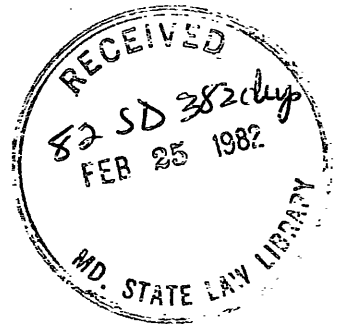
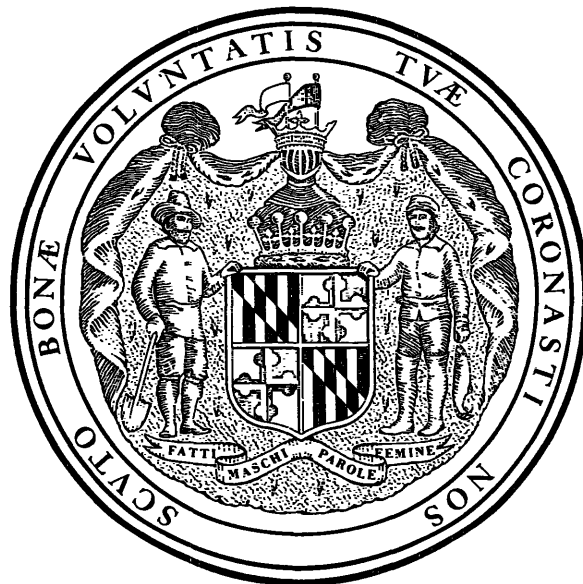


DEPARTMENT OF NATURAL RESOURCES
INFORMATION RESOURCE CENTER
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MARYLAND DEPARTMENT OF NATURAL RESOURCES
ANNUAL ACTIVITIES REPORT 1981



STATE OF MARYLAND

HARRY HUGHES
Governor

LOUIS L. GOLDSTEIN
Comptroller of the Treasury

WILLIAM S. JAMES
Treasurer

DEPARTMENT OF NATURAL RESOURCES

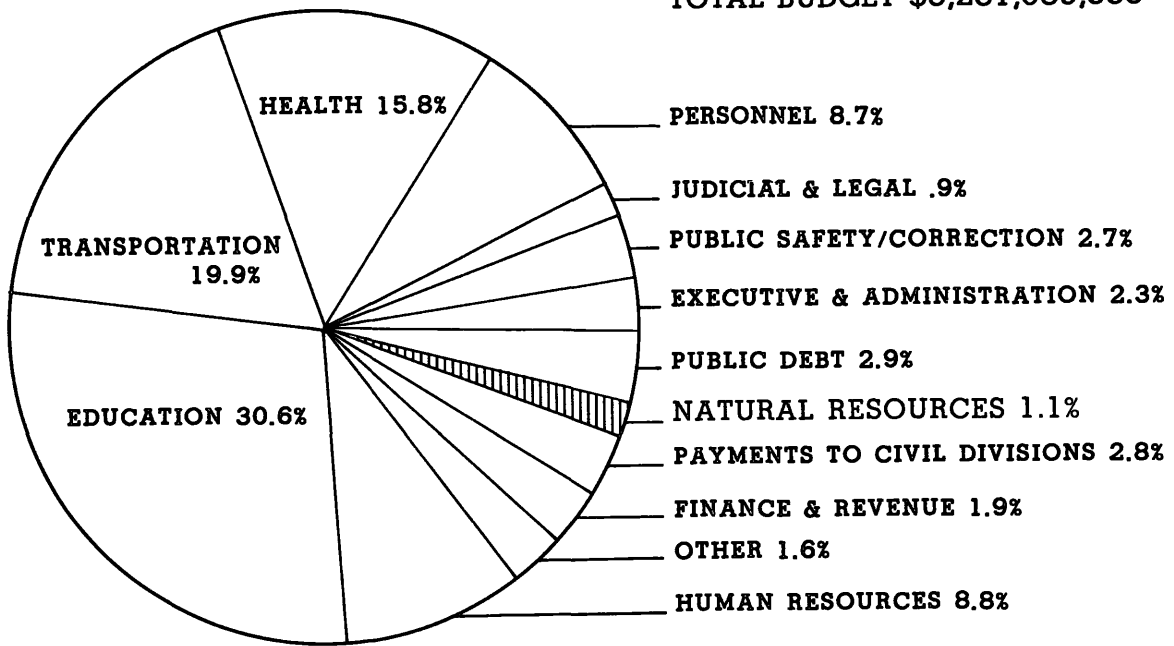
JAMES B. COULTER
Secretary

LOUIS N. PHIPPS, JR.
Deputy Secretary

**MARYLAND DEPARTMENT OF NATURAL RESOURCES
ANNUAL ACTIVITIES REPORT 1981**

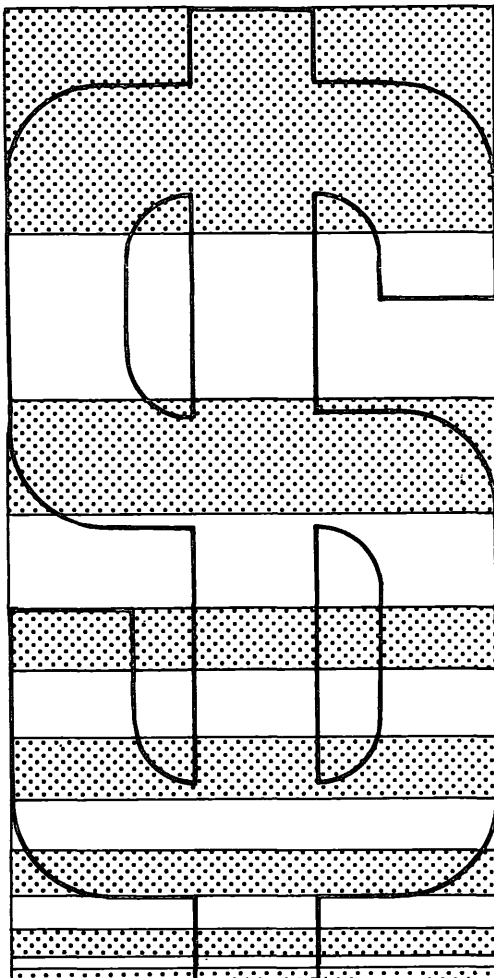
STATE OF MARYLAND OPERATING BUDGET FISCAL YEAR 1981

TOTAL BUDGET \$5,231,039,555



DEPARTMENT OF NATURAL RESOURCES OPERATING BUDGET FISCAL YEAR 1981

TOTAL BUDGET \$61,218,232



TIDEWATER ADMINISTRATION \$14,511,603 (23.7%)

ENERGY ADMINISTRATION \$10,677,534 (17.4%)

PARK SERVICE \$7,436,531 (12.2%)

NATURAL RESOURCES POLICE \$5,580,264 (9.1%)

MARYLAND ENVIRONMENTAL SERVICE \$4,339,579 (7.1%)

FOREST SERVICE \$4,115,332 (6.7%)

OFFICE OF THE SECRETARY \$3,874,167 (6.3%)

WATER RESOURCES ADMINISTRATION \$3,430,042 (5.6%)

WILDLIFE ADMINISTRATION \$3,258,216 (5.3%)

CAPITAL PROGRAMS ADMINISTRATION \$1,989,462 (3.3%)

MARYLAND GEOLOGICAL SURVEY \$1,821,859 (3.0%)

FISHERIES ADMINISTRATION \$74,622 (.1%)

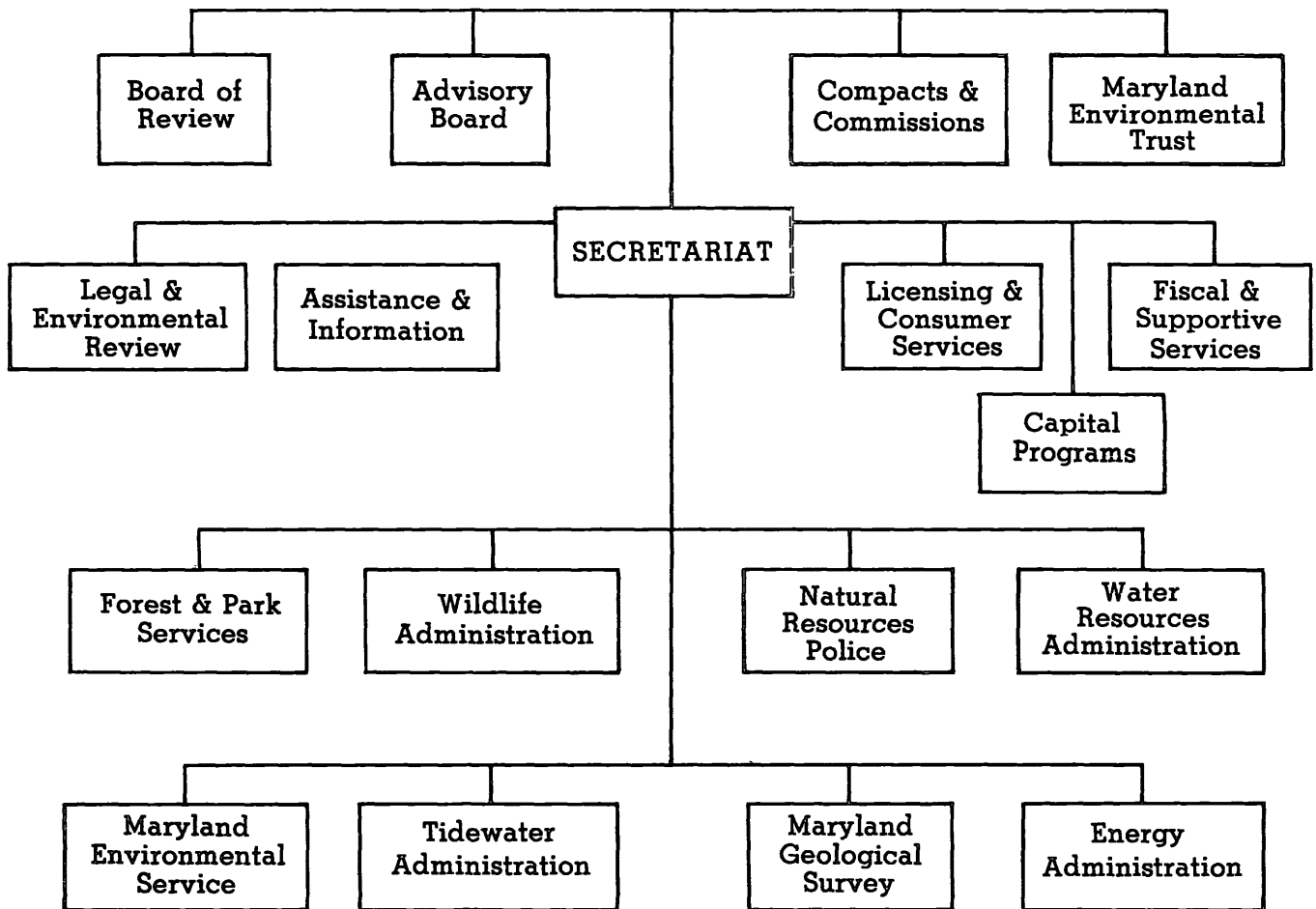
MARYLAND ENVIRONMENTAL TRUST \$109,021 (.2%)

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MARYLAND DEPARTMENT OF NATURAL RESOURCES

TABLE OF ORGANIZATION





OFFICE OF THE SECRETARY

Budget

<i>General Funds</i>	<i>\$2,837,495</i>
<i>Special Funds</i>	<i>989,343</i>
<i>Federal Funds</i>	<i>21,363</i>
<i>Reimbursable Funds</i>	<i>50,966</i>
<i>Total</i>	<i>\$3,874,167</i>
<i>Number of Staff</i>	<i>156</i>

SECRETARIAT

The Secretariat includes three projects: Executive Direction, Legal and Environmental Review and the Board of Review.

Executive Direction implements the Governor's policies on natural resources administration, management, research and development; is responsible for the development of coordinated policies for the comprehensive planning, conservation, enhancement, wise use and perpetuation of the natural resources of the State. Personnel in this project assist the Secretary in the discharge of his duties and responsibilities.

In Fiscal Year 1981, the Legal and Environmental Review project was established to bring together personnel working with matters pertaining to review of federal statutes, policies, programs and activities affecting the natural resources of the State; representation on interstate commissions, compacts, and advisory boards; and the study of the natural resources activities of the subdivisions of the State. Also included in this project is the responsibility for OMB A95

Clearinghouse Review which coordinates the review of designated federally assisted projects and programs, draft environmental impact statements, Federal development projects, and State plans which are designated for Gubernatorial review by the Federal Government.

The Board of Review of the department and an eighteen (18) member Advisory Board are included in the Secretariat which has twenty (20) positions with a total general fund budget of \$546,983.

LEGAL

The Legal Section of Legal and Environmental Review has six 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 not only represents agencies of the Department when they become involved in litigation, but also 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 Year 1981, 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 7 cases in the federal

courts, initiated 21 cases at the State Circuit Court level and closed 23 other cases, and prosecuted 41 violations in the State District Courts. Assistance and advice was rendered in numerous administrative proceedings at federal and state levels.

BOARD OF REVIEW

There were no changes in the membership of the Board during the fiscal year.

At the end of the last fiscal year, June 30, 1980, Edward H. Higgins and Lem E. Kirk completed their terms on the Board. Governor Hughes reappointed both to additional three year terms.

During fiscal 1981 the membership of the Board was:

Chairman — John W. Neumann	1981
Vice Chairman — Phillip S. Thompson	1982
William H. Corkran, Jr.	1982
Stanley S. Fine	1981
Edward H. Higgins	1983
Lem E. Kirk	1983
Calman J. Zamoiski, Jr.	1981

During the 1981 General Assembly Governor Hughes reappointed Chairman Neumann, and members Fine and Zamoiski to additional three year terms.

Meetings

The Board conducted eleven meetings during fiscal year 1981. A summary of each meeting follows.

July 28, 1980:

One Hundred Fifth Meeting, Higgins Residence, St. Michaels, Maryland. Regular business. The Board noted, on advice of counsel, that jurisdiction over an appeal of an action of the Board of Well Drillers is not vested with the Board of Review of the Department of Health and Mental Hygiene. Contested Case C80-2, Robert M. Leatherbury, III, vs. Board of Well Drillers was transferred to the DHMH Board of Review Contested Case C80-3, Walters et al vs. the Tidewater Administration and Contested Case C80-4,

Gowe vs. the Tidewater Administration were set for hearing at the next meeting. Both appeals resulted from suspension of hydraulic clam dredge licenses.

August 28, 1980:

One Hundred Sixth Meeting, Tawes State Office Building, Annapolis. Contested Case C80-3, Walters et al vs. the Tidewater Administration was postponed at the request of counsel for the appellants. W.P. Jensen, Director of Tidewater Fisheries, briefed the Board on Maryland fisheries. The Board heard Contested Case C80-4, Edward R. Gowe vs. the Tidewater Administration.

September 18, 1980:

One Hundred Seventh Meeting, Tawes State Office Building, Annapolis. Counsel for the appellants in Contested Case C80-3, Walters et al vs. Tidewater Administration moved to dismiss the appeal and the Board granted the motion. The Opinion and Order for Contested Case C80-4, Gowe vs. Tidewater Administration was approved and adopted. Contested Case C80-1, Shoreline Associates vs. Water Resources Administration was discussed. The Board was advised that WRA had again denied Shoreline Associates' application to fill private wetlands in Ocean City and that an appeal of the second denial could be anticipated.

October 22, 1980:

One Hundred Eighth Meeting, Tawes State Office Building, Annapolis. The Board discussed the rehearing of Contested Case C80-1, Shoreline Associates vs. Water Resources Administration and other pending cases. The Annual Report for fiscal year 1980 was adopted. Secretary Coulter, invited to meet with the Board, reviewed several problem areas that may result in appeals.

November 3, 1980:

One Hundred Ninth Meeting, Tawes State Office Building, Annapolis. The Board heard the second appeal of Contested Case

C80-1, Shoreline Associates vs. Water Resources Administration.

November 6, 1980:

One Hundred Tenth Meeting, Harrah Farm, Oxford. Contested Case C80-1, Shoreline Associates vs. Water Resources Administration was discussed and decided. The meeting set for November 13, 1980, was reset for December 9, 1980.

December 9, 1980:

One Hundred Eleventh Meeting, Tawes State Office Building, Annapolis. The Opinion and Order for Contested Case C80-1 was approved and adopted. Contested Case C80-5, Junior Goodwin/A & J Coal Corporation vs. Bureau of Mines was discussed. Contested Case C80-6, Queen Anne's Conservation Association was reviewed and set for hearing on January 6, 1981.

February 25, 1981:

One Hundred Twelfth Meeting, Tawes State Office Building, Annapolis. The meeting set for January 6, 1981, was canceled and reset for this date. The Board heard Contested Case C80-5, Junior Goodwin/A & J Coal Corporation vs. Bureau of Mines. The hearing of Contested Case C80-6, Queen Anne's Conservation Association vs. Water Resources Administration was postponed to a future date. Contested Case C80-7, Londontown Corporation vs. Water Resources Administration originally set for hearing on March 3, 1981 was reset for March 17, 1981.

March 17, 1981:

One Hundred Thirteenth Meeting, Tawes State Office Building, Annapolis. The Board heard Contested Case C80-7, Londontown Corporation vs. Water Resources Administration.

March 30, 1981:

One Hundred Fourteenth Meeting, Tawes State Office Building, Annapolis. The Board approved and adopted the Opinion and Order for Contested Case C80-7, Londontown Corporation vs. Water Resources Administration. Con-

tested Case C80-6, Queen Anne's Conservation Association vs. Water Resources Administration was heard.

April 28, 1981:

One Hundred Fifteenth Meeting, Tawes State Office Building, Annapolis. The Opinion and Order for Contested Case C80-5, Junior Goodwin/A & J Coal Corporation vs. Bureau of Mines was approved and adopted. The Board approved and adopted the Opinion and Order for Contested Case C80-6, Queen Anne's Conservation Association vs. Water Resources Administration.

June 16, 1981:

One Hundred Sixteenth Meeting. The hearing of Contested Case C81-1, Stancill's Inc. vs. Water Resources Administration set for this date was continued to a later date at the request of counsel for the appellant and the meeting was canceled.

Contested Cases—Hearings, Opinions and Orders

During the fiscal year, 8 appeals were received by the Board. The Board heard argument and rendered Opinions and Orders on 6 of these Contested Cases, one case was transferred to the Board of Review of the Department of Health and Mental Hygiene and the disposition of one case is pending. A resume of the cases follows.

A. Contested Case C80-1, Shoreline Associates vs. Water Resources Administration.

The Board heard and decided the original appeal at Meeting 103 on June 2, 1980. The Opinion and Order remanding the case to the Water Resources Administration was approved and adopted at Meeting 104 on June 19, 1980. A second appeal of the case was heard by the Board at Meeting 109 on November 3, 1980. The case was decided at Meeting 110 on November 6, 1980 and the Opinion and Order for the case was approved and adopted at Meeting 111 on December 9, 1980.

Shoreline Associates applied to Water Resources for a permit to fill private wetlands in Ocean City, Worcester County, Maryland. The permit was denied and Shoreline appealed to the Board of Review. Following the original hearing, the Board reversed the Director of Water Resources and remanded the case to the Director for the taking of additional evidence and clarification of the record. The Remand Order imposed a time limit of 65 days from the date of the Order for the Director of Water Resources to hold a new hearing and issue his decision.

On September 10, 1980, the Director of Water Resources affirmed his previous denial of a private wetlands permit and Shoreline filed a second appeal with the Board.

Following the hearing of the second appeal, the Board reversed the Director of Water Resources and remanded the matter for the issuance of a private wetlands permit. The Opinion and Order of the Board of Review dated December 9, 1980 was appealed to the Circuit Court of Worcester County.

B. Contested Case C80-2, Robert M. Leatherbury, III, vs. Board of Well Drillers.

At Meeting 104 on June 19, 1980, this case was set for hearing at Meeting 105 on July 28, 1980. On July 1, 1980, the Board of Well Drillers was transferred from the Department of Natural Resources to the Department of Health and Mental Hygiene. Upon advice of counsel, the appeal was transferred to the Board of Review of DHMH, and the scheduled hearing before this Board was canceled.

The appellant, a Master Well Driller, was suspended for 5 days by the Board of Well Drillers. He appealed the suspension to the Board of Review.

Contested Case C80-3, Walters et al vs. Tidewater Administration.

The appeal was originally set for hearing at Meeting 106 on August 28, 1980. Upon a request by counsel for the appellants, the hear-

ing was reset for Meeting 107 on September 18, 1980. Prior to the scheduled hearing, the appellants moved to dismiss the appeal.

The appeal resulted from an action by the Tidewater Administration wherein the hydraulic clam dredge licenses of Harold E. Walters, Michael Gardener, Montro Wright and Andrew Wright were suspended for 5 days.

The motion to dismiss the appeal was granted with prejudice and the stay of the suspension was dissolved.

D. Contested Case C80-4, Edward Ronald Gowe vs. Tidewater Administration.

The appeal was heard and decided by the Board at Meeting 106 on August 28, 1980. The Opinion and Order for the case was approved and adopted at Meeting 107 on September 18, 1980.

The Tidewater Administration charged the appellant with violating Section 4-1034, Natural Resources Article and following a hearing suspended his clam hydraulic license for 5 days. Gowe appealed.

The Board found that the appellant had been convicted of 4 violations within a license year and affirmed the action of the Administration.

E. Contested Case C80-5, Junior Goodwin/A & J Coal Corporation vs. Bureau of Mines.

The appeal was heard and decided by the Board at Meeting 112 on February 25, 1981. The Opinion and Order for the case was approved and adopted at Meeting 115 on April 28, 1981.

This appeal resulted from an action by the Bureau of Mines wherein the Deep Mine Permit No. DM-106, issued to A & J Coal Corporation, was revoked for abandoning a mine site in violation of Section 7-5A-01(b), Natural Resources Article.

In its Opinion and Order for this case, the Board recognized the efforts of the Bureau to require A & J Coal to correct violations and con-

tinue mining operations. On the other hand, the Board noted that there is coal to be mined on the property and that it would be wasteful to leave A & J no alternative but to backfill the excavation or face forfeiture of its bond.

The Board stated that the legitimate interest of the Bureau, of the property owner and A & J Coal Corporation, and the overall interest of the State would best be resolved by providing A & J Coal Corporation with one more opportunity to get mining operations underway.

The Board therefore vacated the decision of the Bureau of Mines revoking Permit No. DM-106 and remanded the matter to the Bureau for establishing a schedule of operations including a requirement that mining operations must commence before July 31, 1981.

F. Contested Case C80-6, Queen Anne's Conservation Association vs. Water Resources Administration.

After several postponements, this appeal was heard and decided at Meeting 114 on March 30, 1981. The Opinion and Order of the Board was approved and adopted at Meeting 115 on April 28, 1981.

Water Resources issued a Groundwater Appropriation Permit to Sidney G. Ashley and J. Wilson Clark, the developers of Corsica Landing Estates on the shore of the Corsica River in Queen Anne's County. The Permit allows extraction of groundwater for domestic purposes through 58 water wells.

The Association appealed the issuance of the Permit on the grounds that construction of the wells risk pollution or contamination of surface or groundwater from septic tank effluents and that Water Resources failed to require reasonable conditions in the Permit to mitigate the risk.

In its Opinion and Order, the Board found that there was sufficient evidence and testimony in the record to support the Director's decision to issue the Groundwater Appropriation Permit and that it

was not the Board's function to substitute its evaluation of the evidence for that of the Director. The Board also noted that State and local health authorities, not the Director of Water Resources, have regulatory control over individual waste disposal systems.

The Board affirmed the decision of the Director of the Water Resources.

The Association filed an appeal of the Board's Order in Circuit Court for Queen Anne's County.

G. Contested Case C80-7, Londontown Corporation vs. Water Resources Administration

The appeal was heard and decided at Meeting 113 on March 17, 1981. The Board's Opinion and Order was approved and adopted at Meeting 114 on March 30, 1981.

This case resulted from an action wherein the Director of Water Resources issued a Waterway Construction Permit to Allegheny Beverage Corporation to construct a floodwall around its plant within the floodplain of Jones Falls.

Londontown, the appellant, owns property downstream from the construction site and alleged that the Director of Water Resources made several decisions adversely affecting its due process rights and committed numerous procedural errors during adjudicatory hearings on the permit application.

Following a lengthy hearing, the Board found that Londontown was not denied due process and was in fact a party to an appropriate adjudicatory hearing, all appropriate legal issues were properly referred to the Attorney General, that the decision of WRA was supported by evidence sufficient to warrant the issuance of a permit, and that WRA had the authority to waive tractive force requirements and did so.

The Board affirmed the decision of the Director of Water Resources.

H. Contested Case C81-1, Stancill's Inc. vs. Water Resources Administration.

This case was set for hearing at Meeting 116 on June 16, 1981. Prior to the date set, counsel for the appellant requested a continuance until a later date pending the outcome of further negotiations between the parties. The request was granted and the hearing was postponed.

The case constitutes an appeal of an action by the Director of Water Resources wherein he affirmed WRA Order No. SC-0-79-371-D, issued to Stancill's.

The appellant is engaged in surface mining for sand and gravel under WRA Permit No. 77-SP-0091. Pending the execution of a written agreement between the Towne Baptist Church and the appellant, Stancill's removed sand from the church property adjacent to the permit area. An agreement was not signed and negotiations broke down.

The Water Resources Administration instructed Stancill's to request a Permit modification to include the church property or to submit a reclamation plan.

The appellant contends that reclaiming the church property before excavation of sand from the permit area is complete will require double handling and storage of sand and would be excessively expensive. Stancill's, therefore, has requested a delay in reclamation until the fall of 1982.

FISCAL AND SUPPORTIVE SERVICES

This program serves the financial needs of the twelve (12) separate and fiscally independent agencies within this department. In order to accomplish this charge efficiently and economically, the program is further divided into five projects. (1) General Accounting, (2) Special, Federal and Capital Fund Management, (3) Supportive Services, (4) Internal Auditing, and (5) Wage and Hour.

General Accounting Section

The primary responsibility of this project is to record the annual budgetary appropriation; authorize the Comptroller to disburse funds; receipt and allocate revenues attained; maintain fiscal controls over the operating budget; and provide fiscal information to the unit directors.

During the 1981 fiscal year the operating budget reflects an expenditure of approximately \$61 million. During the same fiscal year approximately \$37 million was received and allocated to the various units.

Accounts receivable documentation was provided on approximately 1244 individual accounts totalling \$643,615.

Special, Federal and Capital Fund Management

It is the responsibility of the Special, Federal and Capital Fund Management project to maintain all fiscal and statistical records for each authorized federal or state project.

Detailed fiscal records were maintained on 575 specific projects totaling \$39,255,744. These projects are financed as follows:

Type	No. of Projects	Amount
Shore Erosion	73	\$2,208,612
Waterway Improvement	131	6,073,639
Outdoor Recreation Land Loan	174	10,507,531
General Construction Loan	76	5,188,443
Federal Grants Projects	121	15,277,519

Supportive Services Section

The Supportive Services Section has the primary duty of controlling the real and personal property purchased or otherwise received by each unit within the department. As of June 30, 1981, the value of the land and buildings to which the department holds title exceeds \$182 million with equipment inventory amounting to \$19 million. Included with the equipment are 213 sedans, 694 trucks, 846 boats, and one (1) airplane.

Another responsibility of this section is to purchase or coordinate the purchase of all equipment and supplies. To accomplish this charge, approximately 4448 out-of-schedule requisitions, capital fund requisitions, warehouse requisitions, and departmental purchase orders were prepared, logged, verified, computed, and processed for payment; amounting to \$3,272,587.

General supervision of the department's mail distribution is provided by this section.

Internal Auditing Section

The Internal Audit's responsibility is to insure the accountability of all current and fixed assets acquired by the department and to inspect each of its more than 300 regional work and service centers for compliance with all applicable fire and safety codes.

Wage and Hour Section

The Wage and Hour Section insures employees are paid on time, maintains an accurate work and leave record for each employee and prepares the personnel section of the operating budget. This section also coordinates the retirement and the health and accident activities between employees and the respective regulatory agency.

Mail Distribution

The Office of the Secretary oversees the operation of the departmental mail room. During fiscal year 1981 it is estimated it handled more than 4,500,000 pieces of mail and more than 20,000 parcels. Cost of postage alone amounted to more than \$145,000.

Data Processing

The Data Processing Section provides computer system design, programming, and maintenance support for over 50 computer applications in the Department. The Section maintains more than 300 COBOL and FORTRAN programs containing an excess of 145,000 lines of computer instructions. There are over 600 cataloged computer runs available to the various DNR users. In addition there are over 425

Query reports generated from the more than 60 computer files of DNR data maintained at the Annapolis Data Center, Comptroller of the Treasury.

The major activities supported include Licensing and Consumer Services, Fiscal and Supportive Services and Personnel in the Office of the Secretary; Tidewater Administration, Wildlife Administration, Forest and Park Services, Maryland Environmental Service, Water Resources Administration and the Maryland Energy Administration.

As many as 1,500 computer runs are made each month for all activities. More than 2,000,000 lines of data are printed monthly on the Department's IBM Remote Job Entry computer terminal installed at the Tawes Building, with an additional 1,000,000 lines per month printed at the Annapolis Data Center.

There are ten IBM keypunch machines and eight video display terminals in use in the Department to record the more than 50,000 data transactions each month.

In addition, two video display terminals are used to instantly display boat and commercial fishing license records for Licensing and Consumer Services and the Natural Resources Police, Marine Division and appropriation financial records for Fiscal and Supportive Services.

CONTRIBUTIONS TO INTERSTATE AGREEMENTS

The Assistant Secretary for Environmental Matters represents the Department and the State as a member or officer of interstate commissions, regional councils, national associations and technical work groups dealing with water resources and related environmental management activities at the state, regional, and national level.

During F.Y. 1981, he continued as a Commissioner of the Susquehanna River Basin Commission, a 100-year Federal/State Compact between the states of New York and

Maryland, the Commonwealth of Pennsylvania and the U.S. Government. Recent activities of the SRBC of particular interest to Maryland have focused on relicensing of the Conowingo Dam including issues of fish passage, water supply, flow releases, and debris management; and on amendments to the SRBC Comprehensive Plan which recognizes and protects the right of the City of Baltimore to withdraw water from the Susquehanna River to serve the Baltimore Metropolitan area.

A past Chairman, the Assistant Secretary continues as a Member of the Southern Environmental Resources Conference, an affiliate of the Council of State Governments; is a member of the Interstate Commission on the Potomac River Basin serving as Chairman of its publications committee, and as Vice-Chairman of its Section for Cooperative Water Supply Operations on the Potomac. He is also a Maryland member of the Ohio River Basin Commission.

The Assistant Secretary is an executive officer of the Interstate Conference on Water Problems, currently serving as its Secretary-Treasurer. He serves as the Governor's representative on the Subcommittee on Water Management of the National Governors' Association. He represents the Department of Natural Resources as a member of the Maryland Committee for Training of Environmental Systems Operators, and as a board member on the State Board of Waterworks and Waste Systems Operators.

For a number of years, the Assistant Secretary has served as a scientific advisor and member on national technical boards, such as EPA's Standing Work Group on Water Monitoring, producing a guidance manual on "Basic Water Monitoring." A similar EPA manual on "Biomonitoring for NPDES Compliance," was produced by another Task Force on which he serves. He is a member of the program committee of the Water Pollution Control

Federation, and Member and Past Chairman of the Government Affairs Committee of the Chesapeake Water Pollution Control Association.

During part of F.Y. 1981, and previously, the Assistant Secretary also coordinated Department review of all projects assessed for environmental impact pursuant to the National Environmental Policy Act and U.S. Office of Management and Budget Circular A-95.

LICENSING AND CONSUMER SERVICES

Licensing and Consumer Services is responsible for the Administration of the State Boat Act and the five Department Regional Service Centers; the titling and registration of boats, the recordation of security interest in boats, the issuance of sport hunting and sport and commercial fishing licenses and the collection of shellfish taxes. The program is also responsible for the publication fund, the sale of the *Guide For Cruising Maryland Waters* and other Department publications and is accountable for the audit of the boat and seafood dealers and the hunting and fishing license distributors.

The six Licensing and Consumer Services offices collected gross revenues of \$10,118,334 representing over 760,000 transactions. Included were 26,111 applications for Maryland Boat Title resulting in \$3,511,839 in Boat Title taxes collected; 124,110 applications for boat registrations resulting in revenues of \$517,454; 521,363 applications for various sport fishing and hunting licenses resulting in revenues of \$3,588,745 and 35,084 applications for commercial licenses resulting in revenues of \$529,756. A total of \$50,970 was collected for the recordation of security interest with \$20,388 deposited to the account of Comptroller of the Treasury, \$14,770 made available to be distributed to the counties and \$15,812 available to offset costs of the collection and recordation. Gross revenues from publications

were \$76,176 of which \$66,753 was generated from the sale of the *Guide For Cruising Maryland Waters*.

Licensing and Consumer Services staff processed 124,110 boat registrations of which 20,620 were issued for three years free-of-charge. Also processed were 6,580 oyster and clam dealer reports which accounted for over 4,000,000 taxed bushels of shellfish (2,450,000 harvested bushels) and \$1,114,487 in severance, import and export taxes. The Licensing and Consumer Services staff provides daily direction and interaction between the Department and the 546 licensed boat dealers, 150 licensed oyster dealers, 31 licensed soft-shell clam dealers, 24 Clerks of the Court, 11 hunting and fishing license distributors, 135 hunting and fishing license consignment agents and 600 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, registration and licenses, provides 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 collect \$8,637 on behalf of the Potomac River Fisheries Commission through sales of P.R.F.C. licenses and deposited the money direct to P.R.F.C.'s account.

Of revenues collected during fiscal 1981, \$10,033,511 was used to support the activities of the Tidewater Administration, the Wildlife Administration, the Forest Service, the Natural Resources Police, the Capital Programs Administration and the Office of the Secretary.

Licensing and Consumer Services total costs for fiscal 1981 to accomplish these services was \$1,438,834.

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 1981, the Office of Assistance and Information consisted of these units: General Direction, Library, Graphics Services, Extension Specialists, Recreation and Leisure Services, and the Maryland Conservationist Magazine.

General Direction

Supervision of the administration of Assistance and Information is the general responsibility of the General Direction unit. Specifically, in Fiscal Year 1981, General Direction processed all mail addressed to the Secretary of Natural Resources; maintained contacts with media and officials of other State, Federal, county and public agencies. General Direction is aware of all issues and developments in natural resources matters.

General Direction coordinates Department of Natural Resources printing done by the Department of General Services Print Shop in

Tawes Building, assuring a steady flow of work.

The unit conducts the annual Migratory Waterfowl and Trout Stamp Design Contests; prints and revises the Departmental telephone directory and keeps current the DNR sections of the State and public telephone directories; compiles the DNR News; prepares and supervises expenditures from the Assistance and Information budget; provides staff support for the Advisory Board of the Secretary of Natural Resources and publishes the Department's Annual Activities Report.

Toward the end of the fiscal year, the unit was assigned the task of maintaining a current register of public participation groups associated with the department.

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 a repository for departmental publications and reports; participation in the inter-library 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 730 occasions during FY '81, an increase of 5 per cent over the previous year.

Subjects covered by volumes in the library are biology, fisheries, wildlife, water quality, geology, materials handling, dredging, boating, geography, history, planning, forestry, recreation, and other natural resources categories including a special section on the Chesapeake Bay. During Fiscal Year 1981, the library processed and catalogued more than 6,000 items. These included DNR pub-

lications as well as quantities from the U.S. Army Corps of Engineers, the Chesapeake Bay Institute, the Smithsonian Institution. The Chesapeake Research Consortium, the U.S. States Dept. of the Interior, the Environmental Protection Agency, the U.S. Coast Guard, The Center for Environmental and Estuarine Studies of the University of Maryland; the Applies Physics Laboratory of the Johns Hopkins University and others.

Departmental publications in the library now total 1,130. Circulation of library materials averaged nearly 100 items per month during Fiscal Year 1981. Also, during the fiscal year, interlibrary loan requests handled by the library totaled 430.

Maryland Conservationist

During FY '81 the Maryland Conservationist was issued six times to a circulation of more than 5,000 readers. Publication of the magazine ceased at the end of the fiscal year.

Graphics Services

Two illustrators provide graphic arts services for the agencies of the Department, producing publications, exhibits, maps, posters and similar elements of communication. During FY '81 the Graphics Services Unit produced 40 original brochures, maps, "consumer wheels," and other folders, pamphlets, banners and booklets.

Extension Specialists

The extension specialists provide the Secretary of the Department with the closest possible contact with the State's citizens and others affected by the Department's legal mandate.

The extension specialist is an integral part of Assistance and Information and functions as the Department's liaison in the field.

Extension specialists participate in meetings with citizen's groups, make speeches, respond to field assistance requests by clubs, schools, landowners, and other groups. Additionally, extension personnel render assistance to all De-

partment agencies, cooperate with local and federal governments, conduct seminars, and represent the Department at expositions, fairs, and special events. The extension specialists also maintained close contact with all media.

Recreation and Leisure Services

This unit was created in 1974 by legislation directing it to "provide technical assistance to other state units, counties, municipalities, corporations, organizations, groups, and individuals in planning, organizing, and conducting leisure activities and recreation programs." Funding for the operation became available July 1, 1975, and several programs were launched. Some of them are:

A Resource Library is maintained for research and study in the recreation, park, and leisure services field. The library is available to requesting groups and individuals.

A Personnel Referral Service is maintained as a statewide employment assistance program designed to match available recreation and park oriented positions with qualified candidates. Applications are filed directly with the office and reviewed periodically to determine eligibility for listed position vacancies.

A Field Work Program provides training for volunteers from area colleges and universities with recreation and park curricula. Part of the course includes a one semester on-the-job training.

Recreation Reflections is a bi-monthly publication distributed to all recreation and park departments, schools with recreation-related curricula, therapeutic institutions, and directors of major agencies within the Department of Natural Resources. The specific purpose of the publication is positive communication between the Department of Natural Resources and local agencies through the provision of the technical assistance and grants information as well as legislation updates and sources of

valuable professional resources.

Promotional Displays are designed and set up by the unit each year at the Maryland State Conference for Recreation and Leisure Services, the Maryland Association of Counties Annual Meeting, and the yearly meetings of the Maryland Municipal League.

Other activities include trips to local governments in answer to specific requests for service, such as, source of grants, layout and design of recreational areas, acquisition of land, recreation program development, guest lectures and speeches, workshops on specific subjects, organization and establishment of recreation commissions and councils, and referrals to other agencies with specific expertise in a variety of technical areas. To assist local agencies in understanding their role in recreation and parks, a brochure was published describing and explaining the State Recreation Enabling Law.

A Directory for County and Municipal Recreation and Park Boards or Commissions—compiled by the unit list departments, whether county or municipal, in the state, all boards and commissions, recreation department directors, administrators, and chairmen of the recreation and parks advisory board and all board members. The report is completed annually.

PERSONNEL ADMINISTRATION

This administration is responsible for all personnel services and transactions for the Department.

Personnel Administration Activities

TRANSACTIONS PROCESSED	5,128
Appointments	1,333
Seasonal	185
RECLASSIFICATIONS	355
PROMOTIONS	42
SALARY ADJUSTMENTS	110
POSITION ACTIONS	396
(Abolish/create; Transfer between units, programs and departments; Fund changes)	
SEPARATIONS	1,495
MISCELLANEOUS	1,397
(Project, Name, Code, Fund, Class and Status changes; I.D. Requests; Exemption. Bonds, Address and Beneficiary Changes; EOD Inquiries, etc.)	
RECLASSIFICATION STUDIES	151
Desk Audits	17
SPECIFICATIONS REVISED	1
SUGGESTIONS PROCESSED	6
Cash Awards	2
Pending	10
BLOOD PROGRAM	
Drives	3
Donators	100
Disbursement	23
INTERVIEW AND MOVING	
Expense Requests	5
EXAMINATIONS REQUESTED	17
APPLICANT ACTIVITY	
Correspondence	625
Walk-Ins	363
Interviews	165
Telephone Inquiries	2,106
Employee Reviews	100
EMPLOYEE GRIEVANCES	22
(4th and 5th Step Hearings)	
MISCELLANEOUS CAMPAIGNS	
(I.D. Program, Deferred Compensation, Flu Innoculations)	
ANNUAL SALARY REVIEW	
Requested New Classes	9
Requested Salary Adjustments	23
Approved New Classes	0
Approved Salary Adjustments	0
NEW EMPLOYEE ORIENTATIONS	6
SUPERVISORY TRAINING SESSIONS	3
REGIONAL VISITS — 1 DAY EACH WEEK	12

Office of Equal Employment Opportunity

Office of EEO consists of 1 EEO Administrator who serves as the Fair Practices Officer for the Department and one secretary. This office is responsible for providing consultant services to the Department and its agencies for Affirmative Action and Equal Employment Opportunity. The following priorities have been established as EEO activity within the Department:

1. Recruitment and reclassification to include revision of job specifications and the filling of positions.

2. Assisting units in preparing an Affirmative Action Plan and the training of personnel in Equal Employment Opportunity Affirmative Action.

3. Responsible for the proper and expedient investigations of complaints of discrimination.

A summary of activities for the previous fiscal year includes:

Investigation of Complaints	10
Revision of Affirmative Action Plan	
Personnel Referrals	50
Conference and Workshops Attended	6
Career Days	5
Guest Lectures	6
Counseling	85
Technical Assistance	15



CAPITAL PROGRAMS ADMINISTRATION

<i>Budget</i>	
<i>General Funds</i>	<i>\$ 1,325,879</i>
<i>Special Funds</i>	<i>431,131</i>
<i>Federal Funds</i>	<i>232,452</i>
<i>Total</i>	<i>\$ 1,989,462</i>
<i>Number of Staff</i>	<i>76</i>

The Capital Programs Administration includes four programs: Land Planning Services, Program Open Space, Shore Erosion Control and Land Property Management. Under the direction of the Assistant Secretary and four program directors, this 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; provides shore erosion control services to public and private landowners.

LAND PLANNING SERVICES

Land Planning Services is responsible for providing the Department of Natural Resources planning and mapping 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 are accomplished through four

primary projects: Park Planning, Wild and Scenic Rivers, Acquisition Graphics and Natural Heritage.

The Park Planning project is responsible for the development of master plans for new state parks or a recreation use and development modification of existing state parks. Throughout the planning process, DNR agencies, interested citizens, citizen advisory committess, elected officials, and federal, state, and local government representatives participate in generating, refining, and evaluating these master plans. Public information meetings and public hearings are required prior to final plan adoption.

Park Planning conducts environmental reviews for many 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 to use of the area, and regional setting.

The Wild and Scenic Rivers project is responsible for: the preparation of resource management plans for the nine rivers that comprise the system; promoting the wise use of the rivers' land and water resources; and improving resource conservation measures. The planning staff of this project works with local citizen advisory committees and local municipalities to develop resource recommendations for use by local governing bodies.

The Acquisition Graphics and

Research project is responsible for researching property records (deed, surveys, and land patents) and preparing boundary maps which graphically illustrate all private properties legislatively authorized for acquisition to complete public ownership of DNR managed lands.

The Natural Heritage project is responsible for systematically collecting, recording, and analyzing the State's natural vegetation and aquatic diversity including rare, endangered, or threatened species. As a result of this natural resource element collection inventory, the Heritage Program is responsible for: the preservation of representative elements of the State's natural heritage including rare and endangered species and communities of flora and fauna; integration of natural heritage preservation with existing State programs; research and data acquisition; and distribution of information available from the Natural Heritage Program.

Land Planning Services adheres to the Natural Resources Article which requires all State agencies to conduct their affairs with an awareness that they are responsible for protection of the environment for both present and future generations.

Park Planning

FAIR HILL NATURAL RESOURCES MANAGEMENT AREA

A draft Interim Use Plan for use by the managing program, Land and Property Management was completed. This plan provides guidelines and recommendations for establishing new uses and maintaining existing uses for the immediate future.

FORT FREDERICK STATE PARK

Final review of the Revised Development Plan by DNR agencies was completed. Approval and publication of the Development Plan is scheduled for early fiscal year 1982.

GUNPOWDER FALLS STATE PARK

A series of four public meetings

were held in late May and early June for final comment on the Draft Master Plan. A Citizens Advisory Committee meeting was scheduled for July 1981 to obtain their final comments on the plan and recommendations for adoption prior to final DNR approval and publication this fall.

GARRETT COUNTY LAND CONSOLIDATION PLAN

Work began in late June to revise the Garrett County Plan. October is the target date for completion of an in-house DNR review draft.

HART-MILLER ISLANDS

The Interim Use Plan is being updated. The preparation of the Concept Plan will begin this fall. The Technical Advisory Committee will be reestablished, once the composition of its membership is approved by the Governor, to provide agency input and assist in the concept plan preparation.

MONOCACY NATURAL RESOURCES MANAGEMENT AREA

A Draft Interim Use Plan for use by the managing agency will be distributed this fall for in-house review.

PATAPSCO VALLEY STATE PARK

The text of the Master Plan has been rewritten and is being prepared for final publication.

Wild and Scenic Rivers

ANACOSTIA RIVER

The Consultant completed the preliminary draft plan for the Local Advisory Board. This board was established and has been holding monthly meetings. The target date for draft plan approval by the board has been set at January 1982.

MONOCACY RIVER

A land owner survey and user survey were completed, compiled and analyzed. They will be part of the management plan for the river. The target date set for a draft document is October, 1981. Scenic Rivers staff is working with the graduate program at the University of Maryland in preparing the man-

agement plan.

PATUXENT RIVER

Coordination with Maryland National Park and Planning Commission on their Patuxent River Park Plan and land acquisition program continued.

POCOMOKE RIVER

Work with the Advisory Board and Soil Conservation Service continued toward the preparation of the final management plan. A Comprehensive Management Plan for the Pocomoke will be published by Soil Conservation Service which will include the Scenic River management plan. An illustrated final Scenic River draft will be circulated for review in the fall.

SEVERN RIVER

The Severn River Advisory Board and the Scenic Rivers staff continued work on the plan. The final chapter of the plan was to be complete by September 1981. Then the draft will be sent to DNR agencies for comments, and to the Scenic Rivers Review Board for approval.

The Weems Creek Study, being conducted with the National Park Service and the Weems Creek Conservancy, began in May 1981 and was expected to be completed in September 1981. This survey is being conducted by the National Park Service with assistance from Scenic Rivers staff.

YOUGHIOGHENY RIVER

Management of the Youghiogheny River corridor regulations and coordination with the Advisory Board to determine future planning on the river continued.

Acquisition Graphics and Research

Base mapping and aerial photography completed and ready for acquisition mapping for the following areas: Dan's Mountain State Park and Wildlife Management Areas, Fair Hill Natural Resources Management Area, Mattawoman Natural Environment Area, Severn Run Natural Environment Area and Soldiers Delight Natural Resources Management Area.

Project Boundary maps have been completed for the following areas: Elk Neck State Park, Fair Hill Natural Resources Management Area, Gambrills State Park, and Potomac State Forest.

Mapping is in progress and completion is expected in the next fiscal year for the following areas: Dan's Mountain State Park and Wildlife Management Area, Green Ridge State Forest, Patapsco Valley State Park and Susquehanna State Park.

In anticipation of oil and gas leasing by the Department of Natural Resources, maps of areas in Western Maryland will indicate mineral as well as surface ownership.

The Natural Heritage Program

The Natural Heritage Program was established by the Board of Public Works on November 7, 1979 when the Board approved a two year contract between the Nature Conservancy and the State of Maryland. The work by the Nature Conservancy is proceeding on schedule. When the contracted work is completed the administration and maintenance of the Natural Heritage Program will become the full responsibility of the Department of Natural Resources.

PROGRAM OPEN SPACE

The mission of Program Open Space is to provide public recreational and open space opportunities within the State of Maryland.

Program Open Space coordinates the purchase of Natural Resources lands, and the design and development of Natural Resources facilities. Program Open Space also obtains federal grants to assist funding land acquisition and development, administers state and federal grants to Maryland's subdivisions for local recreation and open space, and coordinates development and maintenance of the Helen Avalynne Tawes Garden.

The accompanying charts compare fiscal year 1981 accomplishments with fiscal year 1980 ac-

tivities, and they highlight the numbers and varieties of projects that were approved during fiscal year 1981.

Engineering and Design

This project is responsible for the design of capital projects for the Department of Natural Resources. Activities include writing design programs, serving as agency member on the General Professional Services Selection Board, participation in meetings with consultants, review of plans and specifications, and doing in-house design work.

In addition to normal duties, this project continues development of a plan for future preservation, adaptive re-use or other disposition of historic buildings and sites in cooperation with the Maryland Historic Trust.

During fiscal year 1981 designs were started on 29 projects. The major projects include the following:

- Bennett Building Renovation
- Cunningham Falls, Iron Masters House
- Ft. Frederick, Wall Repair

Acquisition and Development

This project is responsible for the acquisition and development of capital projects for DNR. In fiscal year 1981 DNR continued to pursue its acquisition goals and the Department started work on 16 projects with a construction cost of \$1,021,589.00.

ACQUISITION — STATE PROPERTY

Program Open Space continued to acquire acreage during fiscal year 1981 aimed at meeting the Department's goal of 403,459 acres. These lands have been purchased under the State apportionment of the annual Program Open Space funds, not to be confused with the local portion of these funds. The Department owns 300,889 acres of land and 9,311 acres in easements as follows:

State Parks	71,384
State Forests	120,943
Wildlife Management Areas	78,505

Fish Management Areas	1,126
Natural Environmental Areas	13,526
Natural Resources Management Areas	13,955
Energy and Coastal Zone	1,045
Miscellaneous	405
Total	300,889

<u>Easements</u>	
Maryland Environmental Trust	9,302
Maryland Environmental Services	9
Total	9,311

At present, under Program Open Space, the Department is receiving approximately \$8,900,000 a year for the acquisition of land.

CONSTRUCTION PROJECTS — STATE PROPERTY

The following projects are under construction or should be under construction by the end of fiscal year 1981.

Assateague Campers Registration Office	\$ 70,000
Cheltenham Drill Well	6,415
Cunningham Falls Contact Station	20,900
Deep Creek Sewage Sprinkler System	5,480
Elk Neck Entrance Road Drainage	24,500
Elk Neck Sewer System to Visitor Center	64,900
Ft. Frederick Vehicle Storage Building	99,760
Greenbrier Nature Center	315,000
Martink Electric Service to Storage Building	3,118
Mt. Nebo Work Center	187,414
Patapsco Automatic Gate	2,610
Point Lookout Storage Building	59,995
Tuckahoe Surface Roads	73,535
Tuckahoe Storage Buildings	49,332
Assateague Electrical Work	5,950
Rocky Gap Paving	32,680
Total	\$1,021,589

Construction Crew — During fiscal year 1981, Program Open Space continued with one construction crew. The crew performs this type of work:

- Demolition of buildings
- Erection of prefabricated pavilions
- Installation of underground utilities
- Repair of dams
- Maintenance of rental properties

In addition to numerous small maintenance projects, the crew

completed one major building in fiscal year 1981 at Washington Monument State Park.

Fiscal Administration

GRANTS

The Department of Natural Resources administers two grant programs to assist the State, counties, cities and towns with park land purchases and development of recreation facilities.

Program Open Space, formally known as the Outdoor Recreation Land Loan of 1969, is the major grant program, totalling \$271,600,000 through fiscal year 1982.

Supplementing Program Open Space is the Federal Land and Water Conservation Fund totalling \$55,812,704 through fiscal year 1981. The federal grants have been fully utilized in Maryland since 1966.

The Grants staff objective is (1) to obtain Federal Grants to supplement State Natural Resources acquisition and development programs and (2) to administer State and Federal grants to Maryland's twenty-three counties and 160 municipalities. Supporting work involves project approval review, and processing of applications, publishing manuals and informational brochures, assisting applicants with applications, processing reimbursements, and maintaining records.

The Federal efforts to control government spending and reduce taxes have brought reduced apportionments of Land and Water Conservation Funds.

Maryland holds an excellent 100 percent record in fully obligating the entire Federal allocation. A streamlined procedure quickly obligates each annual apportionment guaranteeing reimbursement of these Federal funds to Maryland and its subdivisions.

During the 1981 session the Maryland General Assembly approved the fiscal year 1982 Program Open Space allocation of \$24,000,000.

LAND AND WATER CONSERVATION FUND REIMBURSEMENT ACCOUNT RECORD SYSTEM:

Land and Water Conservation Fund monies reimbursed to the State are deposited in the "Federal Fund Account" for State and local projects. The apportioned funds are divided in half with 50 percent allocated to the State and 50 percent allocated to the local subdivisions. During fiscal year 1980, efforts were made to establish a record-keeping system to closely monitor the use of the "Federal Fund Account." The maintenance of this record insures the recovered funds will be available to meet local obligations as well as enable the State to realize the full utility of the cash balance on hand.

REIMBURSEMENT

Federally Assisted State Projects—In fiscal year 1981, the State of Maryland was reimbursed \$4,352,450.10 from the Land and Water Conservation Fund admin-

istered by the Department of the Interior. Of this amount, \$11,768.69 went to Historic Annapolis, Inc., which assists the State in the development of Paca Gardens; Baltimore City received \$251,917.57 for development of Reedbird Park and School 101 Recreation Area; the Nature Conservancy received \$121,280.80 for the preparation of the Maryland Natural Heritage Program. The Department of Natural Resources received \$338,734.89 for indirect costs associated with the administration of Land and Water grants. The remaining balance of receipts, \$3,628,748.15, represents 50 percent of the costs incurred to acquire and develop Maryland's parks.

One-half of the federal funds allocated are made available to the local subdivisions; the other half is used for the further acquisition and development of State park facilities.

The funds reimbursed on projects in a given fiscal year may

have been approved in several previous allocation years. Projects are not always completed in the same year in which they are approved. For this reason, the amount of funds reimbursed in a given fiscal year can greatly differ from the year's allocation.

State Assisted Local Projects—Program Open Space also administers the Outdoor Recreation Land Loan. In fiscal year 1981, the state reimbursed \$10,507,531.39 to the local subdivisions for costs incurred on local parks, acquisition, and development projects.

The local subdivisions were also reimbursed \$2,202,010.28 from the recovered Land and Water Conservation Funds. \$2,056,618.18 of the above amount was reimbursed from Federal funds recovered on State Park projects. The remaining \$145,392.10 were direct Federal grants to the local subdivisions through the Land and Water Program.

GRANT STATUS
PROGRAM OPEN SPACE (LOCAL SIDE) &
THE LAND AND WATER CONSERVATION FUND
June 30, 1981

Grant Program	Fiscal Year	Regular Apportionment					Total Funds Approved	Total Funds Reimbursed	Unencumbered Balance as of June 30, 1981
		Acq. Projects Received	Dev. Projects Received	Acq. Projects Approved	No. of Acres Approved	Dev. Projects Approved			
Local	FY 80	39	74	27	1,094	100	\$12,738,497	\$9,878,626	\$15,016,332
POS	FY 81	43	93	46	598.3	127	\$18,962,102	\$10,507,531	\$10,773,789
Federal	FY 80	4	6	4	6,318	4	\$ 8,530,920	\$ 4,209,213	-0-
LWCF	FY 81	2	12	0	0	5	\$ 824,094	\$ 4,352,450	\$2,510,317

Additional Land and Water Conservation Funds Approved from the Secretary of the Interior's Contingency Fund

3 applications submitted = \$4,331,500
1 application approved = \$ 850,000

SUMMARY OF GRANT PROGRAMS SINCE EACH PROGRAM'S BEGINNING

June 30, 1981

Grant Program	Number of Project Applications	Regular Apportionments				
		Total Allocations Regular Apportionment	Amount of Allocation Obligated for Projects	Unencumbered Balance Of Allocation	% of Allocation Obligated	Amount of Allocation Reimbursed
Local POS FY 70-81	1598	\$123,800,000	\$113,026,210	\$10,773,789	91%	\$102,808,929
Federal LWCF FY 65-81	329	53,550,433	51,040,116	2,510,317	95%	39,582,872
Total	1927	\$177,350,433	\$164,066,326	\$13,284,106	93%	\$142,391,801

Nine applications are pending federal approval covering the unencumbered balance of Land and Water Conservation funds at the time of this report. One hundred percent of Federal Land and Water Conservation Funds should be obligated by August 31, 1981. The federal fiscal year ends September 30, 1981.

Land and Property Management

On July 1, 1979, the Land and Property Management Program was created within the Capital Programs Administration. This Program consists of six (6) projects: (1) General Direction; (2) Real Property Control and Maintenance; (3) Fair Hill Natural Resources Management Area; (4) Wye Island Natural Resources Management Area; (5) Monocacy Natural Resources Management Area; and (6) Deep Creek Lake Natural Resources Management Area. The goals of the Land and Property Management Program are to maintain an up-to-date record of all Department of Natural Resources properties and management of certain lands in a "land bank" status until master plans are prepared and their ultimate use is determined.

General Direction is responsible for the overall coordination of the Land and Property Management Program which includes the budget preparation and administration as well as the planning function.

In addition to Fair Hill, Wye Island, and Monocacy which are

managed in the "land bank" status, this Program manages the Deep Creek Lake under an agreement with the PENELEC Company to provide recreational opportunities on Deep Creek Lake. The Real Property Control and Maintenance Project is responsible for all record keeping associated with the Department of Natural Resources owned land. This includes deeds, leases, easements, right-of-way, etc. This program also administers Camp Echo Lake, represents the Department on the C & O Canal National Historical Park Advisory Commission, and aids in the administration of the Tawes Garden at Tawes State Office Building Complex in Annapolis.

Shore Erosion Control

The Shore Erosion Control Program, staffed by twelve full-time employees, is responsible for providing financial and technical assistance to waterfront property owners with shore erosion problems on the Chesapeake Bay, its tributaries and the Atlantic coastal region.

Financial assistance through the Shore Erosion Control Con-

struction Loan Fund is provided to qualified property owners for the construction of shore erosion control structures. Under this program interest-free loans are provided for a period up to 25 years.

Technical assistance is available to property owners who do not qualify for financial assistance. Aid is rendered in the form of site inspections, technical and permit information, and recommendations on possible solutions and courses of action to resolve specific shore erosion problems.

In conjunction with design and construction tasks, program personnel obtain topographic and hydrographic data at proposed sites for use during the project design phase. During the construction phase an inspector visits the project site frequently to ensure that all work is performed as specified. In addition, program personnel also perform administrative functions in the management of design and construction contracts and have overall responsibility for the operation of the Shore Erosion Control Revolving Loan Fund.

SHORE EROSION CONTROL
FY-81 ACCOMPLISHMENTS

Technical Assistance Actions	173
S.E.C. Loan Applications Processed	39
Engineering Contracts Awarded	21
Construction Projects Bid	29
Construction Contracts Awarded	29
S.E.C. Loans Processed	31
Length of Shoreline Protected by:	
Timber Bulkheads	2,559'
Timber Bulkhead Repairs	1,366'
Steel Bulkheads	106'
Stone Revetments	10,442'
Total	2.74 miles or 14,473'
Number of Projects Completed	30*
Number of S.E.C. Loans Involved	35
Amount of S.E.C. Funds Loaned	\$1,224,213.90
Total Cost of Construction Completed	\$2,192,055.84

*Includes one S.E.C. District, one Community and one State Project.

SHORE EROSION CONTROL PROJECT STATUS
AS OF JUNE 30, 1981

No. of Projects	Project Status	No. of Loans	SEC Loans	Property Owner Contributions	Capital Construction Funds	Total Construction Cost
30	Completed	35	\$1,224,213.90	\$170,841.94	\$797,000.00	\$2,192,055.84
15	Under Construction	13	834,422.33	138,594.12	571,612.25	1,544,628.70
3	Construction Pending	3	74,589.00	—	—	74,589.00
1	Contracts Pending	1	45,537.34	—	—	45,537.34
6	Scheduled For Bid	7	455,723.90*	76,492.50*	235,000.00*	767,216.40*
15	Under Design	32	1,182,060.00*	92,561.25*	348,540.00*	1,623,161.25*
36	Projects Pending	51	2,081,305.00*	698,870.00*	2,059,460.00*	4,839,635.00*
106**		142	\$5,897,851.47	\$1,177,359.81	\$4,011,612.25	\$11,086,823.53

* Estimated Amounts

** Includes projects for the Town of Chesapeake Beach, the Community of Fairhaven, six SEC Districts and eight on state owned property.



FISHERIES ADMINISTRATION

Budget 74,622
Staff 2

The Fisheries Administration is the principal unit of the Department with the overall responsibility for both fresh water and marine fisheries. The management program activities are concerned with all aspects of preservation, enhancement, development, and use of Maryland fishery resources, tidal and non-tidal, sport and commercial fish and shellfish species.

The Fisheries Administration operates through three programs: the Office of the Administrator, the Interstate Fisheries Liaison, and the State/Federal Striped Bass Program. These activities are supported by a staff of three specialized professionals and one secretary.

OFFICE OF THE ADMINISTRATOR

The Office of the Administrator is responsible for the overall direction, supervision and coordination of fisheries activities within the Maryland Fisheries Administration.

INTERSTATE FISHERY LIAISON

The Interstate Fishery Liaison program is responsible for Maryland Marine Fisheries Management functions. The enactment of the Fisheries Conservation and Management Act of 1976 (200 mile limit law) requires the preparation of regional fishery management

plans for fishery resources within the Fishery Conservation Zone adjacent to the respective states. In our area, the Mid Atlantic Fisheries Management Council has been established, consisting of the states of New York, New Jersey, Pennsylvania, Delaware, Maryland and Virginia, with the responsibility of preparing fishery management plans to be implemented by the Secretary of Commerce. The Fisheries Liaison Program is responsible for aiding in the development and review of these management plans, environmental impact statements and future amendments. The plans incorporate regulations governing fishery allocations and fishing restrictions on foreign, domestic, and recreational fishermen, to achieve and maintain optimum stocks for future recruitment, prevent destructive exploitation, achieve efficiency with marine management and enforcement practices at the State Level.

STATE-FEDERAL STRIPED BASS PROGRAM

Declining commercial landings, increasing fishing pressure, and modest recruitment have contributed to mounting public concern over the status of the East Coast stocks of the striped bass (*Morone saxatilis*). Management jurisdiction for striped bass resides with the States rather than the Federal government, because the species

and its fisheries occur predominantly within three miles of the coast. The State-Federal Fisheries Management Program was organized in 1972 to coordinate interstate management of inshore species which are of concern to more than one state. In early 1978 a program was organized to develop a management plan addressing the species supported by the National Marine Fisheries Service through its State-Federal Fishery Management Program and facilitated by the Atlantic State Marine Fisheries Commission. Under contract with the NMFS, the Maryland Fisheries Administration has provided for the services of the Striped Bass Program Coordinator.

In cooperation with State and Federal fishery administrators and managers, the Striped Bass Program Coordinator is responsible for assessing the current status of the stocks, initiating and coordinating needed research, and recommending management measures through the preparation of a fishery management plan for striped bass.



WILDLIFE ADMINISTRATION

Budget

Total General Funds.....	\$54,028
Total Special Funds.....	\$2,182,208
Total Federal Funds.....	\$1,021,980
Total personnel.....	120

General Direction

The wildlife resources of Maryland are widely used by citizens who spend millions of dollars each year in pursuit of wildlife related recreation. Approximately 200,000 sportsmen pursue game animals and thousands more enjoy the aesthetic values of wildlife.

The Wildlife Administration's goal is "the enhancement of wildlife populations to meet the demand of wildlife oriented recreation and to ensure the continued survival of wildlife in the state."

Maryland's inland fish and wildlife management and research efforts are financed almost entirely by hunters and fishermen; thus the major emphasis of management is directed toward game animals and non-tidal fish. However, all wildlife species are considered in management decisions with the result that non-game animals and fish benefit from wildlife management practices.

Responsibilities of the Wildlife Administration include regulating seasons, bag limits, and methods of taking game animals and fish, assisting other state agencies and private landowners in land management and wildlife planning,

issuing permits and licenses for activities that directly affect wildlife, providing technical assistance for nuisance wildlife control, and managing areas for public wildlife enjoyment.

Five programs comprise the Wildlife Administration. They are: General Direction, Wildlife Management Services, Wildlife Field Services, Fish and Wildlife Technical Services and Non-tidal Fisheries.

Wildlife Management Services Program

This program is comprised of five staff biological projects. These staff projects are responsible for planning, conducting and evaluating all wildlife surveys, developing and applying management technique; preparing annual status reports, developing recommendations for regulating public use, and restoring wildlife species.

FOREST WILDLIFE PROJECT

This project is responsible for management of wild turkey, white-tailed deer, sika deer, ruffed grouse, gray squirrel, eastern fox squirrel and red (Piney) squirrel species. These wildlife species currently provide over one million hunters' days of recreation afield.

Ongoing investigations are being conducted to determine mortality rates for the white-tailed deer and gray squirrel. Also, the fourth year of a life history study on the sika

deer was conducted. The study provided useful data on the home range and habitat preferences of these animals. Population trend surveys on deer, grouse, squirrels, and turkeys were also conducted.

FURBEARER AND MARINE MAMMAL PROJECT

This project is primarily responsible for the management of eighteen species of furbearers in Maryland. In recent years, furbearer pelt sales have generated an estimated income of over \$3,000,000 to Maryland's fur harvesters.

In cooperation with Nongame and Endangered Species Project personnel, a computerized inventory of statewide bobcat habitat was developed and evaluated. Winter track count surveys designed to determine the status of Maryland's bobcat population also were designed and implemented. Additional field survey techniques to annually monitor statewide populations of foxes, raccoon, as well as bobcat, through scent station transects also have been developed

WATERFOWL

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

The number of waterfowl banded in Maryland during the year was 4,838. Funding for cooperative banding of ducks in eastern Canada was continued.

Surveys of the changes and conditions in waterfowl habitat indicated a continued decrease in bay grasses from the previous year. Evaluation of pen-reared mallard releases was continued. Fowl cholera was again detected in sea-ducks. Analysis of gizzard collection data for the years 1977-79 indicated

lead at levels to cause concern were found in mallards, black ducks, scaup and Canada Geese.

NONGAME AND ENDANGERED SPECIES PROJECT

This project includes species of wildlife not legally classified as game birds or mammals and those species threatened or endangered. These include thirty-seven species of amphibians, forty-six species of reptiles, two hundred 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, bird banding, and scientific collecting permits. The Endangered Species Project of Maryland Wildlife Administration is continuing several studies initiated over the past years.

UPLAND WILDLIFE PROJECT

The Upland Wildlife Project is responsible for the management of rabbits, quails, pheasants, doves, woodcock, crows and the recreational use of these species in Maryland.

Research studies were conducted on the nesting success of mourning doves in Maryland and the hunting mortality rates on quail and rabbits on a wildlife management research area. Trend surveys were continued on all upland species.

A hunter-use survey of licensed hunters in Maryland was completed to obtain estimates of numbers of hunters, efforts expended, and harvest for selected game species.

An "Acres for Wildlife" program was continued 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 for management.

Wildlife Field Services Program

As the name implies, this pro-

gram performs the primary field operations for the Administration. The program carries out wildlife management practices on state forests, state parks and administration-owned properties as well as cooperative lands. It also serves other agency programs by providing the hands-on-work required for the five biological staff projects. 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 on which the interested public can find hunting and other forms of appreciative recreation. The total acreage of State Wildlife Management Area is 78,338 plus 47,200 of leased land under the Cooperative Hunt Program.

Fish and Wildlife Technical Services Program

This program conducts the environmental review and assessment of federal, state and local projects as they affect the fish and wildlife resources of the state. The agency staff is coordinated to have input in particular species information.

The Environmental Review project has concentrated on better coordination and review of wetland projects, roads and bridges, and SCS PL-566 drainage projects to mitigate the effects on the natural resources.

The state and federal clearinghouse (A-95) projects are all reviewed by this program and action is coordinated between the Wildlife Administration staff and other D.N.R. state and federal agencies. The Chief is also the main inter-agency coordinator with D.N.R. and other state and federal agencies.

The Comprehensive Planning project, initiated in 1979, has begun the Strategic and Operational planning for the entire Administration with Federal Aid funding. The first phase jobs in Strategic planning

will be completed in FY'82. The projected completion date for all phases is FY'83.

Non-Tidal Fisheries Program

Non-tidal Fisheries Program is responsible for inland fishery resources. The waters included within this program's management responsibility are all streams, rivers, ponds, lakes and canals publicly or privately owned extending to the tidal boundaries designated by law. The two projects that make up this program are coldwater and warmwater. The warmwater project is responsible for warmwater fisheries development, warmwater fisheries investigations, reservoir fisheries investigations and Potomac River investigations. The coldwater project strives to provide the greatest amount of public trout fishing within existing environmental limitations while at the same time preserving, improving and enhancing the natural trout resources within the state.

COLDWATER FISHERIES PROJECT

During the period covered by this report a total of 318,642 catchable size (8-15 inch) trout weighing a total of 128,223 pounds (64 tons) were released into 49 streams and 30 impoundments within the state to provide public trout fishing opportunities.

Approximately 223,642 of these trout were raised at three facilities throughout the state: Albert Powell State Trout Hatchery, Cushwa Rearing Station and Bear Creek Rearing Station. The remaining 95,000 were provided by the U.S. Fish and Wildlife Service of the Department of the Interior.

Equally important to Maryland trout anglers was the size of each trout stocked this past spring. Trout raised at Bear Creek Rearing Station averaged one-half pound each. The trout raised at the Powell Hatchery also averaged nearly one-half pound each.

Approximately 15,900 two year old (12-15 inch) trout were included

within the above stocking figure. These trout were "held over" at state production facilities to provide occasional "bonus catches" for anglers.

In addition, 25,000 second generation wild brown trout fingerlings were stocked in Beaver Creek, Marsh Run, Carroll Creek, Little Antietam Creek, and Hawlings River on an experimental basis. These trout also were provided by the U.S. Fish and Wildlife Service.

As planned, an expansion of the "Urban Trout Fishing Program" took place during Fiscal Year 1981 to include Prince George's County (Tucker Pond and Costa Lake—owned and maintained by Prince George's County—Maryland National Capital Park and Planning Commission). Additional stocking areas within Baltimore City and County included Dead Run and Gwynns Falls, respectively.

Public interest in trout fishing in Maryland continues to increase as indicated by Trout Stamp sales records. For the third consecutive year, a new trout stamp sales record has been set. During Fiscal Year 1981, 43,438 trout stamps were sold. This is a 1.4% increase over 1980, and it occurred in spite of a decrease in fishing license sales.

Field operations of the Coldwater Fisheries Project remain directed primarily toward Federal Aid Project F-36-R, "Survey, Inventory, and Management of Maryland's Cold Water Resources." This ongoing project consists of studies within selected watersheds and impoundments, angler surveys and monitoring of known trout streams.

Angler surveys conducted determine angler-use, harvest and attitudes relative to the state's Coldwater Fishery Program. Results of these surveys will be available during Fiscal Year 1982.

Two projects of particular importance were: 1) Savage River and our assessment of the channelization by the Garrett County Roads Department and 2) Goodwin Run, a natural brook trout stream

affected by a Baltimore County development project.

The Coldwater Fisheries Comprehensive Plan was begun and remains within the strategic planning stage. The entire plan is scheduled for completion during Fiscal Year 1983.

During Fiscal Year 1981, an attempt was made to establish additional natural trout populations within selected areas through transplanting wild trout.

WARMWATER FISHERIES PROJECT

During Fiscal Year 1981, Maryland had 132,970 anglers fishing in over 50,000 surface acres of non-tidal waters. Included as part of this figure are 29,000 acres of fishable streams and rivers. A 5.2% decrease in license sales did occur during Fiscal Year 1981. This decrease can be attributed to the \$3.50 cost increase of the fishing license.

Fish species reared at the Joseph H. Manning Warmwater Fish Hatchery, which was completed and put into operation in 1980, included large and smallmouth bass, striped bass, striped bass x white bass hybrids, walleye and forage fish.

Two additional Inland Fisheries Work Centers were utilized for rearing largemouth bass (Unicorn) and walleye (Unicorn).

Approximately 50 lakes and ponds were checked by program personnel for bass reproduction.

Walleye were stocked once again in the Potomac River. Reports by anglers indicate that walleye of sublegal size were captured in 1981.

A study of largemouth bass was conducted in 1980 and a final report was written. An assessment of Conowingo Dam on the resident smallmouth bass population, water quality and shad run was completed and a final report is being prepared.

A two year study of water quality, fish and benthic macro-invertebrates of the Youghiogheny River

was completed during Fiscal Year 1981. Sufficient data were collected for recommendations on fishery management of Youghiogheny River. This plan presently is being prepared.

An intensive study was initiated in Fiscal Year 1981 to monitor and evaluate the results of stocking largemouth bass in upper Chesapeake Bay. Preliminary results indicate that many of the young-of-year fish taken during sampling are stocked fish.

The following numbers of warmwater species were stocked into selected waters of the state during Fiscal Year 1981:

fry	walleye	1,750,000
fingerlings	walleye	17,084
fry	largemouth bass	227,367
fingerlings	largemouth bass	1,000
adult	channel catfish	12,051
fingerlings	channel catfish	15,000
fry	smallmouth bass	19,312
fingerlings	bluegill sunfish	130,000
fingerlings	striped bass	17,333
fingerlings	striped bass hybrids	42,413

Fishing maps of Wye Mills, Smithville, Little Pool, Clopper Lake, Greenbrier Lake and Cunningham Falls Lake were prepared and made available to the public.

Avalon Pond within Pataspco State Park was reclaimed and restocked with largemouth bass, bluegill sunfish and channel catfish.

A statewide stream survey initiated during 1980 to provide baseline information on physical-chemical characteristics, species and composition, distribution, relative abundance of benthic macro-invertebrates and fish in various river basins in Maryland, which will provide inventory and utilization information for informed management of water resources of this state, continued in Fiscal Year 1981. Streams surveyed during 1980-1981 included the Chester, Patuxent, Monocacy, Antietam, Chonococheague, Youghiogheny, Marshyhope, Cassleman and Wills.



MARYLAND FOREST & PARK SERVICES

MARYLAND PARK SERVICE

<i>Budget</i>	
<i>General Funds</i>	\$4,991,862
<i>Special Funds</i>	2,444,669
<i>Federal Funds</i>	—
<i>Total</i>	\$7,436,531
<i>Number of Staff</i>	259
<i>Seasonal Staff</i>	471

STATE PARK MANAGEMENT

Of the nearly 80,000 acres of public land managed by the Maryland Park Service, 73,914 acres are in a natural state. The remaining 11,309 acres are improved for public recreational enjoyment. Park improvements include roads, parking lots, buildings, utilities, and those facilities which people associate with state parks: campgrounds, picnic areas, playgrounds, trails and water related facilities. There are 103 miles of paved roads and paved parking lots for 11,200 cars in the parks. Public buildings total more than 800 and include comfort stations, bath houses, concessions, pavilions, monuments, nature centers, museums, offices, maintenance buildings, storage buildings, contact stations and visitors centers.

Approximately 180 houses and numerous other structures on public lands are rented by the Maryland Park Service as residences. Efforts have been made to standardize property rentals throughout the state in order to realize an equi-

table rent from each property. Rental income is earmarked for maintenance of the residences. Health and safety are first priorities. Repairs to sewage systems, electrical systems and boilers are included in maintenance. Annual inspections of all residences are conducted.

Facilities which provide the general public with a variety of activities are heavily used and in constant demand. The Park Service has 2,438 individual camping sites and a smaller number of sites for organized groups. There are 119 picnic areas and 82 playgrounds. Nature trails and hiking trails extend for 350 miles. Twenty ponds and lakes cover 728 acres. In addition, visitors enjoy the waters of the Atlantic Ocean, the Chesapeake Bay and selected rivers and streams. Boat launching ramps, boat docking slips and rental boats are available at many of the parks.

Ranger School

The Maryland Park Service conducted a ranger school in February of 1981. Twenty employees attended in addition to selected county employees who were sent at the request of their departments. All park rangers who hold law enforcement positions were qualified in the use of firearms. Firearms were issued to those rangers at Elk Neck, Assateague, Gunpowder Falls, Patapsco Valley and Sandy Point. Fifty-six employees attended in-

service training while 30 employees attended interpretive training. This training session was the largest ever attempted by the Service. It was held at Patuxent Naval Air Station.

Historical Interpretation

While nearly all the parks have nature interpretive programs, historical interpretive programs are limited to the five state parks with features of historical interest. In the summer of 1981 the following programs took place at these parks:

At Fort Frederick, one full-time ranger interpreter and three summer seasonal historians garrisoned the fort seven days a week demonstrating a number of aspects of 18th century frontier garrison life. In addition, a group of volunteers in the parks (VIPs) served at the fort on many weekends. Major weekend programs involving large military units were held in May (Fort Frederick Rendezvous) in July and September (Governor's Invitational Firelock Match).

The Steppingstone Museum Foundation, a private, non-profit organization, continued to operate for a third year. Crafts demonstrations, special events and living history were featured. Elsewhere in Susquehanna State Park, the Rock Run Mill area, with several restored structures, was open to the public with living history demonstrations.

Gathland State Park cooperated with the town of Burkittsville for a large 2 day event commemorating the Civil War Battle of South Mountain in September.

At Smallwood State Park, three seasonal historians provided tours of the restored manor house, colonial candlemaking demonstrations, gardening and cooking in the kitchen area. At the annual Revolutionary War Days weekend in September, crafts-people from all over the East Coast demonstrated their skills. Several other special events were featured during the summer.

Point Lookout's history program continued to draw attention to the Civil War prison through major

exhibits in the park's visitor center. Besides the park's own roving interpreters, reactivated Civil War groups were on hand during special events to augment the program. The annual Confederate Memorial Service was held in June.

Nature Interpretation

The proportion of attendance participating in interpretive programs increased in many parks. Interpretive programs and facilities continue to serve more than 250,000 people. Nearly one-fourth of park visitors visiting our parks participate in interpretive programs and activities.

Interpretive programs extend into the fall, spring and winter. New programs have been developed to reach communities near the parks. Programs were developed to provide assistance to novice backpackers, campers and hikers to help them to have a safer, more enjoyable time outdoors. Programs

Special Events

In addition to interpretive programming, many parks sponsored special event days allowing visitors to participate in an unusual activity not held regularly at the park. These events establish a rapport between the park and the community. Frequently, the community is a co-sponsor of the event. Some of the events attract visitors statewide and tourists passing through.

Programming in the parks is enhanced by volunteers who perform services without pay but are

recognized by the Park Service as Volunteers in the Park (VIP). During FY 1981, VIP's performed tasks including interpretive programs, craft programs, and nature trail restoration.

FEDERAL PROGRAMS

Young Adult Conservation Corps (YACC)

Young Adult Conservation Corps (YACC) projects employed 45 individuals aged 16-23 in four state parks. Sub-grant projects were also administered in Water Resources Administration and Baltimore City Bureau of Recreation employing an additional 38 youths. Conservation projects affecting most phases of park operation, maintenance and development were accomplished in Elk Neck, Patapsco Valley, Susquehanna, Dans Mountain, Rocky Gap, Rocks and New Germany State Parks. Significant projects included the construction of a log cabin residence for the park manager at Dans Mountain State Park, the rehabilitation of an old hotel on Elk Neck State Park into an overnight conference and training center with sleeping accommodations for 24 and participation in the development of the new Pickall day-use area at Patapsco Valley State Park.

Youth Conservation Corps (YCC)

Thirty-three youths 15-18 years old were employed in the summer Youth Conservation Corps (YCC) program at Point Lookout, Pocomoke River and Herrington

Manor State Parks. Extensive conservation projects were accomplished including reconstruction of the Guard House at the Fort Lincoln Civil War site in Point Lookout, installation of a two-mile exercise/jogging trail at Tuckahoe State Park, trail, picnic maintenance and development and an important erosion, control project at Pocomoke State Park. Sub-grant projects were administered in nine projects sponsored by political sub-divisions employing 181 youths.

Maryland Park Service TOTAL USE ATTENDANCE FISCAL YEAR—1981

Assateague State Park	677,045
Big Run State Park	20,114
Calvert Cliffs State Park	47,873
Cedarville Natural Resource Center	41,484
Cunningham Falls State Park	308,536
Dans Mountain State Park	31,300
Deep Creek Lake Park	85,993
Elk Neck State Park	219,176
Fort Frederick State Park	77,206
Fort Tonoloway State Park	5,031
Gambrill State Park	166,232
Gathland State Park	39,201
Greenbrier State Park	172,964
Gunpowder Falls State Park	310,155
Herrington Manor State Park	46,573
Janes Island State Park	124,424
Jonas Green State Park	87,485
Martinak State Park	63,851
Matapeake State Park	44,859
New Germany State Park	47,159
Patapsco State Park	525,566
Potuxent River State Park	9,603
Pocomoke River State Park	147,317
Point Lookout State Park	258,070
Rocks State Park	239,037
Rocky Gap State Park	230,508
St. Mary's State Park	5,739
Sandy Point State Park	512,572
Seneca Creek State Park	82,904
Severn Run State Park	15,634
Smallwood State Park	33,550
Soldiers Delight State Park	5,471
South Mountain Natural Environment Area	2,928
Susquehanna State Park	132,928
Swallow Falls State Park	149,869
Tuckahoe State Park	40,878
Washington Monument State Park	135,571
TOTAL	5,344,806

Special Events	Park	Attendance
Cross-Country Ski Races	New Germany/Herrington Manor	1,200
Maple Syrup Demonstration	Cunningham Falls	5,100
Easter Egg Hunts	Elk Neck	500
	Fort Frederick	280
	Sandy Point	410
Martinak Days	Martinak	5,300
Smallwood Revolutionary War Days	Smallwood	6,900
Mid-Atlantic Championship Bathtub Races	Point Lookout	510

MARYLAND FOREST SERVICE

Budget

General Funds.....	\$2,267,169
Special Funds.....	1,283,163
Federal Funds.....	565,000
Total.....	4,115,332
Number of Staff.....	187

STATE FOREST SYSTEM

Ten forested areas totalling 123,238 acres make up the state forest system. These areas include: Doncaster State Forest, Charles County, 1,486 acres; Elk Neck State Forest, Cecil County, 3,165 acres; Garrett State Forest, Garrett County, 6,824 acres; Green Ridge State Forest, Allegany County, 30,671 acres; Pocomoke State Forest Worcester County, 13,230 acres; Potomac State Forest, Garrett County, 10,658 acres; Savage River State Forest, Garrett County, 52,811 acres; Seth State Forest, Talbot County, 125 acres; Wicomico State Forest, Wicomico County, 1,110 acres; and the Cedarville Natural Resources Management Area, Prince George's and Charles Counties, 3,158 acres.

Seventy-Five (75) Years of Forestry in Maryland

On April 1, 1981, Arbor Day in Maryland, in recognition of the 75th anniversary of forestry in Maryland, a portion of the original land grant from the Garrett Brothers was re-dedicated to multiple use management. The Hutton Tract on Potomac-Garrett State Forest was originally given to the State of Maryland in 1906 with the understanding that the state set up a forestry department to manage these lands.

Federal Manpower Programs on State Forests

Enrollees of the federally funded Young Adult Conservation Corps, Youth Conservation Corps and Comprehensive Education and Training Act programs were involved in many state forest projects.

A 17 member Young Adult Con-

servation Corps (YACC) crew spent the fall and winter of 80-81 felling tamarack (larch) trees, then squaring the logs on the saw-mill of Savage River State Forest. In spring 1981 the enrollees (aged 16-23) began the construction of 2 log buildings 32 feet by 50 feet. One building will be the headquarter's building for Green Ridge State Forest and the other will be the residence of the Dans Mountain state park manager.

A Youth Conservation Corps (YCC) crew with 16 enrollees completed the Green Ridge hiking trail extending from the Maryland-Pennsylvania boundary to the Chesapeake and Ohio Canal along the Potomac River. This trail, begun in previous years by other YCC crews, provides a loop trail more than 40 miles in length.

Enrollees of the Comprehensive Education and Training Act program (CETA) also performed valuable public service by developing and maintaining state forest camping areas and scenic areas.

Timber Sales

The improvement of state forests by thinning and removing defective and diseased trees is a high priority project. The total number of acres improved in 1981 was up considerably at 814 acres. Much of this forest improvement work was done by private individuals cutting firewood for home use.

Reforestation

The number of acres planted with trees on state forests declined to 205 acres. The greater part of this reforestation involves replanting Eastern Shore pine areas which were clearcut to control the southern pine bark beetle.

Forest Visitation

Numbers of forest visitors remained about the same in 1981. Economic conditions and vehicle fuel prices are believed to be limiting, self-contained, motorized cam-

ping units. At the same time snowmobiling and ski-touring are increasing on the state forests. On Elk Neck State Forest the firearm and archery ranges attract large numbers of visitors.

FOREST RESOURCE PROTECTION

Wildfire Protection

Wildfire protection is provided to 2,706,000 forested acres throughout the state and 994,000 acres of marshlands located mainly on the Eastern Shore.

Fire Prevention: Prevention is education and the enforcement of existing laws and regulations.

—School programs are directed to students in the 2nd, 3rd and 4th grade levels. More than 330 programs were presented in 1981.

—Law enforcement efforts were directed to reducing debris burning and incendiary caused fires. Activities included:

—Training in investigative techniques for Forest Service personnel.

—Apprehension of incendiaries.

—Issuance of more than 750 burning permits to contractors and landowners.

—Inspection of 714 miles of railroad rights-of-way for hazards.

Fire Preparedness: The first phase of fire preparedness involves planning. Each of the four Forest Service regions has plans for directing fire suppression efforts. These plans are analyzed annually and updated to meet current fire conditions.

Fire weather forecasting is a system of fire weather projection used in 1981. Using data provided by the U.S. Weather Bureau, daily weather conditions are provided to each of the eight dispatching centers in the state. The information is used to develop daily fire danger projections which provide basic fire planning for personnel and equipment required to provide for effective fire suppression.

A program of equipment maintenance is carried out annually. The 140 specialized vehicles equipped for fire suppression are inspected bi-annually and maintained in top condition for control action.

Fire suppression: In 1981, Maryland Forest Service personnel were involved in the suppression of 1,734 wildfires which burned more than 34,420 acres. The leading causes of fires were debris burning, children and incendiary.

Training in basic fire behavior and fire control methods was provided to both Forest Service personnel and fire departments.

Maryland again served as host for the Middle Atlantic Forest Fire Compact States annual training session. Personnel from Maryland, West Virginia, Pennsylvania, Delaware and New Jersey attended.

Federal money was provided to volunteer fire departments through the Rural Community Fire Protection program. A total of \$37,600 was distributed by the Maryland Forest Service to provide training and to purchase fire and safety equipment. The volunteers matched funds through their department budgets.

Insect and Disease Protection

Forest Service personnel continued to assist the Department of Agriculture in insect and disease detection. The main effort this year was in the survey for gypsy moth. In addition to day-to-day detection of minor infestations, Forest Service personnel also assist in surveys and evaluations of southern pine bark beetle on the Eastern Shore and oak wilt disease in Western Maryland.

Urban and Community Forestry

Urban forest planning: One function of urban forestry is to work with land development projects. One hundred, fourteen (114) projects were provided assistance in the Southern Maryland and Baltimore areas in 1981.

Roadside Tree Supervision:

Another phase of urban forestry involves the supervision of tree care work on any tree growing within the public right-of-way. This phase involves the supervision of utility crews through a permit system. There were more than 1,100 permits issued involving 28,000 hours of personnel time for supervision. This function is funded by direct charges to the utility under supervision.

Street Tree Inventories:

Street tree maintenance in towns or cities is a necessary function of the city government. To help, the Forest Service assists in the inventory of the street trees. The inventory includes a record of the number and location of street trees, and also specific recommendations for proper tree care. Inventories were completed for Hyattsville, Frederick, Cumberland and Salisbury in 1981.

Shade Tree Requests:

More than 1,000 property owners received advice and recommendations about how to treat individual tree problems.

Funding:

Through federal matching funds \$15,000 on a 50/50 basis was provided to Baltimore City to develop and publish a booklet entitled, "Baltimore's City Forest—An Owners Manual." The booklet describes the benefits received from the city's trees and how city residents can assist in maintaining these benefits.

A total of \$9,000 in federal funds was used to develop and publish a booklet entitled, "Land Development in Wooded Areas." It illustrates the assistance the Maryland Forest Service can provide to planning agencies and local land developers to maintain the benefits provided by the forest ecosystem.

Tree Expert Licensing:

Any individual or company which provides a tree care service

for a fee must be licensed by the Department. During 1981, 280 individuals were licensed as tree experts.

Roadside Plantings:

To assist residents in the beautification of their streets, the Forest Service sells saplings at production cost. These saplings are to be used for plantings within public rights-of-way or on other publicly owned property. A total of 1,750 trees were sold in 1981 for this purpose.

COOPERATIVE FOREST MANAGEMENT

A recent survey conducted in conjunction with the United States Forest Service indicates that seventy-two (72) percent of the commercial forest land in Maryland is in private ownership. Eighty-three thousand, one hundred (83,100) owners hold a total of 1,642,000 acres. Through the cooperative forest management program landowners can receive professional assistance in the management of their forests.

The primary objective of the program is to provide assistance to assure that thirty (30) percent of the privately owned forest acreage is placed under management within the next forty (40) years.

The major services available to landowners are:

Forest Resource Management Plan: The plan provides the owner with the necessary information and a time schedule which can be followed so that the forest is maintained in a productive state.

Timber Stand Improvement: The forester assists the owner in marking individual trees to be removed. Stand improvement is accomplished by removing poorly formed and inferior tree species and reducing the stand density in order to increase growth on the remaining trees.

Reforestation: Along with a reforestation plan, the owner can obtain seedlings at cost from the state nursery.

Timber Sale Assistance: Most owners are referred to consulting or industrial foresters for advice and assistance in selling their timber. If a consultant is not available, a state forester will provide the owner with the necessary timber sale information. The owner is charged the cost of the forester's time.

Logging Road Stabilization: Regardless of who handles the timber sale, the forester provides advice and assistance to the owner in stabilizing the logging road and trail system. This is a necessary operation in order to reduce erosion and to prevent sediment from entering the state's streams and rivers.

Other functions of the cooperative forest management program are:

Nursery Operation: The Buckingham Forest Nursery in Anne Arundel County has three primary functions: (1) to grow tree seedlings for reforesting cutover woodlands and foresting open space areas, (2) to produce sapling size trees for planting along public highways and on other public properties, and (3) to conduct a forest tree improvement program in order to grow superior seedlings. Plant materials produced at the nursery are sold to private individuals at cost of production.

Forest Land Tax Relief Agreements: Landowners can enter into an agreement to manage their forest lands in accordance with practices prescribed by the department. Owners benefit by managing their forest land and because their property assessment is frozen at the time of the agreement; the assessment remains at that level until the agreement is terminated either by the owner or the department.

Forest Conservancy District Boards: Each county has a 5 member board made up of people with a variety of interests. The main function of the board is to assist the forester assigned to the county with the promotion of forest management practices.

Watershed Protection: Tech-

nical assistance is provided to landowners within two (2) designated P.L. 566 small watershed projects and the Potomac Flood Control project authorized by P.L. 535.

MAJOR ACCOMPLISHMENTS FISCAL 1981

Total No. of Taxpayers Receiving Service	23,139
Forest Landowner Assistance	

Forest Resource Management Plans

Plans — No. 351	Acres 22,228
Timber Stand Improvement —	Acres 1,105
Reforestation Plans — No. 1,450	Acres 3,498
Area Reforested —	Acres 3,680
Forest Tax Relief Agreements —	No. 70
Referral to Consulting Foresters	
Timber Sales — No. 254	Acres 10,985
Timber Sale Assistance — No. 6	Acres 120
Logging Road Stabilization —	Linear Feet 83,615

Nursery Operations

Tree Seedlings Sold —	3,039,428
Roadside Trees Sold —	1,750

Resource Utilization

The goal of making the most of the forest resource through improved utilization continues to be a series of successes and new challenges. During the past year, the goal was furthered by increased assistance from the local project personnel, improving the contact between the wood using industry and the Maryland Forest Service. Utilization foresters have maintained a program of direct assistance to the industry through processing and recovery studies, feasibility studies, forest resource data and specific technical information for a total of 1,179 assists.

One noteworthy project has been assistance to the Maryland Environmental Service in the procurement of wood chips for sewage sludge composting. Advice regarding the market and supply conditions, purchasing procedures, chip receiving facilities and other specific technical information, as well as direct contact with the suppliers on the part of the Resource Utilization Section, was combined with fast action on the part of MES to develop a program that was attractive to Maryland's wood industry.

Wood for energy has continued to be on the forefront this year, although projects have been limited by the lack of federal funding. Nevertheless, wood for home heating alone appears to equal all other wood uses in the state.

Forest Resource Planning

This function received resource program status in 1981. During the 12 month period the mandated forest resource planning process continued through identification of solutions to be used to resolve the major forest issues previously described in the process. This was accomplished through publication of a 12 page public involvement booklet mailed to 2,500 citizens and organizations across the state. Thirty percent returned their questionnaires. The responses are being used to formulate alternative programs to address such issues as the continuing loss of forest land.

A Forest Resource Planning workshop was conducted to provide project foresters with an understanding of land-use planning procedures at the state, regional and county levels in Maryland.

Two projects were initiated which related to forest land location, value and loss. The Worcester County LANDSAT project is in cooperation with NASA's Eastern Regional Remote Sensing Applications Center and uses satellite data to map the location of stands of hardwood, softwood and mixed forest.

Another project in its infancy is the prime forest and inventory. This is a federal USDA assisted process whereby the different productivity levels of soils are mapped as they relate to growing timber. Five target counties will be mapped resulting in the measurement and designation of prime and productive forest land. This information can then be used to justify the retention of forest land as well as set priorities for the expenditure of funds for the best return on the investment.



NATURAL RESOURCES POLICE

Budget

General Funds.....	\$4,206,806.00
Special Funds.....	\$1,028,548.00
Federal Funds.....	\$344,910.00
Total.....	\$5,580,264.00

The Natural Resources Police Force is responsible for enforcement of all laws and regulations promulgated to protect the natural resources of Maryland, the State Boat Act and the criminal laws of Maryland on both tidal and non-tidal waters.

GENERAL DIRECTION

The Headquarters Section plans and provides administrative support and services for the operational divisions and houses the Central Communications Center which is manned 24 hours a day, 7 days a week. The Headquarters Section has a staff of 15 uniformed and clerical personnel (6% of the total force) with a budget of \$142,110.00 (2½ % of the agency budget).

The Police Academy provides basic training for cadets and recruits and advanced training for field personnel. This section also provides various support activities to the operational divisions. With a staff of 3 uniformed officers who are responsible also for the Cadet Program (6% of the total force) and an operating budget of \$182,328.00 (3% of the agency budget) the activities of the Police Academy were

carried out as shown on the accompanying table.

The Maintenance and Supply Section provides maintenance and repair service to the Natural Resources Police patrol boat fleet and associated equipment. The facility also serves as a centralized supply depot responsive to the police force as well as sister agencies. This section has a staff of 10 (4% of the total force) and a budget of \$252,269.00 (4% of the agency budget).

The Aviation Section provides aerial services for the Natural Resources Police and other agencies. With a staff of 2 officers (1% of the total force) and a budget of \$51,491.00 (1% of the agency budget) this section plays an important role in the enforcement program.

INLAND ENFORCEMENT

The Inland Enforcement Section is responsible for the enforcement of those laws pertaining to the protection of all wildlife species. In addition, it enforces the State Boat Act on non-tidal waters of the State and investigates criminal activities uncovered during the performance of its primary missions. There are 69 employees, 63 of whom are uniformed officers (29% of the total force) with a budget of \$1,990,668.00 (35% of the agency budget). The division performed activities as set forth on the accompanying table.

The Hunter Safety Program provides mandated classroom training and lectures on a statewide basis to insure firearms safety and good hunting practices. Operating expenses for a staff of 6 which includes 5 uniformed officers (2% of the total force) amounted to \$176,304.00 (3% of the agency budget).

MARINE ENFORCEMENT

The Marine Enforcement Section is responsible for the enforcement of all laws and regulations pertaining to the protection of natural resources within the tidal waters of the State. The division also enforces the State Boat Act on tidal waters and investigates criminal activities uncovered during the performance of its primary missions on

NATURAL RESOURCES POLICE ACTIVITIES FY 1981

	FY 80	FY 81	% change
Headquarters Section			
Calls received	31,709	35,052	+10.5
Public Relations Details	21	18	-14.3
POLICE ACADEMY (Staff Hours)			
Cadet Training	20,023	17,960	-10.4
Recruit Training	9,964	9,650	-3.2
In-Service Training	3,732	6,616	+77.2
MAINTENANCE & SUPPLY SECTION			
Store requisitions	1,589	1,543	-2.8
Repair Job Orders	1,365	1,018	-25.4
AVIATION SECTION			
Hours flown	451	427.1	-5.2
Cases made	90	73	-18.8

the Chesapeake Bay and its tributaries. With 119 employees, which includes 117 uniformed officers (52% of the total force) and an operating budget of \$2,457,500.00 (50% of the agency budget) the division performed the activities as set

forth on the accompanying table.

The Boating Safety Section conducts a home study course designed to promote public safety and prevent boating accidents. A staff of 2 (1% of the total force) and an operating budget of \$81,211.00

(1½% of the agency budget) distributed 8,989 Basic Boating Courses and was responsible for incorporating the course in the curriculum of 42 schools in Maryland. Activities conducted are set forth on the accompanying table.

NATURAL RESOURCES POLICE ACTIVITIES FY 1981 (continued)

	FY 80	FY 81	% change		FY 80	FY 81	% change
Inland Division				INVESTIGATION SECTION			
FIELD ENFORCEMENT SECTION				Investigations-abandoned boats	151	152	+ .05
Arrests	2,001	2,339	+17	Warrants processed	125	350	+180
Warnings	273	266	-3	Criminal & Court Summons served		19	*
Fisherman checked	34,452	32,028	-7	Stolen boats	201	196	-2
Hunters checked	22,712	22,103	-3	Recovered boats	85	92	+10
Boaters checked	5,147	4,823	-6	Stolen motors	47	141	+200
Trappers checked	806	389	-52	Recovered motors	5	78	+1400
Public Relations Details	186	194	+4	Stolen Articles	150	121	-19
Telephone calls rec'd ofc	35,714	38,835	+9	Recovered Articles	2	78	+300
Telephone calls rec'd home	18,011	17,826	-1	Larceny Investigations	267	268	-.08
HUNTER SAFETY PROGRAM				ACCIDENT INVESTIGATION			
Students certified	10,484	10,572	+1	Boating accidents	259	224	-13
Volunteer instructors	458	264	-42	Boats involved	288	304	+5
Accidents	18	34	+88	Property damage	\$800,378	\$742,135	-7
Marine Division				Injuries	103	68	-34
ENFORCEMENT				Deaths	39	23	-41
Arrests	3,535	3,493	-1	BOATING SAFETY PROGRAM			
Warnings	2,007	1,710	-15	Students certified	2,129	1,936	-9
Confiscations	1,440	1,281	-11	Boating Safety assignments	129	135	+5
Boat Inspections	103,285	109,817	+6	Man Hours		627	*
Seafood Establishments checked	13,758	14,334	+4	MISCELLANEOUS			
Vehicles checked	577	648	+22	Assists to other agencies	197	210	+7
Assists to Public	1,481	1,161	-22	Man Hours expended	4,167	3,375	-19
Persons rescued by assists	3,099	3,021	-2	Value of stolen property	\$627,083	\$793,618	+26
Public Relations details	252	303	+20	Value of property recovered	\$358,864	\$588,714	+64
Telephone calls rec'd home	10,610	11,883	+12	Investigate drownings		73	*
Visits from public-home	780	746	-4	Man hours on drownings		1,176	*

* Denotes first time this information reported



WATER RESOURCES ADMINISTRATION

Budget 3,430,042
 Number of Staff 111

The Water Resources Administration is responsible for the protection, management and development of Maryland's water resources. This is accomplished through the administration of the Watershed Management Program, the Resources Management Program and the Resources Protection and Oil Spill Control Program.

GENERAL DIRECTION

This program is responsible for the overall direction, supervision and coordination of the policies and operations of the Administration. Coordination of public notices and hearings and a public information office are also functions of this office.

RESOURCES PROTECTION PROGRAM

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

Enforcement Division

Enforcement is responsible for the inspection and enforcement activities of the Water Resources Administration authorized under the Natural Resources Articles Titles 7, 8 and 9 and the regulations adopted pursuant thereto, including oil control activities. 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. Each regional inspector monitors an average of 400 active permits.

This figure reflects the fines and penalties assessed for violations of the Natural Resources Laws administered by the Water Resources Administration for FY '81.

In FY '81 Enforcement personnel focused additional attention on 1) Surface Mine permit holders who were violating the conditions of the permit by disturbing more area at one time than allowed and by not implementing and maintaining sediment and erosion control, and 2) on unauthorized waterway construction projects, specifically, county and State roads projects.

The Enforcement Division and Natural Resources Police detachment have increased efforts to monitor the Annapolis Anchorage for violations of the Oil Pollution Laws.

Oil Control Division

The Oil Control Division is responsible for issuing Oil Operations Permits, Oil Vehicle Operator's Certificates, and Oil Terminal Facility Licenses as well as the follow-up field enforcement work related to this activity. 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 has developed and obtained equipment to respond to, and, to contain and clean up oil spills on inland and open waters of the Chesapeake Bay.

A 24-hour radio watch is maintained to respond to oil spill emergencies.

Permits

Oil Operations Permits Issued	257
Driver Certifications Issued	1,235
Oil Terminal Licenses Issued	176
Spill Response	
Spills Responded to by WRA	345
Total Spills Reported	2,542*
WRA Response Team Assisted Spills	147

Summary of Administrative Actions	Total
Complaints and Orders issued for violations of Maryland law and regulations	256
Supplemental Orders issued for follow-up actions	111
Inspections for permitted activities	9,218
Complaints received and follow-up actions	571
Cases referred to the Attorney General for legal action	42
Citations/Criminal Summons — Issued/Served	37
Other Process Services	25
Total Fines Paid	\$78,800.00

*The Water Resources Administration stores spill equipment and absorbent materials around the State for use by local fire departments and other agencies to combat minor oil spills. In many cases, local officials are on scene and can cope with small spills.

The Oil Spill Control Division provides training and instruction statewide to help industry and others prevent and control oil spills. Approximately 25 presentations were made to volunteer firemen, high school students, State Highway personnel and tanker transfer personnel.

The Ad Hoc Committee on Open Water Spills met quarterly to discuss and advise the Administration on Federal Superfund Legislation, new equipment purchases and effective oil spill clean-up and restoration.

The Laboratory Services Division

This division conducts the bacteriological and chemical analyses necessary to support a variety of Department of Health and Mental Hygiene and Department of Natural Resources programs. Laboratory facilities are located in Western Maryland and at the Tawes State Office Building in Annapolis.

The Annapolis Laboratory performed the following analyses:

Maryland Environmental Service — Operations & Maintenance (Sewage Treatment Plants)	10,279
Maryland Environmental Service — WSSC Sludge	1,049
Maryland Wildlife Administration — SOS Program	3,071
Maryland Tidewater Administration	6,418
Enforcement and Industrial Waste (WRA and DHMH, OEP)	3,382
Water Quality Monitoring (OEP)	11,939

The Western Maryland Laboratory performed a total of 14,314 analyses for the Department of Health and Mental Hygiene and the Department of Natural Resources.

The laboratory personnel attended seminars and training courses to acquire the most up-to-date technique for proper sampling and analysis of hazardous wastes, and for identification of petroleum products in oil spills. They

also conducted seminars for DNR and DHMH field personnel on proper sampling techniques.

RESOURCE MANAGEMENT PROGRAM

This three division program includes the Wetlands Division, Surface Mining Division and Water Supply Division. These divisions issue a variety of permits, approvals and licenses for effective resources management.

Wetlands Division

The Wetlands Division has responsibility for issuing wetland permits and approvals for the regulation of dredging, filling and related activities in private wetlands; making 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; administering the monitoring of overboard dredge spoil disposal projects; and providing comment on matters affecting tidal and non-tidal wetlands throughout the State. The permit and licensing procedures for these activities involve site inspections, technical evaluations, interagency coordination and public hearings. In addition, 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 is pursuing a developmental and oversight role in the preparation and conduct of integrated studies to assess the environmental impacts of construction and operation of the Hart-Miller Islands Containment Facility. Environmental monitoring was expected to begin August 1981.

The Division conducted workshops for local governments, interested agencies and citizens on the "non-Tidal Wetlands Study of the Patuxent River Watershed."

Projects Processed

License Recommendations to Board of Public Works	420
DNR Permits	24
DNR Notification Approvals	72
DNR Letters of No Objection/No Jurisdiction	179
Federal Project/Other Reviews and Evaluations	89
Advisory Services	266

Surface Mining Division

The Surface Mining Division is responsible for the prevention and elimination of hazards to public safety from non-fuel surface mining activities, assuring environmental safeguards in the operation of non-fuel surface mines and the reclamation of land areas affected by non-fuel surface mining. The Division issues licenses and permits and establishes permit conditions. It also reviews and evaluates each mining and reclamation plan submitted and must make an annual review of each permit. Funds received from license fees, permit fees and other sources are held in the Surface Mined Land Reclamation Fund to be used for reclamation of abandoned non-fuel surface mines.

Site Inspections

Original Permit Applications	23
Permit Modifications	20
Permit Renewals	61
Abandoned Mine Inventory	152
Assistance to Enforcement	94
Other	49

Applications

Permits — Original	14
Transfer	11
Modification	25
Renewal	55
Licenses — Original	26
Renewal	181

Since funds available for reclamation are limited, the Surface Mining Division has developed a priority list of abandoned surface mine sites based on the need for reclamation and potential for safety problems. An initial reclamation project is planned for the Patuxent River Watershed.

This Division is participating in a demonstration project with the Eastern Regional Remote Sensing Application Center (NASA's LANDSAT data collection center) to map sand and gravel pits in the Patuxent River Watershed and monitor reclamation efforts via satellite remote sensing.

The Division worked closely with the enforcement personnel of the Resources Protection Program to assure surface mine operators' compliance with permit conditions.

A report entitled: *Mapping Sand and Gravel Pits in the Patuxent River Watershed*, T.J. Schmidt and R.G. Witt, Second Annual ERRSAC Conference, 1981 was published.

Water Supply Division

The Water Supply Division directs the development, conservation and use of the State's water supplies to meet present and future needs of municipal, industrial, commercial, agricultural and domestic water users, while protecting the in-stream values and groundwater supplies of Maryland. The Water Appropriations Permits Section and the Water Supply Planning Section make up this division.

WATER APPROPRIATION PERMITS SECTION

The Water Appropriation Permits Section issues permits for appropriation and use of waters of the State. Permit evaluations are conducted to lessen potential conflicts among appropriators, protect in-stream values during low river flow and protect groundwater supplies. The section also provides technical hydrogeologic and engineering assistance to individuals and jurisdictions on the availability and ef-

ficient development of local ground and surface water supplies.

WATER SUPPLY PLANNING SECTION

The Water Supply Planning Section's activities include: development of comprehensive water supply management plans; State-wide water conservation and water shortage planning; multi-agency and multi-state coordination of water supply planning activities; surveys of water supply and demand; review of county water and sewerage plans; landfill siting plans and clearinghouse projects; and, quantification of low-flow characteristics and aquifer modeling.

Major accomplishments of FY '81 were: completion of an annual statewide water use report; cooperative development of water conservation studies of Crisfield, Hagerstown and Frostburg; water supply planning for Emmitsburg; completion of the annual funding application and report to the U.S. Water Resources Council; initiation of a state water conservation program; publication of a conservation information sheet; and, completion of a Water Resources Administration water shortage emergency plan.

A three year multi-agency study of the environmental impacts of low flow conditions in the Potomac River above Washington was completed. The study recommended various measures improving the fishery habitat and set a 100 million gallons per day minimum flow-by subsequently adopted by Virginia, the District of Columbia and the Federal government.

Applications Received	595
Applications Issued	976
Permits Modified	484
Appropriation records on file	7,741
Site Inspections	301
Hearings	8
Clearinghouse projects	14
Computer data requests	32
Water and Sewer plan reviews	8
Refuse Disposal Site reviews	13

WATERSHED MANAGEMENT PROGRAM

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

Flood Management Division

The Flood Management Division is responsible for the coordination of the National Flood Insurance Program, administering the State Flood Management Grant Program, conducting the watershed modelling and technical studies required under the Flood Management Act, providing coordination under the State's Assistance Program funded by the Federal Emergency Management Agency and assisting local government with Flood Management problems.

Flood management studies underway in FY '81 included: Hall Creek, Calvert County; Hunting Creek, Frederick County; Owens Creek, Frederick County; Cabin Branch, Anne Arundel County; Mat-tawoman Creek, Charles and Prince George's Counties; Middle Patuxent River, Howard County; and, Beaverdam Creek, Wicomico County.

Flood Insurance Contractual Studies in progress during FY '81 include the following counties: Dorchester, Cecil, Somerset, Anne Arundel, Wicomico, Talbot and Queen Anne's.

The State's Assistance Program, funded by the Federal Emergency Management Administration, is assessing and evaluating current government programs in an attempt to coordinate flood hazard mitigation activities in Maryland. A draft plan for Flood Hazard Mitigation is under review by participating agencies.

Floodplain mapping in coastal counties that will allow local governments and developers to recognize flood hazards of particular tracts of land during planning continues. The maps are to be compatible with local zoning and property taxes.

Regulations governing the Flood Hazard Management Act's Grant program were developed. This program is funded by a \$7.5 million bond issue which allows the state to pay a part of the cost of capital projects for flood management. About \$3.5 million was authorized in FY '81.

The Division served as technical advisor to: Charles County Stormwater Management Task Force, Anne Arundel County Stormwater Management Task Force, and Regional Planning Council Flood and Stormwater Management Committee.

Watershed Permits Division

The Watershed Permits Division reviews permit applications for a variety of projects that affect non-tidal streams and floodplains. The Division conducts site inspections and technical evaluations of proposed projects leading to permit decisions. In addition, advisory services are provided to prospective applicants on measures and alternatives that will minimize a project's adverse effects on the environment. The Division project reviews for FY '81 are as follows:

Type of Project	Requests Received	No. Approved
Maintenance and Repairs	185	108
Temporary Construction	165	169
State/Federal Erosion & Sediment Control Reviews	219	103
Waterway Construction	216	199
Waterway Obstruction (Dams)	6	1
Small Ponds	10	6

In FY '81 emphasis was placed on project reviews for trout waters. Applicants must apply for project approvals for natural trout streams and their floodplains whose watershed comprises 100 acres or more. The Division reviewed two contested projects that affect the Jones Falls Watershed in Baltimore City.

Erosion and Sediment Control Division

The Erosion and Sediment Control Division directs the statewide

Erosion and Sediment Control effort; conducts the triennial reviews of local sediment control programs and the "Responsible Personnel" Training Program.

The triennial review seeks to assure that the local jurisdiction's erosion and sediment control programs adequately prevent sediment problems. During FY '81, the Division reviewed programs and worked with Prince George's County, Town of Aberdeen, City of Havre de Grace, Town of Bel Air, Harford and Carroll County.

The "Responsible Personnel" Training program was designed to promote an understanding of the benefits of clean water and to offer training to construction industry field personnel and local government agencies. Participation in the program will enable personnel to fulfill State requirements for certification in erosion and sediment control techniques. Currently, nearly 8000 individuals are enrolled for training.

The Erosion and Sediment Control Division, the State Soil Conservation Committee and the Soil Conservation Service are sponsoring revisions to the "Standards

and Specifications for Soil Erosion and Sediment Control in Developing Areas" which serves as the official guide for erosion and sediment control principles, methods and practices.

A "Directory of Materials Relating to Soil Erosion, Sediment Control and Storm Water Management" was compiled

A review of current erosion and sediment control procedures was undertaken and is nearing completion. The identification of these

alternative methods of control will be included in the revised "Standards and Specifications."

Dam Safety Division

The Dam Safety Division administers the dam inspection program. With Federal funding and State support, preliminary inspections have been completed on 58 dam structures in the State. All thirty-four Class I structures and eight selected Class II and III dams in Maryland have been evaluated on the basis of, and in conjunction with, the National Dam Inspection Program implemented by the U.S. Army Corps of Engineers. The other sixteen (Class II and III) structures have been evaluated under the State's continuing Dam Safety Program. Six of the Class I structures were recommended for extensive hydraulic and hydrologic evaluations to make recommendations to correct spillway deficiencies. Four of the evaluations are complete or underway. Two are awaiting owner funding for further studies. The Administration is working to set up an adequate warning system at these structures until remedial construction is completed.

	FY '80	FY '81
Phase I, Inspections/Reports (Federal/State)	12	5
Inventory Inspections (Federal/State)	121	65
Periodic Inspection Reports (State)	1	4

The Division is actively working with dam owners and the State Civil Defense Office to develop and implement effective emergency warning systems and evacuation plans for Class I and II dam structures. Preliminary Spillway adequacy studies are being performed for the remaining Class II and selected Class III dam structures which were not eligible for evaluation under the Corps' program. With the inventory and inspection goals of the National Dam Inspection Program fulfilled, the State is assuming its regulatory role of continuing periodic inspections to detect operation and maintenance and other safety deficiencies.



MARYLAND ENVIRONMENTAL SERVICE

<i>Budget</i>	
<i>General Funds</i>	
Total.....	\$2,420,655
<i>Special Funds</i>	
Total.....	\$1,918,924
Total.....	\$4,339,579

The Maryland Environmental Service is a self-supporting waste management utility, created as a State agency and as a non-profit corporation by the Maryland General Assembly in 1970.

MES Financial Accounts include both budgeted State and non-State funds; and non-budgeted corporate funds.

The State budget reflects the cost of:

1. Operating State-owned water and wastewater plants at institutions such as schools, hospitals, parks and correctional facilities.
2. Providing a limited planning and technical services program for the benefit of other State agencies and local governments, a Hazardous Waste Siting Program, and staff support to the Hazardous Waste Siting Board; and
3. Operating the central office.

(*General funds are used to cover the direct costs of 1 and 2 above and a proportionate share of central office overhead costs.)

The combined operating budget for Fiscal Year 1981 was approximately \$19 million. The Service estimates that the 1983 combined budget will be between \$25 and \$35 million, depending upon the development of new projects now in the planning stage.

Eighty-six percent of the MES combined budget is derived from non-State sources and over 95% of the Service's budget is spent to carry out its utility functions.

Projects not reflected in the State budget are handled through the Maryland Environmental Service corporate accounts. These accounts are audited annually by a Certified Public Accountant, and reviewed by the State's Legislative Auditors.

During FY 1981, the Service employed a total of 322 persons. One hundred and twenty-eight of these were State employees. Two were contractual State employees. In addition, 71 persons were employed under contract to operate the Baltimore County Resource Recovery Facility at Cockeysville and 128 others were MES corporate employees working at sludge management sites, sludge research activities, and at one Hazardous Waste Management facility operated by MES.

GENERAL DIRECTION AND ACCOUNTING

These two programs provide management and direction, fiscal support and administration to the other programs. Legal counsel, legislative liaison, personnel, purchasing, public affairs and contract administration are among the services provided.

ENGINEERING SERVICES

The Program provides, coordinates and supervises the design and construction activities of the Agency. During FY '81 Engineering Services, under contract to the Washington Suburban Sanitary Commission developed two composting facilities designed to handle 1,000 TPD of sewage sludge for Prince George's and Montgomery Counties. These installations, the largest in the world, have received State and national awards for the expeditious manner in which they were designed, built and became operational.

Although the design for these facilities did not begin until August, 1980, MES was able to provide composting capability at the Dickerson Facility in Montgomery County by January, 1981, and at the Western Branch Facility in Prince George's County by February, 1981. By the end of the 1981 Fiscal year the Dickerson Facility was fully completed with a final construction cost of \$4 million; the Western Branch Facility was 75% complete at year's end and final costs were also expected to be \$4 million. During FY '81 these facilities have composted 90,000 tons of sludge and were able to end the sludge entrenchment program which over the last six years had buried 900,000 tons of sludge.

The compost product produced at these facilities is being successfully marketed under the name "COMPRO."

HAZARDOUS SUBSTANCES

Under the contract with Allied Chemical Corporation of Baltimore, MES stored more than 60,000 tons of chrome ore tailings in the Hawkins Point Hazardous Waste Containment Site on Maryland Port Administration Property adjacent to Thoms Cove in Curtis Bay.

A concerted effort to establish a suitable disposal facility for all hazardous wastes was undertaken during this year, with the appointment by the Governor of a Hazardous Waste Siting Board. MES provides staff for the Board.

OPERATIONS AND MAINTENANCE

This program operates water and wastewater treatment plants and supervises operation of solid waste management facilities for private entities, political subdivisions, and State-owned institutions. During FY '81, ninety plants were operated by MES. The Service has continued to upgrade and improve the plants for which it has responsibility. Major purchases of equipment during 1981 have resulted in improved capability to handle in-plant emergencies of operational and mechanical nature.

Increasing awareness of the unsatisfactory nature of the use of chlorine for disinfection of effluent

has led DNR to seek methods of reducing the quantities of chlorine discharged at selected treatment facilities in Maryland. MES has conducted tests of other chemical and biological means of disinfection in FY '81.

TECHNICAL SERVICES

Under Legislative direction this program has undertaken the development of an inventory of suitable sites for hazardous waste disposal facilities. Public meetings, writing of siting guidelines, establishment of criteria, and evaluation of the entire State for suitable sites have been underway and will continue into FY '82.

Another project of the Technical Services Group is the development of a model feasibility study in a four-county Eastern Shore area, with a view to establishment of a mid-shore resource recovery project to convert waste to energy. Technical Services also has been involved in a long-term study of the use of vascular plants to polish the effluent of a sewage treatment facility at Easton. Begun in Fiscal Year 1980, results of this test planting will be available after the growing season of 1982.

As part of the Used Oil Program which is staffed by Technical Ser-

vices, more than 8 million gallons of used crankcase oil were collected and returned for reprocessing and reuse in FY '81. Some of this oil is generated by commercial and industrial users; but a significant quantity has come from individual "do-it-yourself" motorists who change their own crankcase oil and who have been educated over the past several years in the importance of returning the old oil for recycling.

Other recycling efforts have included the publication of a well received recycling directory, which enables individuals and organizations to locate potential markets for recyclable materials.

MES has worked with the newly created Northeast Maryland Waste Disposal Authority providing initial staff and expertise to it as the Authority works toward solving the solid waste disposal problems of the four jurisdictions involved.

Other MES staff activities include: Extensive consultation with a county government and a group of housing developers seeking to use innovative technology to treat wastewater, and, continuing exploration of markets for the Baltimore County resources recovery facility and examining the feasibility of converting to electricity production.



MARYLAND GEOLOGICAL SURVEY

<i>Budget</i>	
<i>General Funds</i>	\$1,025,694
<i>Special Funds</i>	325,041
<i>Federal Funds</i>	351,895
<i>Reimbursable Funds</i>	<u>119,229</u>
<i>Total</i>	\$1,821,859
<i>Number of Staff</i>	42

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; it 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. Examples of such application include water supply, water pollution, assuring continuing supply of mineral resources, the many ramifications of

land use, the use of the Chesapeake Bay and Bay bottom, shore erosion and shore protection, and the preservation and study of archeological sites threatened by development.

Survey expenditures increased from \$1,734,005 in FY '80 to \$1,821,859 in FY '81. The overall growth combined a decrease of \$263,127 in General Funds, an increase of \$88,527 in Special Funds, an increase of \$143,225 in Federal Funds, and receipt of \$119,229 in Reimbursable Funds from other state agencies.

Publications

Seven reports and four maps were published and available for distribution. The reports were:

Rept. Invest. No. 32, Geologic Interpretations of Aeromagnetic Maps of the Crystalline Rocks in the Appalachians, Northern Virginia to New Jersey.

Rept. Invest. No. 34, The Availability of Ground Water in Western Montgomery County.

Inf. Cir. 32, The Design and Calibration of a Rapid Sediment Analyzer and Techniques for Interfacing to a Dedicated Computer System.

Info. Cir. 33, 1979 Annual Report of the Maryland Geological Survey.

Info. Cir. 34, Mineral Industry in Maryland in 1977.

Info. Cir. 35, Mineral Industry in Maryland in 1978.

Basic Data Rpt. No. 11, Garrett County Water Well Records, Chemical Quality Data, Ground Water Use, Coal Testhole Data, and Surface Water Data with a Section on Gas Well Records.

The maps were:

Geologic Map of the Ellicott City Quadrangle

Prince George's Mineral Resources and Mined Land Inventory Map

Topographic Map of Dorchester County

Topographic Map of Queen Anne's County

Committee Activities

Through its Director, the Survey is represented in intra-state 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; Committee on Surface Mining and Reclamation; National Academy of Sciences; Delaware Boundary Commission; Maryland Mining Council; State Topographic Mapping Committee; Frederick-Montgomery-Howard County Boundary Line Ad Hoc Committee; and Land Reclamation Committee.

Exhibits illustrating Survey Activities were displayed at the Montgomery Gem and Mineral Show, Eastern Section Association of American Geographers Annual Meeting, Towson Branch of the Baltimore County Library, Chesapeake Gem and Mineral show, Chesapeake Appreciation Days, and the Annual Conventions of the Maryland Municipal League and Maryland Association of Counties.

HYDROGEOLOGY AND HYDROLOGY

The Hydrogeology and Hydrology Program, in cooperation with the U.S. Geological Survey, 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 (1) 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; (2) the amount of sediment load in the Potomac River Basin; (3) the ground-water levels in selected wells throughout the State to determine the hydrologic effect of long-term changes in pumpage, land-use patterns, and precipitation; and (4) the chemical quality of streams at selected localities.

Site-specific water-resources projects are undertaken to extend the inventory of water resources of the State and to determine water characteristics and rates of replenishment. Applied research projects of this type are often supported by intrastate matching funds.

The following projects were active during FY 81:

Stream-Flow Gaging Network

Eighty-seven continuous-record stream-gaging stations were in operation. In addition, partial-record stations were operated. Data from these stations for the 1980 water year were compiled and published in "Water Resources Data for Maryland and Delaware," U.S. Geological Survey Water-Data Report MD-DE-80-1.

Water Quality and Sediment Network

Surface water samples were collected monthly for chemical analysis at nine network stations and quarterly at thirteen other stations. Regular sampling at three suspended-sediment stations was continued in the Potomac River Basin. Data from these stations for the 1980 water year were compiled and published in "Water Resources for Maryland and Delaware," U.S. Geological Survey Water-Data Report MD-DE-80-1.

Ground-Water Data Network

This project maintains a continuing inventory of ground-water levels in aquifers and selected springs of the State and relates changes in ground-water levels to withdrawals and precipitation.

	Wells	Springs
Appalachian Region:	12	1
Piedmont Province	18	—
Coastal Plain Province		
Western Shore	32	—
Baltimore Industrial Area	6	—
Eastern Shore	26	—
Total	94	1

Ninety-five wells and springs comprise the regular network, and several hundred wells are being measured periodically as part of the aquifer research projects.

Selected measurements of ground-water levels were published in U.S. Geological Survey Water-Data Report MD-DE-80-1.

Water Use Data System

In FY 81 an Administrator was hired to coordinate water use data collection in the State. A program management plan was developed

Stream-Flow Characteristics

Low-flow frequency analysis, updated to include current stream-flow data, was completed for the network of continuous-record gaging stations in Maryland. Frequency distributions were computed in order to determine low-flow characteristics (7-day, 2-year discharge, etc.) for the gaging-station network. Seven-day, 2-year and 10-year discharges were determined for the low-flow partial-record network of approximately 70 gaging stations and recomputed/updated for another 28 low-flow stations previously published in Maryland Geological Survey RI 16.

Modeling of Rock Aquifers in Small Basins

Surface and ground-water measurements were completed for Cattail Creek Basin in Howard

County. The data were matrixed and model calibration runs were underway at year's end to match model output with the field conditions.

Spring Survey

About 100 of the more important springs occurring in the Piedmont and Appalachian provinces of the State are being inventoried. In this survey the flow rates and chemical/thermal characteristics of the springs will be measured. An attempt will be made to determine the topographic and geologic features that produce the springs.

Eastern Shore Water Table Aquifer

About 200 wells, including domestic, agricultural, industrial, and municipal supply wells were field located and made part of the observation network.

Nintey-two (92) auger borings were drilled in November, December, and January to aid in mapping the saturated thickness of the water table aquifer. Much of the drilling was concentrated in Queen Anne's, Caroline, Northeast Dorchester, and Wicomico Counties. The drilling revealed that an extension of the "Salisbury Paleochannel" extends northwestward to at least the Harmony/Ridgely area of Caroline County.

Maps prepared during the year include 1) a map of the base of the water table aquifer; 2) a map of the thickness of the water table aquifer; 3) a map showing the distribution of the units subcropping beneath the water table aquifer; 4), a map of the thickness of the artesian aquifers (i.e., sands) subcropping between the water table aquifer; and 5), a map of observation wells.

Aquia/Piney Point Aquifer System of Southern Maryland

A report summarizing the results of the project has been prepared and is currently in review. The report describes the hydrogeology of the Piney Point and Aquia aquifers.

Coastal Plain Aquifer Studies

During the year semiannual, synoptic water level-measurements of observation wells were made for the Patuxent, Patapsco, Magothy, and Aquia aquifers. Potentiometric and water level change maps were prepared for each of the aquifers.

In FY 81, the U.S. Geological Survey drilled a deep test well (Dor-Ce 88) near Cambridge in Dorchester County at a site selected by the Maryland Geological Survey. The Well reached a total depth of 3,334 feet. The top of gneiss "basement" rock was encountered at 3,306 feet. Cores, drill cuttings, geophysical logs, and water quality analyses were obtained and are being used as part of a study to define the hydrostratigraphic framework and potential utilization of the saline aquifers underlying the Eastern Shore of Maryland.

In FY 81 three reports describing Coastal Plain aquifer studies were in review.

1) Geohydrology and Digital Modeling of the Fresh-Water Aquifer System in the Vicinity of Ocean City, Maryland.

2) Hydrogeology of the Potomac Group Aquifer System of the Upper Eastern Shore, Maryland.

3) A Digital Model of the Potomac Group Aquifer System of Anne Arundel County, Maryland.

Coal Hydrology Study

During the year 13 observation wells and 3 stream gaging stations were equipped with continuous recording devices to monitor changes associated with coal mining at the Mettiki "A" Mine located near Table Rock in Garrett County. Pumping tests were conducted in 10 of the observation wells to determine aquifer properties. Concurrently water samples were collected for analyses. These tests will be repeated in future years to determine what aquifer and water quality changes have occurred due to mining. Seepage runs along several reaches of Laurel and Sand Runs were made. These

will also be repeated to determine changes in stream low-flow characteristics due to mining.

Hydrogeologic Aspects of Power Plant Siting

Monitoring of observation well stations continued at Morgantown power plant and Douglas Point site in Charles County, Chalk Point power plant in Prince George's County, Calvert Cliffs plant in Calvert County, Elms site in St. Mary's County and Still Pond Neck site and Fairlee site in Kent County.

ENVIRONMENTAL GEOLOGY AND MINERAL RESOURCES

The Environmental Geology Program encompasses areas of geological research, geologic mapping, topographic map compilation and periodic revision, environmental geology applications, and the general dissemination of earth sciences information about Maryland. The Mineral Resources aspect of the Program includes mapping of present and potential resources, mined land, and mineral zoning, and monitoring current activity of extraction of these minerals. Studies such as these provide the basic framework for outlining and managing the mineral and land resources of the State, and generate the geologic data necessary for wise land-use decisions. Expenditures in FY 81 were \$163,794 for this Program, down \$7,866 from the previous year. Six geologists staff this Program. The following investigations were undertaken or completed during FY 81:

BALTIMORE—WASHINGTON URBAN AREA

Mapping was completed in the Woodsboro Quadrangle, and work continued in the Lower Marlboro and Hereford Quadrangles. The Elicott City Geologic Quadrangle was published. To date, 26 geologic quadrangles have been mapped within the scope of this project, 12 of which have been published.

OTHER GEOLOGIC MAPPING

Mapping continued in the Cumberland Quadrangle of western Maryland. Geologic field work was begun in Caroline County.

TOPOGRAPHIC MAPPING

Limited revisions of the Queen Anne's and Dorchester County maps were published, and revision work was initiated or continued for maps of Garrett, Frederick, Baltimore, and Charles Counties.

LANDS FOR POTENTIAL MINERAL RESOURCE DEVELOPMENT

A study was completed in cooperation with the Coastal Resources Division of the Tidewater Administration to compile areas with less absolute restrictions on the future exploitation of sand and gravel, i.e., wetlands. The resultant maps, one for each of the Coastal Plain counties in the Baltimore-Washington metropolitan area, provide a more precise tool for environmental management programs, resource planning, and the public. These maps are available as open-file reports.

A grant from the U.S. Geological Survey provided funds for similar studies in the western and central Maryland counties. A map of Anne Arundel County is being compiled showing the historical rates of pre-emption of sand and gravel resources between 1938 and 1978. These maps should be completed in early FY 82.

WESTERN MARYLAND GAS

Indigenous Maryland gas continued to be produced in Garrett County from 10 wells in three fields.

There was a noticeable increase in seismic reflection surveys by major as well as independent oil companies, evidenced by the number of permits granted to cross State lands in western Maryland. Pan American Petroleum Corporation drilled a dry hole near Avilton in northeastern Garrett County. Columbia Gas Transmission Corporation drilled a deep

field wildcat in the Mountain Lake Park Field of southern Garrett County and was testing the well at year's end.

POLICY FOR LEASING STATE LANDS

A final policy for leasing mineral rights to State lands for natural gas exploration and development was approved by the Secretary, Department of Natural Resources. Regulations to implement this policy were being drawn up at the end of the year and should be approved in FY 82.

MISCELLANEOUS PROJECTS

In addition to the major activities cited above, a number of other projects are underway. Work was begun on a leaflet entitled "Geological Cross Section of Maryland" which will delineate the general geology for the layman along some major highways of the state. A manuscript of mineral collecting in the greater Washington area is complete and is planned for publication in FY 82.

Field work on the resurvey of the Frederick-Montgomery-Howard-Carroll Counties was completed and final reports for this project will be made in FY 82.

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 Chesapeake Bay. The program has two major projects: Basic and Applied Research and the Chesapeake Bay Earth Science Study.

Basic and Applied Research

The activities of this project included basic research of shoreline

erosion along Chesapeake Bay and Atlantic Ocean, special informational requests from the public, evaluation of Wetland Permits, and administration of the Program.

In cooperation with the Coastal Resources Division, Tidewater Administration, preliminary investigation of the sand resources in the Isle of Wight shoals was completed and a report submitted to Coastal Resource Division.

A paper was presented at the Coastal Zone 80 Annual Meeting in Florida, entitled, "The Role of a State Geological Survey in Barrier Island Management: A Critical Link between Research and Policy," by Randall T. Kerhin, Kenneth N. Weaver, and Jeffrey P. Halka. The paper discussed the beach and dune changes occurring over the past 10 years on Assateague Island as determined by beach profiles.

Jeffrey P. Halka presented a paper entitled, "Identification of a Paleochannel System along the East Flank of the Chesapeake Bay," at the annual Geological Society of America Meeting.

Chesapeake Bay Earth Science Study (CBESS)

The study, funded by grants from the U.S. Environmental Protection Agency, entered its third year. CBESS has three major task areas: Sedimentology, Geochemistry, and Animal-Sediment Relationships.

Sedimentology

The objective of this study is to determine the distribution and physical properties of the Chesapeake Bay sediments and to identify the sites of erosion or deposition of these sediments in the estuary.

A series of Chesapeake Bay Atlases (CBA's at a scale of 1:40,000) are being prepared to portray the physical and chemical characteristics of the sediments that have application to management of environmental problems. Each atlas will consist of seven maps: Sample Location, Sediment Distribution,

Water Content, Total Carbon Content, Organic Carbon Content, Sulfur Content and Sedimentation Rates.

Information gathered by this Study was presented to EPA at the Chesapeake Bay Program Annual Meeting in Ocean City. Significant findings included: 1) Two dominant sediment types in the Maryland portion of Chesapeake Bay are sand and silty clay; 2) Evidence of exposure on the Bay floor of pre-Quaternary sediments of Miocene age, especially adjacent to the Calvert Cliffs; 3) Possible slumping of the eastern wall of the axial channel.

Geochemistry

The objectives of this investigation are: (1) to characterize water/sediment composition and to examine the variations in interstitial water chemistry as a function of sediment type and position along the salinity gradients of the Bay; (2) to interpret the reactions between the mineral components of the sediments and the interstitial waters which may control the concentration of dissolved species in the system; and (3) to determine the mechanism and assess the extent of transfer of chemical species across the sediment-water interface.

Investigation of interstitial pore water of Bay sediments has entered its final stage.

Two new grants were awarded by EPA, one to conduct interstitial water chemistry analyses of the sediments in the Patapsco and Elizabeth Rivers, and the second, to monitor acid-rain fallout at six locations around the Bay.

Animal-Sediment Relationship

Research commitments to EPA were completed with submission of the final report. Information from the final report was excerpted for separate publication: "Atlas of X-ray Radiographs of Chesapeake Bay and Vertical Distribution of Benthic Organisms." The Atlas of X-ray Radiographs is the first of its kind ever produced for Chesapeake

Bay, and describes the physical environment of the various benthic communities. The manuscript is ready for publication.

A new grant was awarded by EPA to be a companion project to the Interstitial Water Chemistry project in the Patapsco River.

Boat Operations

In February the Survey accepted delivery of the Research Vessel *Discovery* from MonArk Boats of Monticello, Arkansas. The vessel is 47 feet long with a 16 foot beam. It is powered by twin diesel engines and cruises at 19 knots. The vessel has been especially outfitted with navigational equipment, booms, electrical wiring and gear, lab benches and storage so that research activities such as sediment coring, pore water sampling and analyses and geophysical survey can be conducted.

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 81:

Highway Studies

Archeological review and reconnaissance of proposed highway projects has continued since 1975. During FY 81 studies and reports

were completed for eight highway projects in four counties. Investigation of the proposed Route 60 by-pass at Hagerstown disclosed early aboriginal camps along the edges of former ponds that dried up about 4,000 years ago. On other highway projects, the Division provided coordination, including studies of a forge and an early 19th century black cemetery in the right-of-way for proposed dualization of U.S. Route 15 at Catoctin Furnace. Division responsibilities will expand next year to include excavation of endangered sites.

Monocacy Regional Survey

An extensive field study of archeology in the Monocacy River drainage in Maryland, begun in 1978, was concluded during this reporting period. The investigation developed a predictive model for aboriginal site location that will be useful to planners and cultural resource managers. The model documents that over three-quarters of the 287 known archeological sites in the Monocacy region are located near water, on well-drained soil, and where there is little slope. Relative to the area studied, the largest number of sites occur near the Monocacy River, and the fewest are in the Piedmont portion of the drainage system. A final report is in preparation.

Coal Region Survey

Intensive analysis of the prehistoric and historic archeology of the coal region of Garrett and western Allegany counties was initiated in FY 80 and will continue into FY 82. The study is gathering an archeological data base and designing a process that will assist in developing criteria for designation of lands unsuitable for surface mining. Extensive historical and field research are underway, a predictive model for aboriginal site location is being developed, and settlement trends during the historic period are being mapped and analyzed. The project is largely funded by the Federal Office of Surface Mining.

Archeological Resource Management

Preparation of a new set of site location maps for the entire state and publication of new guidelines for archeological investigation in Maryland concluded a series of management projects funded by HCGS through the Maryland Historical Trust.

Other Activities

In other activities, the Division reviewed many projects and reports submitted by private and governmental organizations, and responded to general information queries. The number of archeological sites recorded in the Maryland Archeological Site Survey increased from 3,620 to 4,297 during FY 81.

The Advisory Committee on Archeology advises the Maryland Geological Survey on archeological matters. It met on September 10, 1980, December 21, 1980, and March 15, 1981.

The Division of Archeology maintains close liaison with the Archeological Society of Maryland and the Council for Maryland Archeology.

In cooperation with the Archeological Society for the eleventh year, the Division co-sponsored the Annual Field Session in Maryland Archeology. The Session provides field and laboratory experience for volunteers while at the same time assists the Division undertake needed research on a project for which funds are not available.

Staff members presented illustrated talks to several school, civil and governmental groups. The State Archeologist continues to serve on the Governor's Consulting Committee for the National Register of Historic Places, the Scientific Council of the Maryland Academy of Sciences, is State representative on the Committee for Public Archeology of the Society of American Archeology, was appointed to the Governor's Science Advisory Council, and was elected President of the Archeological Society of Maryland.



TIDEWATER ADMINISTRATION

Budget

<i>General Funds</i>	<i>\$ 1,104,016</i>
<i>Special Funds</i>	<i>10,996,935</i>
<i>Federal Funds</i>	<i>2,410,652</i>
<i>Total</i>	<i>14,511,603</i>
<i>Number of Staff</i>	<i>150</i>

The Tidewater Administration, created on July 1, 1979 by Chapter 601 of the Maryland Code, brought under one Administration the Coastal Resources Division, the Waterway Improvement Division, the Tidal Fisheries Division and the General Direction Program which includes all executive vessels and tidewater facilities, sportsfishing and commercial fishing, liaison activities, and the State Boat Act responsibilities.

GENERAL DIRECTION

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

Administration and Support

This group provides administrative and clerical services in all phases of the operation. Budgets, contracts, personnel, purchasing and secretarial services are included with this function.

Boating and Fishing Liaison

Boating Liaison is charged with the liaison between the Department

and boating activities within the State, the Coast Guard Auxiliary, the National Weather Service, U.S. Corps of Engineers, United States Power Squadrons, most of the yacht clubs in the Chesapeake Bay Area, marinas, and thousands of individuals. The Guide for Cruising Maryland Waters is published by the Boating Liaison Office. In addition, this office acts as the conduit between the Department and the Boat Act Advisory Committee which advises the Secretary on all rules and regulations affecting the operation or equipment of boats in Maryland.

Commercial Fisheries maintains liaison with the commercial fisheries industry in Maryland. Involved is coordination with the State watermen, wholesalers, State Health Department, the State Department of Economic and Community Development, the Environmental Protection Agency and the University of Maryland Sea Grant Program. The Commercial Fisheries News is distributed free to 30,000 subscribers bimonthly.

The Sport Fishing Liaison represents the Department at sport fishing and recreation oriented exhibitions, shows, fairs, and tournaments. It is responsible for accurately informing and educating sport fishers and the general public of the status of the sport fishery resources and other water related sports and recreation. Contact is

maintained with outdoor writers. The fresh and salt water Maryland fishing tournaments are conducted through the program.

Tidewater Vessels and Facilities

The vessels under control of this group were the AURORA and the FIFTY-FIFTY during FY '81. Their function has been the promotion of the Chesapeake Bay and other Maryland waters. Numerous cruises were conducted through the year for the benefit of Maryland citizens.

The facilities currently under control of this group include 69 Prince George Street, the Cambridge Boat Yard, the Matapeake Water Port and the State Pier in Annapolis. The maintenance and operation of these facilities for the benefit of the State is a coordinated conjunctive effort which realizes the maximum utilization of facilities for the least dollar cost.

COASTAL ZONE MANAGEMENT PROGRAM

Coastal Resources Division

The division is charged with administration of the program, including a \$1,600,000 grant from the National Oceanic and Atmospheric Administration. Its primary functions are coordination of coastal issues among the many program participants, ensuring that all State and federal actions are consistent with the State's coastal resources policy, providing technical and financial assistance to local governments and State agencies, and improving the quality and extent of Coastal decision-making information.

Program Direction and Coordination

Responsibilities of this program include: making Federal, State, local government and citizens aware of the Maryland Coastal Zone Management Program and the Division's role within the Program; maintaining and enhancing

the networking relationships with Federal agencies that have coastal management responsibilities; establishing a three year agenda setting forth recommended State accomplishments; integrating each agenda schedule with specific Federal and State agency tasks as well as into Bay-wide State and Federal efforts; carrying out interstate coordination through participation in the Coastal States Organization and providing staff support to the Bi-State Working Committee for Chesapeake Bay and Maryland and Virginia Coastal Areas; and working towards the establishment of a multi-site National Estuarine Sanctuary for Chesapeake Bay, including two initial sites in Maryland.

Local Technical Assistance

Local Technical Assistance is responsible for establishing and maintaining contacts with local and federal governments, State agencies, and other states to assist local governments in implementing coastal management goals. Work accomplished ranged from establishing tidal flood area benchmarks in Dorchester County to establishing new zoning guidelines for marinas in Anne Arundel County.

The program also works with the Department of State Planning to make grants to municipalities for urban waterfront revitalization planning. It provides an information base for conservation of natural areas, siting of facilities such as marinas, and develops recreational boating policies.

Intergovernmental Coordination

The coordination of the planning and management aspects of State and other government resource management efforts is the responsibility of this program. They are:

1. To assure formal support of local government efforts in the implementation activities of the MCZMP.
2. To assure and initiate State

departmental and Federal agency involvement in developing and maintaining consensus on Program goals, objects and policies.

3. To ensure that Memoranda of Understanding, signed in FY '79, are periodically reviewed and updated as appropriate. Memoranda exist between the Department of Natural Resources and the Department of State Planning, the Department of Economic and Community Development, Transportation, Health and Mental Hygiene and Agriculture.

Work with federal agencies included naming representatives from each federal agency which influences coastal management to the Program's Coastal Resources Advisory Committee (CRAC). Procedures for determining the consistency of federal permit actions with the Coastal Zone Management Program were established.

Public Participation

The Coastal Resources Advisory Committee continued to assist the program by making recommendations on key coastal issues. Its activities included: testifying on CRAC's behalf at the hearings on continuing federal funding of coastal zone management programs; working closely with CRD on the development of a Critical Areas Report; approving the formation of a Dredging Task Force who work with State agencies on dredging issues; CRAC recommended continued support for the EPA Chesapeake Bay Program; CRAC sponsored an information exchange meeting on issues relating to the proposed Marley Neck Coal Transshipment facility; and CRAC toured Smith Island and supported plans of the U.S. Army Corps of Engineers for a shore erosion mitigation project.

Additionally, six issues of *Coast and Bay Bylines* were printed. The Coastal Land Policies information series was expanded. Coast Reports were printed on *Archeological Resource Management in Maryland's Coastal Zone; The Role of Boat Wakes in Shore Erosion in Anne A-*

rundel County; and Dredging and Spoil Disposal—Maintaining the Western Approach Channel to the Chesapeake and Delaware Canal.

Project Evaluation

The Project Evaluation Section provides a comprehensive review of major development projects in the coastal zone to ensure the project's consistency with State coastal resources policy, to ensure the use of best available information and where necessary to provide new data necessary to permit agencies in a timely manner. The section reviewed approximately 95 projects.

Special Problems Analysis

The section is responsible for improving the quality and extent of management decision-making information necessary to ensure wise use of coastal resources. This function is carried out through a variety of inhouse and contractual studies including the following: A Boat Wake Study to determine the impact of high speed motor boating on the small creeks and coves of Anne Arundel County. Impacts of Open Water Marsh Management being studied jointly with the Department of Agriculture determined a need to change the techniques for mosquito control on the Eastern Shore. A Choptank River Sediment Budget has been developed to evaluate the relative levels of suspended sediments from channel dredging, shellfish dredging, upland erosion and natural sources. A Choptank River Dredged Material Placement Study examined disposal requirements and identified disposal options for long-term maintenance of this river. The Maryland Major Facilities Fiscal Impact model has been computerized and is being refined to deal with the economic and fiscal impacts of smaller scale facilities. Reasons for success and failure of shoreline erosion structures in Chesapeake Bay have been evaluated through a comparison and analysis of over 40 structures, their design, method of con-

struction, placement with regard to prevailing geologic and weather conditions. An Interim Erosion Control Plan was developed to determine the ways in which Maryland might deal with erosion problems in Ocean City over the next ten years. This plan is being partially implemented through permitting of groins in Ocean City.

Coastal Fisheries

The purpose of the Coastal Fisheries Section is to provide comprehensive assessment of Maryland's commercial and sports fishing industry, the resources on which they are based and the management measures in effect. A Sport Fishing Survey and a Harvestable Yield Model were completed and the identification of aquatic resource areas as Areas of Critical State concerns is nearing completion.

Coastal Energy Impact Project

The Coastal Resource Division also administers federal coastal energy impact funds which assist state and local governments in dealing with fiscal, economic, environmental and recreational impacts of coastal energy facilities. During Fiscal Year 1981, five planning studies were completed: a study of the fiscal, economic, environmental and recreation impacts of existing and potential energy facilities and activities in Baltimore Harbor, a review of safety and risk factors associated with the liquefied natural gas terminal at Cove Point, Maryland, the assessment of effects of an existing petroleum storage and terminal facility and its proposed expansion at Piney Point, Maryland, an assessment of inland relocation of non-coastal department energy storage facilities in Baltimore Harbor, and an analysis of a new methodology for reestablishing marshes damaged by oil spills. The Division carried out five energy impact mitigation projects including the purchase of recreational land (Betterson Beach, Kent County \$71,000; Flag Ponds

Bay Site, Calvert County \$500,000) development of recreational areas in Baltimore City (Fairfield, \$178,000; Reedbird Park \$125,000) and the purchase of long-term, upland, dredged material placement sites in Wicomico County (\$150,000). Four new projects were initiated for implementation in FY 82.

Chesapeake Bay Program

The Chesapeake Bay Program was transferred to the Tidewater Administration in FY '81. It coordinates state participation with the U.S. Environmental Protection Agency's Chesapeake Bay Program and coordinates and represents the state's interests on various management, technical, and research committees. The program received approximately 1.8 million dollars of federal support for coordination and special studies which include two watershed management studies in the Chester and Patuxent River Basins. The program is developing a resource management monitoring strategy in cooperation with various federal and state agencies in Maryland and the Commonwealth of Virginia. Responsibility for placing Chesapeake Bay related data and information into computerized storage and retrieval systems is also a part of the program. Continued support of this section has resulted in development and application of quantitative resource management models of eutrophication.

WATERWAY IMPROVEMENT PROGRAM

The mission of the Waterway Improvement Program is to develop, maintain, improve and promote the recreational and commercial capabilities, conditions, and safety of Maryland's waterways for the benefit of the 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, positioning and maintaining regulatory buoys; surveying and measuring lengths of pound nets; locating corners of private oyster leases; ice-breaking operations during winter shellfish operations; determining requirements and needs for aids to navigation to mark channels for the boating public; surveying to determine channel delineation and location of aids to be established, and charting the above functions.

In FY '81 Hydrographic Operations serviced 1,254 regulatory buoys, 379 aids to navigation and 8 artificial fishing reefs. The 5% increase over last year reflects the establishing of float-free channel buoys, newly dredged channels and new anchorage area markers. A measured 1/2 mile course was surveyed at Sandy Point and buoyed for the boating season. In Chincoteague Bay, wooden pilings marking the Maryland-Virginia Line were destroyed by ice and replaced using steel pilings.

Six hundred ten (610) corners were relocated, representing 4,940 acres of private oyster ground leases.

The program assisted Tidal Fisheries by plotting 162 days of Bay Bottom Survey surveying and plotting 40 oyster seed and planting areas, and providing 2 engineers for the oyster spat count. Five clam surveys were performed resulting in the reclassification of 440 acres of bottom from oyster to clam. All pound net locations in the Potomac River were surveyed and plotted along with 8 oyster seed plantings and one special area survey for the Potomac River Fisheries Commission. This project also verified 170 buoy locations for the Marine Police as evidence in court and engineers were called as expert witnesses in 39 court cases.

Fifty vessel days were spent in ice-breaking operations. Seven

vessel days were expended in promotional activities including Chesapeake Bay Appreciation Days, the Rock Hall Regatta, the Crisfield Volunteer Firemen's Association, the J. Millard Tawes Vocational School and carrying 52 Hike-a-Nation backpackers across the Bay.

Dredging

Dredging is responsible for State waterway projects involving the dredging and protection of channels and harbors. Activities include conducting hydrographic and topographic surveys over proposed channel areas; design input of all State-funded dredging projects; determining the need for protective jetties at project sites; designing and constructing jetties where needed; and performing surveys at previously completed channel dredging sites.

In FY '81 Dredging completed 9 projects valued at \$871,642 which represents 136,211 cubic yards of dredged material.

The project currently has 31 active projects in various stages of development with an estimated value of \$3,628,00.

Waterway Grants and Project Planning

Waterway Grants and Project Planning is responsible for the recreational 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 agencies and county and municipal governments in promoting, designing, construction and financing marine facility projects. This program also administers the Waterway Improvement Fund.

During FY '81 two new regional boating centers were completed: Gunpower State Park, Baltimore County and Elk Neck State Park, Cecil County. Construction is continuing on two additional recreation boating facilities at Somers Cove marina, Somerset County and

Smallwood State Park, Charles County. Somers Cove Marina is a major State marina complex. When completed it will have slips for 489 boats and will also include the J. Millard Tawes Boating/Visitors Center. The marine portion of Smallwood State Park, which includes bulkheading, launching ramps and piers, has been completed.

Fifty-seven Waterway Improvement projects with a construction value of \$2,069,953 were partially funded or completed during FY '81. To date a total of 648 projects have been completed by this program at a cost of \$15,817,745 since its inception in 1966.

Marine Services Program

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; the installation of daymarker piles used as aids to navigation; the repair and maintenance of public-owned facilities such as piers, bulkheads, launching ramps, and small dredging operations associated with the above projects. Winter activities include ice-breaking operations.

During FY '81 the derelict boat and debris removal project expended \$153,600 for the removal of 89 derelict vessels and debris. Eight State vessels and barges were hauled at the Cambridge Terminal for railway maintenance and overhaul.

The marine construction crew removed 165 pilings and rebuilt 242 feet of timber bulkhead at Janes Island State Park; constructed a pier for Marine Police at Matapeake; repaired the fishing pier and breakwater at Matapeake; replaced pilings at Sandy Point State Park Boating Center, and began construction of the 1,300 foot West Breakwater at the entrance to Kent

Narrows.

TIDAL FISHERIES PROGRAM

At least one-fifth of the State's total area is encompassed in its tidal waters. This extensive area supports widely used populations of valuable finfish and shellfish. Fluctuations in abundance of these populations are increased or reduced by climatic, human, or other causes. The Tidal Fisheries Program monitors species abundance, regulates harvesting activities, collects and analyzes catch statistics, conducts biological investigations, plants oyster shell and seed, and cooperates with other State and Federal activities to enhance Maryland's fisheries. One of the State's barometers for measuring population fluctuations and success of management efforts is its commercial catch statistics system. For example, Maryland's seafood landings in 1934 totaled 42,210,000 pounds, in 1965 86,672,000 pounds, and 79,600,000 pounds in 1980. Approximately 75% of Maryland's commercial seafood production is shellfish (oysters, clams, crabs). The production trend of seafood since the mid 1960's has indicated a relatively consistent decline, particularly so with anadromous fish species and soft clams. Lesser declines in production of oysters and crabs have occurred. These populations are now apparently stabilizing and increasing in abundance. The Division's goal and management efforts, both short and long term, are to stabilize all fisheries, build up harvest levels, and prevent recurrent declines.

Tidewater Analyses and Verification Program

The Fisheries Statistics-Commercial Catch Records System administers the tidewater fisheries catch statistics system that estimates and records landings for oysters, soft-shell and hard-shell clams, blue crabs, and finfish.

Commercial fishing activities in 1980 harvested the following seafood: oysters - 14.9 million pounds of

meat valued dockside at \$19.8 million; blue crabs at 25.3 million pounds live weight valued at \$6.0 million; surf clams landed at Ocean City, Maryland of 11.4 million pounds of meat valued at \$5.7 million; soft-shell clams of 1.9 million pounds of meat valued at \$4.2 million; and major finfisheries of 16.2 million pounds valued at \$4.2 million. Total pounds of seafood commercially caught and landed in Maryland exceeded 79.6 million pounds with a dockside value of more than \$44.7 million. Non-commercial licensed activities reported catches of an additional 4.4 million pounds of live blue crabs and 0.7 million pounds of finfish, primarily bluefish, gray sea trout, and striped bass.

The monthly census of commercial crab pot license holders was terminated. The Division hired a biostatistician and is operating a stratified random sampling system to estimate total crab catch by licensed commercial and sport crabbers. Redevelopment of the system to estimate crab harvest was generated by the need to reduce costs and provide estimates based upon sound statistics.

A cooperative effort between program staff and the University of Maryland Chesapeake Biological Laboratory to describe the population dynamics of striped bass was initiated. Analytical work for the paper entitled *Dynamics of Striped bass stocks in the tributaries and subregions of Chesapeake Bay in Maryland*; Rothschild, Jones, Burch, Bonzek has been completed.

File creation and analysis of the activities of the Oyster Seed Relocation Program and catch and effort records from commercial fishing guides (charter boat captains) were completed.

The program has begun computerizing historical landings data for finfish and oysters and for histopathologic condition of shellfish. Striped bass juvenile recruitment data for the years 1957-1980 has been computerized. All the data is currently being utilized for de-

velopment of practical management models for striped bass and shellfish. The shellfish histopathologic data is being analyzed for correlation with Chesapeake Bay water quality, climatic and hydrologic data to reveal potential effects on shellfisheries.

Efforts to reduce costs of collecting harvest information from catchers and dealers required administrative hearings for violations of reporting requirements. Reporting techniques, particularly of stratified random sampling design, require high percentage response from the polled participants in the fishery.

Costs are being further reduced by conversion of our present oversized return mailing forms to a "computer-pak" type. Manufacturing, mailing, return mailing, and processing returned data will, by FY 1983, result in reduced costs of approximately \$18,000.

By conversion of our crab fishery harvest estimate from a census design to stratified random sampling, a projected FY 1981 increased cost of \$15,000 in printing and mailing costs alone has been eliminated and FY '81 costs were actually reduced.

Program personnel participated on the selection committee for the purchase of a new DNR mini-computer system which will streamline data entry and result in equipment cost savings of \$4800 annually.

Fish Environmental Assessment

Histological examination of shellfish and finfish and evaluation of relative physiological condition is provided by the program. The main purpose of the work is to identify cause and effect relationships of infectious (virus, bacteria) and non-infectious (water quality) disease problems relative to status of species stocks. Management advisories and recommendations for short term and long term are prepared.

Major field investigations included: a kill of mixed species in the

Susquehanna River in July due to water quality conditions; a kill of mixed species near the shore of northern Anne Arundel and southern Calvert Counties due to water quality conditions associated with an algal bloom; participation in the fall oyster bar survey to estimate spat set and to collect oyster samples for histologic work; collection of target fish species for the Basic Water Monitoring Program conducted with the Maryland Department of Health and Mental Hygiene; and collections related to the perennial spring viral kill of Atlantic menhaden in Chesapeake Bay.

Program funding and participation in the discovery of the viral cause of the perennial menhaden die-off resulted in publication and professional papers presented in the United States and Europe. Program staff worked at the U.S. Fish and Wildlife Service Laboratory in Leetown, West Virginia to isolate the virus in menhaden, shad, and herring. A temperature activation study was conducted at Matpeake Work Center and program staff sampled adult menhaden ovaries from the North Carolina fishery to investigate egg transmission of the virus.

A potential ban of Chesapeake Bay eels *Anguilla rostrata* by the government of Denmark was generated by an established parasite in eels. The ban was averted by the cooperative efforts of the National Marine Fisheries Service and the Tidal Fisheries Division. The parasite was mistakenly identified by Danish authorities who were concerned that their salmon and trout were potential hosts. Program staff and NMFS fed infected eels to a water bird final host, and correctly identified the mature nematode parasite. The division further documented that the parasite was already present in western Europe and presented no further threat to the Danish fisheries.

The Basic Water Monitoring Program conducted with DHMH was expanded. Target finfish including striped bass were collected

during the spring spawning run to obtain ovaries for pesticides and heavy metals analysis. Adult fish are also sampled in July and October.

A significant increase in the prevalence of *Perkinsus marinus*, an infectious contact disease of oysters, was noted and monitored in four areas of the Maryland portion of the Chesapeake Bay. Monitoring will continue for *P. marinus* and *Michinia nelsoni*. The successful 1980 oyster spatfall has been scattered as a consequence of the oyster seed moving program and should reduce potential crop reductions due to *P. marinus*. FY '81 monitoring will indicate whether *M. nelsoni* has increased due to higher salinities and oyster seed susceptibility.

The refinement of a rapid diagnosis technique through quick freezing of diseased tissues was continued with histopathologists from the Smithsonian Institution. Work was directed toward a disease in hard-shell clam. Transmission of the disease was studied at the Smithsonian Institution and the program laboratory at Oxford, Maryland.

Histologic work was performed on 1,638 shellfish. Two manuscripts, "Common Oyster Diseases of Chesapeake Bay" and "Histological Processing of Molluscan Shellfish" were published in *Oyster Culture in Maryland 1980, A Proceedings*. A manuscript tentatively entitled "Atlas of Infectious and Non-Infectious Diseases of Chesapeake Bay Mollusks" is being prepared.

The federal grant in aid program with U.S. Departments of Commerce and Interior was administered by this program for fisheries projects in Tidal Fisheries.

Shellfish Program

Four projects make up the Shellfish Program. These are Oyster Proagation, Blue Crab Management, Clam Management, and Bay Bottom Survey. Efforts continued with the University of Maryland to develop an aquaculture plan, with major emphasis being on the utili-

zation of the Deal Island Hatchery and the Marine Products laboratory at Crisfield. An effort is being made to develop a low cost demonstration hatchery utilizing technology that may be adaptable to the needs of individual oyster growers interested in hatching their own oyster seed.

The National Marine Fisheries Service provided a \$70,000 Grant to assist in sponsoring research on the Blue Crab Processing Waste problem. Research included Composting, Overboard Disposal, and Chemical and Microbiological Treatments to upgrade the overall quality of processed crab meat.

The oyster harvest during the 1980-81 season was 2.45 million bushels, an increase of 13% over the 1979-80 season. Spat fall was good during 1980, and led to the transplanting of 557,184 bushels of high count seed at a cost of \$456,240.

A new contract was negotiated with the C.J. Langenfelder Co., Inc. of Baltimore, Maryland to continue to provide dredged shells for oyster proagation through 1985. As of July 1, 1981, 3,314,636 bushels of dredged shells had been planted on natural oyster beds.

In addition to the dredged shells, fresh shells are purchased from shucking houses and planted for cultch.

BLUE CRAB

During Fiscal Year 1981 the Blue Crab Management Project continued its annual population survey seeking to determine the strength of each new blue crab year class.

A total of 219 samples were taken in Chesapeake and Chincoteague Bays in Maryland during FY '81. In addition to documenting blue crabs caught in samples, all finfish species collected are identified, counted and the size range for each species is recorded.

Crab samples taken in 1980 had suggested that blue crab abundance in Chesapeake Bay during the spring and early summer of 1981 would be below aver-

age compared to landings for this same time period since 1980. Samples taken in the spring of 1981 showed that the 1980 hatch of crabs was very good.

Samples taken in Chincoteague Bay in 1980 indicated that the spring and early summer harvest of crabs there should be below average. Samples taken in the spring of 1981 show a good 1980 hatch of crabs. For the second year in a row all finfish species collected in trawl net samples were documented. The five most abundant species collected were, in order of abundance: Bay Anchovy, Spot, Atlantic Menhaden, Hogchoker, and Weakfish.

A crab pot anti-fouling study in Chesapeake Bay was completed this fiscal year. In general, the study showed that vinyl wire pots fouled faster than anode or painted pots. Painted pots fouled the least. The three pot types caught significantly different percentages of the total catch: Anode Pots - 34%; Painted Pots - 43%; Vinyl Pots - 24%.

Four regulation amendments were adopted during this fiscal year. These amendments clarified the following: who must possess a commercial crabbers license or a sport crabbers license when fishing a trotline; that part of the upper Manokin River that is open for the use of bank traps and channel pounds; the crab pot buoy free channel, at Poplar Island Narrows; and the crab pot lines in the Wicomico River and in St. Catherine Sound in St. Mary's County.

BAY BOTTOM SURVEY

In FY '81 the Bay Bottom Survey Project continued to use the electronic survey techniques developed in FY '80. The "Miss Kay" was the primary survey vessel working from the head of the Bay south towards the Maryland-Virginia line. By the end of FY '81 the electronic phase of the survey north of Cove Point was nearly complete.

The survey vessel "Susquehanna" accounted for nearly 12,202 acres of Bay Bottom sur-

veying during FY '81.

During FY '81 approximately 22,177 acres were surveyed using the "Penn Yan," a 23 ft. shallow draft vessel.

Acreage surveyed since March 1980 is approximately 241,000.

As the fiscal year came to a close, the oyster bars on NOB Charts 1-5 were redrawn and public meetings were scheduled to discuss these charts and begin the procedure of adopting the lines provided by the new Oyster Bay Survey.

CLAM PROJECT

Maryland's soft clam landings declined from a 1979 catch of 239,000 bushels to 161,500 bushels in 1980. Sampling of major clamming areas indicates a continuing decline in 1981.

A soft-shell clam management plan was presented to the industry. The plan received favorable comment with the exception of a provision calling for a spring closure of selected areas.

Efforts to better utilize shellfish growing areas resulted in the redesignation of 1648 acres of non-productive oyster bars to public clamming bottom in Anne Arundel and Kent Counties.

A shell planting program for hard-shell and soft-shell clams was initiated.

A contract has been awarded to the University of Maryland, Chesapeake Biological Laboratory, to conduct a comprehensive study of the environmental impact of hydraulic escalator dredging on adjacent oyster communities. Field work was begun in October, and a final report will be submitted in FY 1982.

Estuarine Fish Recruitment Survey

Shore zone seining in 22 anadromous fish nursery areas indicated poor reproduction for striped bass, american shad, and atlantic croaker, and average to good reproduction for herring, atlantic menhaden, bluefish, catfish, spot and white perch.

	10 Year Index Average	Index 1980
Striped Bass	8	1.9
Alewife	10	3
American shad	3	1
Atlantic menhaden	250	300
Atlantic silversides	75	35
Bay Anchovy	30	12
Blueback herring	30	30
Bluefish	0.5	0.4
Channel catfish	1.5	0.7
Mummichog	2	0.5
Spot	10	8
Spottail shiner	5	3
White perch	20	11

A Striped Bass Ichthyoplankton Survey for the Choptank River was done during April and May of 1981. Supplemental seining was conducted during June. The biological samples collected will be processed and analyzed during 1981.

A Striped Bass spawning in the Nanticoke River was monitored using a plankton net and standardized sampling stations and tows. Comparable sampling effort during each of the last three years indicates an abrupt drop of approximately 90% in the number of egg and larvae collected in 1980 over the number collected during 1978 and 1979. This decrease in density probably reflects the declining brood fish populations as the females remaining from the huge 1970 year class became rapidly depleted.

The percentage of viable eggs did not vary appreciably over the past three years.

Ten female striped bass were artificially spawned during 1981 at the Joseph H. Manning Warmwater Fish Hatchery located in Charles County, Maryland. Approximately 2.5 million fry were produced, including hybrids of white bass, and white perch. Fry were released in

culture ponds and distributed to hatcheries in four other states: Pennsylvania, Virginia, North Carolina, and Tennessee. Survival and growth to fingerling size was reasonably successful with no serious mortality problems encountered.

Anadromous Fish Stream Investigation Project

During the summer of 1980 sampling for young-of-year shad and herring was conducted in the Patuxent River and Upper Chesapeake Bay drainages to determine nursery areas and relative abundance.

A completion report for the past five years of anadromous fish and stream barrier investigations was written, published, and distributed to state and federal management agencies.

Streams in the upper Patuxent River drainage, north of Route 214 (Davidsonville) 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 for anadromous species, on approximately 55 streams.

Scale samples taken in the spring of 1980 were processed and interpreted in order to characterize the spawning populations of herring and shad in the Susquehanna and Patuxent River drainages. During the spring of 1981 this study was continued with scale samples being taken from commercial catches of shad and herring in the Susquehanna and Patuxent drainages.

Assistance was provided to the Striped Bass project in processing and identifying plankton samples collected from the Nanticoke and Choptank Rivers. Assistance was also provided to this project during the spring of 1981 to collect striped bass which were hatched at Cedarville Hatchery.

Weekly surveys to monitor striped bass spawning in the Nanticoke and Choptank Rivers were conducted in cooperation with the Striped Bass Project.

Assistance was provided to the Shad Project in performing a creel census, tagging study, and juvenile sampling during the spring and summer of 1981.

Cooperative work was performed with the Maryland Water Resources Administration and other agencies in identifying and mitigating dams in the Susquehanna and Patapsco River drainages for the passage of shad and herring.

Technical Assistance Program

Protection and enhancement of the ecosystem and habitats which support aquatic organisms is central to responsibility for sport and commercial fish populations. The primary means by which habitat protection is addressed is the review of proposals which will affect the environment, evaluating their effects and recommending mitigation or alternatives.

In FY 1981, a total of 1,047 such proposals were received for review by the program. The separate item caseload breakdown is as follows:

	Received	Written Comments
Corps of Engr. 404 permit applications	430	35
Wetlands	328	55
NPDES	10	2
Clearinghouse	2	2
Sanitary landfills/facilities plans	6	3
Soil Conservation Service Plans	1	
Waterway Construction Permits	10	6
Other	170	170
Highways	90	9
	1,047	283

Following imposition of a closure of fishing for the American Shad in 1980, population estimates of the subpopulation of shad in the Head of the Bay have been made to determine the effects of closure. Several other measurements were also made; the results follow:

population estimation were also carried out.

The multi-State management plan for coast-wide management of striped bass is being written by staff of the Technical Assistance Program. Upon ratification and adoption in October 1981, it will

Measurement	1980	1981
Population of adults in Spring run	2,675	5,386
Net required to catch one shad	2,474	2,230(sq. ft.)
Sport fishing catch (released)	8	118
Adults reaching Conowingo Dam	139	317
Catch/100 hours at Conowingo Trap	121	184

Most measurements in 1981 indicate the closure had a beneficial effect. Areas where closure was not adopted continued to show a decline in catch.

The Marine Surveys project began sampling for benthic invertebrates in the coastal bays.

The American Eel project started examination of the catch and effort of the Chesapeake Bay eel fishery. Migration of the eels and

form the basis for as-nearly-as possible uniform regulation and management of striped bass for all States from Maine to North Carolina.

The Susquehanna River Basin Commission submitted a Technical Assistance Program recommendation to FERC for a continuous flow release from the dam of 15,000 cubic feet per second in the spawning season.



MARYLAND ENVIRONMENTAL TRUST

<i>Budget</i>	
<i>General Funds</i>	91,750
<i>Special Funds</i>	—
<i>Federal Funds</i>	17,271
<i>Total</i>	109,021
<i>Number of Staff</i>	4

The Maryland Environmental Trust was created to conserve, improve, and perpetuate the natural, scenic, and cultural qualities of the Maryland environment. Its policies and programs are defined and supervised by a volunteer board of trustees consisting of twelve citizens and three ex-officio members.

With the general objective of helping to foster a conservation ethic in Maryland, the Trust has one major program, Resource Stewardship, under which there are three main activities: The Conservation Easement Program, Local Projects, and Research and Information Service.

The Trust's main activity is to encourage landowners of rare or unique natural areas, productive farmland, large open spaces, waterfront, or scenic areas to donate conservation easements on their land to preclude development of their property. The Trust also works with local organizations to establish programs to conserve energy and materials, improve local environments, and increase citizen-awareness of the need for voluntary stewardship of Maryland's natural resources.

It also gathers and disseminates information about environmental issues through its monthly newsletter MARYLAND LANDSCAPE and its clearinghouse for information on waste reduction, recycling, and litter control systems.

These activities were carried out by four permanent employees, two seasonal employees, and a large number of volunteers. The Trust's twelve volunteer members of the Board of Trustees donated their labor for administrative and policy meetings, testimony at hearings, and conservation easement negotiations. The Board as a whole met eight times during the year; other work was performed by meetings and conference-calls of the Executive Committee and its six advisory committees, for nominations, Keep Maryland Beautiful, Energy & Resource Conservation, Land Development Choices, and Conservation Easements.

The Environmental Trust was given seventeen conservation easements on 3,985 acres in eight counties. Almost all of this land is productive farmland and a quarter of it is located on the Chesapeake Bay. Eighteen other easements were in progress. Two easement workers also made monitoring visits to five easement sites and responded to 128 inquiries about donation of easements.

Trust easement work continued to be successful in the Sugarloaf Mountain area of Montgomery and

Frederick Counties; with the donation of one easement on 216 acres there, the Trust now holds easements on 1,903 acres around Sugarloaf Mountain. The preservation of these farms by easement directly supplements other preservation programs.

The donation of one easement on thirty acres in Baltimore County in 1978 led in FY 1981 to the donation of ten easements on 1,400 acres by adjacent or nearby owners in the Western Run Valley.

The Environmental Trust is responsible for fifty-six easements in twenty counties and Baltimore City which restrict use of 13,287 acres. In FY 1980 the Environmental Trust held thirty-nine conservation easements on 9,302 acres. This is a 44% increase in the number of easements and 43% increase in acreage since the previous year.

During this period the Trust continued its solicitation of landowners in the Chesapeake Bay region based on a priority list of natural areas according to their ecological importance or rarity and a priority list of the areas' vulnerability to destruction or degradation. Preparation included consultation with all state, local and federal agencies with land acquisition programs in Maryland so that the Trust's easement program will complement other land preservation programs.

Having served as the clearinghouse and spokesman to the federal government for the Maryland Historical Trust, Dept. of Agriculture, and Dept. of Natural Resources concerning the U.S. Internal Revenue Code's treatment of conservation easement donations, the Environmental Trust in January in Washington, D.C. organized and chaired a one-day meeting of thirty local, state, and federal conservation organizations to formulate language to recommend to the Internal Revenue Service to include in the forthcoming I.R.S. regulations concerning easement donations. The Trust continues to distribute information on this matter to the thirty organizations.

Having worked with Governor Hughes since 1978 to establish a state policy on development choices for state facilities, projects, and investments, the Board of Trustees was gratified to see the Governor establish a State Development Council, issue an Executive Order concerning development choices, and appoint a Citizens Task Force on State Development Choices, whose members elected Environmental Trust Chairman, K. King Burnett, to be their Vice-Chairman.

As part of its Research and Information Service the Trust continued to be a clearinghouse for information concerning recycling, energy conservation, and litter control aspects of mandatory deposit-refund and litter tax systems in the United States. The Trust continued to distribute official reports of mandatory deposit laws in Michigan, Maine, Connecticut, Vermont, and Oregon to all members of the Maryland General Assembly and to many officials of local government.

As a result of the research done on other states' experiences, the M.E.T. Board of Trustees again recommended that the State of Mary-

land adopt a mandatory deposit and refund system for beverage containers. Consequently, the Trust staff, board, and volunteers were active in supplying the General Assembly with information about the other states' experiences with such systems as it considered S.B. 873 in the 1981 Legislative Session. The Department of Natural Resources and Department of Transportation joined the Trust and more than 100 organizations in supporting the bill.

After the defeat of this bill the Trust continued to collect and evaluate data about mandatory deposit and litter tax laws and distribute it to the public.

The Trust's monthly newsletter, MARYLAND LANDSCAPE, was published eight times and sent to 800 public officials, organizations, and individuals.

The Trust provided unbudgeted staff-support for the "Recycling Advisory Board" created in 1980 by H.B. 1950. This board of seventeen citizens and public officials appointed by the Governor held twelve meetings and published its report in March.

The Trust continued to distribute copies of its Earth Satellite

poster "Our Shores Survived the Winter of '77... Can They Survive Us?" Since 1977 6,800 copies have been distributed, 800 since FY 1980.

The Maryland Environmental Trust has seven volunteer committees in Allegany, Baltimore, Howard, Montgomery, Somerset, Wicomico, and Worcester Counties and has affiliations with Citizens For A Better Charles County and the Potomac River Association. The Trust also works on mutual projects with other organizations, such as the Maryland Historical Trust, Citizens Against Waste (a coalition of 100 Maryland organizations), the Coalition of Peninsula Organizations, in south Baltimore; the Chester-Sassafras Foundation, Inc. and Philadelphia Conservationists, Inc.

The Trust administered a grant from the U.S. Environmental Protection Agency to write a history of the political, cultural, and economic features of Chesapeake Bay governance. This report is titled "Governing the Quality of Chesapeake Waters, A History." M.E.T. Trustee Garrett Power served without compensation as Principal Investigator overseeing three contractual workers.



ENERGY ADMINISTRATION

<i>Budget</i>	
<i>General Funds</i>	597,221
<i>Special Funds</i>	7,491,417
<i>Federal Funds</i>	2,588,896
<i>Total</i>	10,677,534
<i>Number of Staff</i>	49

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

The Power Plant Siting Program provides the technical information needed by regulatory agencies to ensure the determination of appropriate environmental controls on the siting, design, and operation of power plants, without imposing unnecessary costs or delays on the production of electricity. The law provides for:

- Consolidated decisions that incorporate inputs from all of the various economic, environment, health, and planning agencies into a single action of the Public Service Commission;

- A dependable fund source for the program by placing a small environmental charge on electricity produced within the state.

Activities are organized in four functional areas.

- Assessment of the environmental impact of existing power plants.

- Prediction of the impact of future power plants at proposed sites. The program also conducts detailed site investigation, including extensive field data collection at all proposed power plant sites.

- Research geared to developing an understanding of Maryland's environmental and socioeconomic structure.

- Site Acquisition which identifies, investigates, acquires, and holds in the Site Bank, an inventory of sites suitable for the construction and operation of power plants.

Major Activities in FY81 Included

The review of applications for the R.P. Smith, Dickerson, Crane, Chalk Point, and Calvert Cliffs Power Plants in order to determine the need for modifying cooling systems.

Air quality impact studies and review of applications at the Crane and Brandon Shores Power Plants to determine the feasibility of switching from oil to coal.

The sampling of the Susquehanna River and the Upper Chesapeake Bay in order to determine the radiological impact of normal operations at the Peach Bottom Nuclear Plant, and of activities at Three Mile Island.

A detailed site evaluation and review of Delmarva Power and Light Company's application to build a 500 Megawatt coal-fired power plant at Vienna, Maryland.

A study of the effects of Conowingo Dam on resident and anadromous fish populations in the Lower Susquehanna River and participation in the FERC relicensing process.

A power plant site search in Western Maryland

Major goals for the coming year include participation in several Health Department, Public Service Commission, and Federal Regulatory Commission Hearings on the cooling system reviews, fuel conversions, and Conowingo Dam relicensing, respectively. Also, the study and selection of a new power plant site in Western Maryland will proceed.

BUREAU OF MINES

The Bureau of Mines has two distinct areas of responsibility: (1) Environmental control of active mines, and (2) reclamation of abandoned mines.

Active Mines

The Bureau evaluates mining plans for proposed deep and surface coal mines. Environmental controls are established and reclamation plans must be approved before the mining operation can begin. Active mines are monitored for compliance with the law and agreement with the approved mining plans.

In December, 1980, the U.S. Department of Interior, Office of Sur-

face Mining, conditionally approved Maryland's Surface Coal Mining Control Program; and the State accepted OSM's conditions of State program approval.

On May 1, 1981, portions of Maryland's federally approved program were temporarily enjoined in the Circuit Court for Allegany County.

Abandoned Mines

Existing legislation provides for money collected from a surcharge on mined coal to be used for reclamation of abandoned mines which cause severe environmental problems. The Bureau is the agency responsible for administering these funds. An abandoned mine inventory has been conducted on a statewide basis and the most serious abandoned mine problems are addressed first.

Activity

Number of Active Mines	FY 80	FY 81
• Tons Mined	84	94
• Acres Permitted	3,007,350	3,307,692
• Acres Reclaimed	524	1,390
Abandoned Mine Projects	733	786*
*Calendar Year 1981 (estimated)	14	9

MARYLAND ENERGY OFFICE

The Maryland Energy Office (MEO) has responsibility for promoting energy conservation in Maryland and for planning and ex-

ecuting energy emergency measures. It is the principal state agency for the receipt of federal energy conservation funds, and a variety of conservation and alternative energy promotion programs are run by the office. Maryland has met its 7% targeted production in BTU consumption for 1980 and continues to implement energy conservation programs in agriculture, for state institutions such as schools and hospitals, in commerce and industry, and in cooperation with the Department of Transportation, the Maryland Environmental Service, the Department of Human Resources, and numerous political sub-divisions.

In 1981, the Energy Extension Service made 19 sub-contracts available to citizen groups and agencies of local government throughout the State. This program has supplied one-on-one technical assistance and energy conservation and energy management to citizens.

Maryland has worked with the Maryland Department of Transportation in funding and encouraging the Vango and ride-sharing programs, promotion of energy conserving driving habits among law enforcement officials and senior high students, and with the State Police in supporting the 55 mph speed limit program.

The largest single conservation program underway in 1981 was the Institutional Conservation Program (ICP). This 50% match program was mandated by the National Energy

Conservation Act of 1978 in order to assist schools, hospitals, and buildings owned by local governments to conserve energy. The Office assisted 321 building operators in preparing technical assistance audit applications and energy conservation applications to be submitted to the federal government. \$474,789.00 worth of technical assistance and more than \$4.67 million worth of energy conservation assistance was received by Maryland during the fiscal year.

The Maryland Energy Office also supervises the Residential Conservation Service program which was created by the National Energy Act of 1978. This act requires utilities to make home energy audits available to all of their customers. The audits will provide cost/benefit analysis of energy conservation measures that homeowners can take. The program involves the six major utilities, the Public Service Commission, the Attorney General's Office, and other state agencies involved in loan supervision and consumer protection. In 1981, the Maryland program was approved by the U.S. Department of Energy.

The Maryland Energy Office continues to plan for and be prepared for any potential fuel shortfall in the state. In this effort, Maryland has joined many sister states in looking to state mechanisms for protecting citizens against the possibility of severe energy shortages, since Federal programs on this issue are being deemphasized.

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