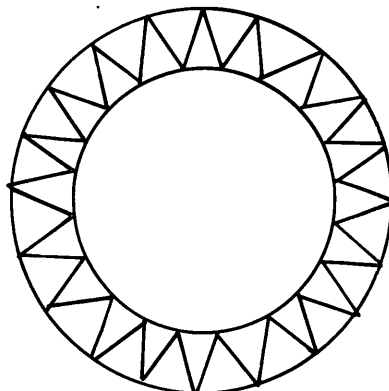
#### **Energy Conservation Program**

The major conservation program carried out and/or supervised by MEO include: the State Energy Conservation Plan (SECP), the Energy Extension Service (EES), the Residential Conservation Service (RCS), and the Institutional Conservation Program (ICP).

The State Energy Conservation Plan efforts continued to deliver significant energy savings for the State. Documented BTU savings from conservation efforts in Maryland equal dollar savings of approximately 710 million dollars. The MEO continues its intergovernmental program with local governments and citizen's organizations through the Annual Conference for Local Government Officials.

The Energy Extension Service continued to deliver energy conservation training to neighborhoods and local governments through 18 contracts in 1984. Regional coordinators also worked to develop programs that could be carried out without MEO funding. Maryland's EES was recognized by the U.S. Department of Energy which asked Maryland to host a tour of the National Energy Extension Service Advisory Council in January. The EES utilized funds received from oil overcharge restitution to carry out its local contracts during the year.

The State RCS Plan was revised and approved by the federal Department of Energy (DOE). A Consumer Guide for



the RCS program was published to give consumers guidance in the proper materials and improvement techniques they might seek as a result of an RCS audit. These Guides will be given to all utility customers who receive an audit.

While no supplemental audit could be implemented in 1984, utilities were encouraged to provide their own programs to help lower income families reduce infiltration and energy loss. Many Maryland utilities provided direct grants, technical assistance, or materials to community organizations for this purpose. MEO also worked with utilities to provide four regional workshops for home improvement contractors during the year. Additional workshops are planned for 1985 emphasizing quality installations and new energy conservation technology.

The Institutional Conservation Program for schools and hospitals completed another funding cycle in which approximately \$1,000,000 in federal funds was distributed. This increased the total federal contribution to the program to approximately \$11,500,000. This level of funding provided engineering analysis for 44 additional buildings, bringing the total number of buildings analysed in the State to 721. It also made possible implementation of an additional 45

energy conservation projects, which raises the total number of such projects in the State to 704. The overall result of this cost sharing grant program is an estimated total dollar saving to participating institutions of \$60,000,000.

#### **Emergency Energy Planning**

During 1984 the MEO received a complete analysis of 11 proposed gasoline and heating oil emergency measures. Additional measures are being analyzed by MEO staff. Events in the Middle East were monitored carefully and a computer program was developed by the DNR Annapolis Data Center for MEO to permit the rapid use of gasoline product purchase plans in the event of an oil shortage.

#### **Heating Oil Storage**

During 1983 the office assisted the Department of General Services in purchasing and storing 8 million gallons of #2 heating oil for use by Towson State University, Morgan State University, the House of Correction at Jessup, the Maryland Penitentiary and the Mass Transit Administration. Together with MTA, testing for #2 diesel to be used in MTA buses was set up and plans were advanced for extending the use of lubricants used by the MTA fleet. Purchases for 1984/85 should exceed 15 million gallons with an anticipated savings to

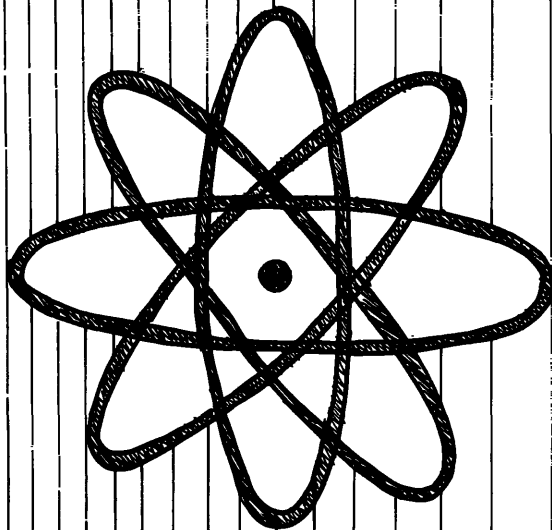
the State budget of over \$1,500,000. The MEO provided advice to the Department of Health and Mental Hygiene concerning natural gas purchases. DHMH was able to reduce its natural gas costs by over \$150,000 per year through improved purchase contracts.

#### **GOAL**

In 1985 the Maryland Energy Office plans to continue its various energy conservation programs. In addition it will expand an Alternative Energy Technology Transfer Program begun in response to a DOE initiative in 1984.

New workshops for home builders and continued workshops for boiler operators will become an important part of this effort. Engineering assistance will be sought in order to identify and pass on off-the-shelf but little used energy conservation technology.

In spite of the relative stability of energy supply and prices during 1984, energy conservation remains a good buy. The need to conserve limited fossil fuels and reduce continuing dependency on uncertain foreign imports remains. The MEO will continue to encourage investment in longer range energy conservation efforts while endeavoring to reach the less affluent who find energy prices so difficult to bear.



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or  
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