a Department of Natural Resources | Biennial Report

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STATE OF MINNESOTA
DEPARTMENT OF NATURAL RESOURCES
CENTENNIAL OFFICE BUILDING • ST. PAUL, MINNESOTA • 55155

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PARKS & RECREATION
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WATER, SOILS & MINERALS
Eugene R. Gere, Administrator

STATE OF
MINNESOTA
DEPARTMENT OF NATURAL RESOURCES
CENTENNIAL OFFICE BUILDING • ST. PAUL, MINNESOTA • 55155

The Honorable Wendell R. Anderson
Governor
State of Minnesota

Dear Governor Anderson:

We are pleased to present this report highlighting the accomplishments of the Department of Natural Resources during the biennium, July 1, 1972 - June 30, 1974.

This has been a period of restructuring for the Department of Natural Resources, highlighted by the transition from a centralized form of management and programming to the concept of management by regions.

I believe it also has been a period of accomplishment for the Department: in planning, coordinating and carrying out meaningful programs and policies designed to protect our environment; providing the ultimate in outdoor recreation activities for our citizens and visitors; and carrying the conservation message to the public.

We have been aided tremendously by the outstanding legislation passed by the last session; by you and members of your staff with your leadership and assistance; and by the whole-hearted cooperation and hard work of our Department employees during a most trying transitional period.

It is my sincere hope that our efforts have made a significant contribution to the overall accomplishments of the Administration during the two-year period.

Respectfully submitted,

Robert L. Herbst
Commissioner of Natural Resources

A PERIOD OF RESTRUCTURING -- 1972-1974

Future generations of environmentalists may recall the period from 1972 to 1974 as the beginning of an era when the Department of Natural Resources came of age.

During this period, the DNR completed action to bring its programs, policies, and services directly to the people. This was accomplished through decentralization; and particularly -- regionalization.

Five regions covering the entire state were established during the first three months of Fiscal Year 1974 and administration appointed from Department ranks. Plans for a sixth region were announced when the five regions were organized. A Regional Administrator was appointed for the sixth Region June 26, 1974, completing the regionalization begun by DNR and supplemented by recommendations of the Governor's Loaned Executive Action Program (LEAP).

Thus DNR has moved away from natural resources management under a divisional (Central Office) structure, and embraced a concept that places management with six regional directors responsible for managing all resources within their assigned region. They now are responsible to the Commissioner and his staff, comprised of the former division directors. As the Commissioner's staff, the division directors now constitute a planning, inspection, project development, guidance and advisory group.

The task of the regional administrator is to coordinate natural resource management in his region; to manage natural resources, and direct the efforts of those under his supervision toward accomplishment of Department goals. To guide him, he will have programs and objectives approved by the Commissioner and formulated with the aid and advice of the Commissioner's staff.

The public is expected to find doing business with DNR vastly easier and less costly and time-consuming under the new plan. Most of the services, permits, decisions, and general information formerly sought at St. Paul are now available at the regional headquarters. This will result in expediting the transaction of affairs between the public and DNR. Further, supervision and control over permits issued by DNR will be improved, due to the proximity of the issuing office.

Under regional concept, pieces of specialized and heavy equipment are pooled and allocated to assure maximum utilization. DNR fully expects great benefits to natural resources management to result from the new organization structure. The move from an organization which divided the resources under its jurisdiction into separate divisions for management,(each with its own directors, staff, and management personnel) to the regional concept, constitutes a team approach to natural resources management.

The initial biennial reports of the six DNR regions are found elsewhere in this publication.

Regionalization was not the only restructuring accomplished in DNR during the biennium. In this report will be found other changes designed to improve management techniques and complement the regional concept and embracing recommendations of LEAP.

Among these is establishment of the Land Bureau to coordinate all land activities of DNR; a Field Services Unit (with centers at Grand Rapids and St. Paul) to coordinate use, purchase, and maintenance and repair of equipment on a Department-wide basis; establishment of a Trails Section to coordinate establishment of land and water trails; installation of a Central Administrative Services System to replace the many separate fiscal, procurement, and budget operations in the former divisions; and completion of an organizational manual for operations and policy guidelines under the new concepts.

The 1972-1974 biennium has been a period of reconstruction for the Department of Natural Resources. The steps deemed necessary to make sweeping improvements in natural resources management have been completed. It is anticipated that time will be required to evaluate the new organization; refinements and adjustments will be made, as needed, along the way. Meanwhile, DNR feels it has a people-oriented management organization well underway.

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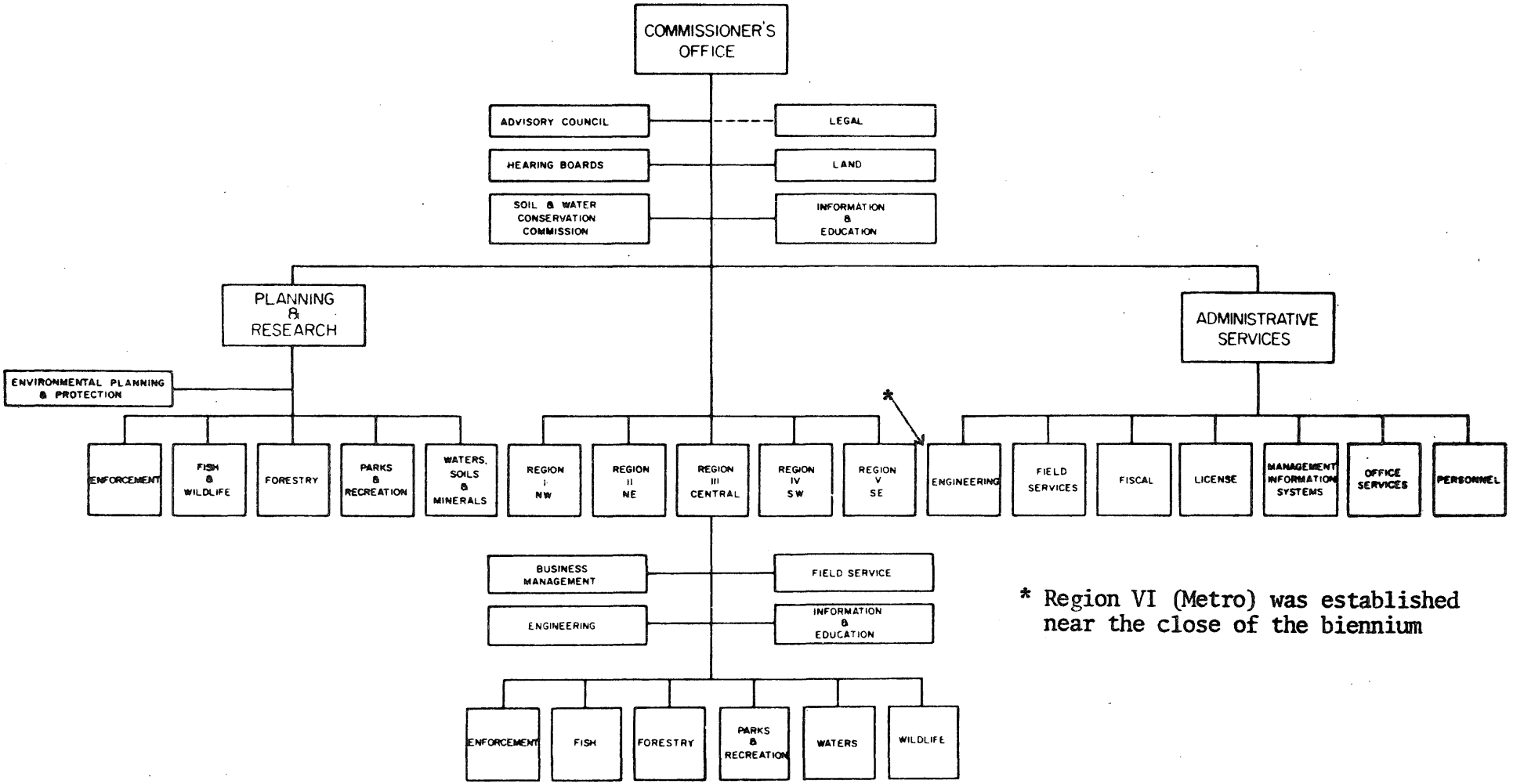


Figure I. General D.N.R. Organization Chart

INFORMATION AND EDUCATION

The Bureau of Information and Education is responsible for the planning, production of materials, and dissemination of information regarding Minnesota's natural resources and environment, DNR's policies, programs, techniques and goals in management of these resources; the multitude of diverse recreational opportunities supported by DNR-managed lands and waters; and the aesthetic and economic values inherent in Minnesota's outdoor legacy.

Functions of the Bureau in carrying out these responsibilities and objectives fall generally into two categories -- "Information", and "Education".

Information

The public information program involves the planning, writing, editing, production and distribution of weekly newsletters and periodic features and photos; of pamphlets, maps and other information materials that describe flora and fauna and specific resource data; production of the Minnesota Volunteer, official Department magazine (six times yearly); a daily radio news tape and a weekly 5-minute radio program called the "North Star Story"; a monthly half-hour television program, the "North Star Report"; various outdoor safety publications, home-study courses and tests for boaters and snowmobilers; audio-visual materials -- including motion pictures, slides, film clips, public service recorded messages and television spots, filmstrips; a monthly in-depth publication for environmental and sportsmen's groups, "Environmental Focus"; acquisition and loaning of various commercially prepared films; numerous and varied writing projects -- including informational speeches, special articles; planning and coordinating displays, including management of the Natural Resources Conservation Building at the Minnesota State Fair.

Education

The education program includes the development and implementation of formal environmental education curriculum and teacher education programs shared jointly, through legislative authority, with the Department of Education; a formal youth boat and water safety education program, through legislative authority, that involves materials development and dissemination; and informal education programs involving the development and dissemination of materials to the public at large.

Environmental Education

This is a continuing program that involves the planning, development, production and dissemination of teaching materials, films, filmstrips and recorded tapes for Minnesota's kindergarten through twelfth grade classrooms. It also includes instruction in the

practical application of these materials through a formal teacher in-service training program. To date, approximately 3,500 teachers in 180 Minnesota school districts have been in-serviced and equipped with materials.

Another in-service program involves instructing the teachers on how to find, acquire and use outdoor education sites. A team of 40 natural resources specialists, trained through the I & E Bureau, conduct the training and coordinating effort. This latter task is performed at the specific request of the schools at the particular site involved (a schoolground, forest, meadow, pond, farm, park, lakeshore, etc.).

The work is performed by professional staff people trained in environmental education, and coordinated through an internal steering committee of experts in particular resource management disciplines. The steering committee, in turn, works with its counterpart in the Department of Education and the Minnesota Environmental Education Council, along with numerous higher education people, to accomplish the total task. Forty regional DNR people, three or four contract writers, editors and artists assist in these tasks. The DNR internal steering committee sets basic program policy, in coordination with the foregoing agencies mentioned -- all working within the confines of the Minnesota Environmental Education State Plan.

Boat and Water Safety Education

This program was mandated by state and federal law for all youngsters between the ages of 13 and 18 who operate watercraft powered by motors of more than 24 horsepower, effective January 1, 1975. Work started on this program during the second half of the biennium. It involves development and dissemination of workbooks, manuals and tests that constitute a self-taught course on watercraft safety. Successful completion of the course, evidenced through a test and workbook results, will result in certification to operate a powercraft. All materials for this course were ready by the fall of 1974.

Miscellaneous Education Projects

These involve the development and distribution of less formal educational pamphlets and brochures; a film loan library consisting of more than 200 films, filmstrips and slide series titles. We estimate that the I & E Bureau reaches 180,000 school children each year with audio-visual materials; distributes more than 200,000 pieces of literature annually, and receives and handles more than 600 letters of inquiry from school youngsters each month.

Information and Education Staff

With an administrator, ten professional staff people and supportive clerical staffers, DNR's Bureau of Information & Education, on a per capita formula (source: American Association of Conservation Information) is the smallest I & E staff in the United States. Yet the Bureau's environmental education program, in cooperation with the Department of Education, received the 1974 first place national award for excellence (the Bureau has primary responsibility for development of educational curriculum materials; and teacher and DNR personnel workshop training sessions). And DNR's bi-monthly publication, The Minnesota Volunteer, with a current free circulation of more than 76,000, has received several national citations.

The following is a partial list of production by I & E, annually:

* More than 300 news stories and feature articles;
* 500 new black and white photos with a distribution of 5,000 prints;
* six, 64-page issues of The Minnesota Volunteer, with a distribution of 75,000 copies of each issue (and estimated readership of 350,000 per issue). Note: approximately 25 percent of the Volunteer circulation goes directly into Minnesota's classrooms.
* 250 color slides with a distribution of 2,000 copies;
* 200 daily radio news items; and 52 weekly 5-minute radio programs broadcast by 62 radio stations each week;
* Eight motion pictures and ten filmstrips;
* Twelve 30-minute television programs, carried monthly by nine channels in Minnesota and border states;
* Thirteen television and fifteen radio public service spot announcements (taped and distributed to all television and radio outlets in state);
* More than 100,000 pieces of literature distributed in answer to mail, telephone and walk-in requests;
* Provide and manage display facilities at Department's Natural Resources Building, visited by more than 100,000 annually at the Minnesota State Fair;
* Planned, developed, produced ten new Environmental Education teaching units, distributed to more than 110 Minnesota school districts, including special in-service training for more than 1,000 teachers;
* More than 2,000 films loaned out annually, with more than 4,200 total showing to an estimated combined audience of more than 180,000 persons.

LAND

Acquisition and Exchange Section

The Bureau of Land, Acquisition and Exchange Section has two basic functions.

Under Land Acquisition, land is acquired for wildlife, fish management, public access, state parks, state forests, etc.

During the biennium ended June 30, 1974, 364 tracts of land were acquired totaling 34,326.32 acres, at a cost of $5,445,129.85. Fifty-eight tract easements were acquired, totaling 373.26 acres at a cost of $55,960.00.

Under Land Exchange, the Section works with all of the disciplines of the Department, regional administrators, counties, federal government, corporations, and private individuals. Approximately 70 exchange proposals are received per biennium, which are reviewed to determine whether they are in the best interest of the state, and feasible as well as legally possible. Land exchange provides the only real means of adjusting state ownership patterns; consequently, exchange proposals are carefully reviewed. Proposals having merit are reviewed by a seven-member Land Exchange Review Board for recommendations to the Land Exchange Commission, which is the final authority on all land exchanges.

During the biennium ended June 30, 1974, 25 land exchanges were completed involving 12,065.05 acres valued at $507,605.22.

Record Section

The primary responsibility of this section is to provide ownership status and other pertinent data to all who request it for each parcel of state owned Department of Natural Resources administered land. The records are kept in abstracts, maps, card files, and two data processing systems which cover all the above lands plus tax-forfeited land in all counties which administer a significant acreage.

The state ownership records contain about 5,180,000 acres owned, and about 3,420,000 acres which have been sold. The tax-forfeited land totals approximately 2,955,000 acres. Lieu tax payments to the counties from game lands are calculated by this section. Payments for 1972 and 1973 totalled $251,563.27.

State Land Leases

The purpose of leasing land is to provide a means for the public to make use of state lands for private or commercial purposes when by law or by policy the DNR is restricted in the sale of the land.

The Bureau of Land is charged with the responsibility of administration of the surface leasing of state lands. (State land is defined as those state lands which are under the control of the Commissioner of Natural Resources.)

State lands are leased for various purposes, the most common being for: utility right-of-ways, lakeshore and hunting cabin sites, agricultural purposes, and gravel and other earth materials and roadways. Before any leases were issued, future development of the state land was considered.

During the biennium the Bureau of Land administered a total of 5,400 leases. Revenue from state land leases amounted to almost $330,000.00. This is an increase of approximately 22 percent from the previous biennium.

State Land Sales

The purpose of sale of state lands is to provide for the disposal of state lands that are considered better suited for private development, and are surplus to state needs for conservation purposes.

During fiscal year 1972, a total of 1,200 acres of state trust fund lands was sold for $40,450, and in fiscal year 1973, 1,200 acres were sold for $87,640 for a total valuation of $128,090.

During fiscal year 1972, 3,858 acres of consolidated conservation area land was sold for $84,924, and in fiscal year 1973, 1,836 acres were sold for $50,869 -- for a total valuation of $135,793.

Gross revenue from the sale of state land, condemnation of state land, and renting of road right-of-way easements for fiscal year 1972 was $153,000. The gross revenue from the same sources in 1974 was $280,000.

Normally, expectations for sale in future years will be approximately the same, except for the fact that the money for the Voyageur's National Park condemnation will come in during fiscal year 1975.

LAND EXCHANGES COMPLETED DURING FISCAL YEAR JULY 1, 1972 - JUNE 30, 1973

Exchange No.	Name	Class A,B,C	State Acres	State Value	County Acres	County Value	Private Acres	Private Value	Federal Acres	Federal Value	Date File Completed
B-43	Blandin Paper Co. and Itasca County	B			719.62	$10,203.00	584.77	$10,784.06			9-15-72
B-44	U. S. Forest Service and Itasca County	B			390.40	14,346.00	600.00	14,794.00			9-15-72
B-45	Sidney Moore and Itasca County	B			80.00	3,568.75	40.00	3,994.00			9-15-72
186	Hanna Mining Co.	A	648.74	$46,183.15			1,055.06	$46,380.40			10-10-72
230	Hanna Mining Co.	A	2,320.00	55,704.45			3,399.43	55,828.48			1-24-73
243	Herman C. Dittmer	A	120.00	3,000.00			120.00	3,058.50			1-24-73
244	Pacific Isle Mining Co.	A	280.00	11,695.50			120.00	11,713.50			1-24-73
257	Martin J. Schirber	C	17.20	3,000.00			29.50	3,068.80			10-10-72
263	Franklin N. Berg	A	23.00	3,120.00			25.00	3,030.00			12-28-72
265	Grace Tully	A	1.97	177.80			3.68	188.30			1-24-73
281	Neil J. McKenna	A	40.00	3,350.00			20.40	3,384.00			4-27-73
274	Peter V. Eckstrom	A	40.08	733.05			35.00	695.25			5-23-73
276	James R. Smith	A	2.10	138.50			2.00	138.75			5-18-73

SUMMARY

Class "A" Land

Total exchanges completed	9
Total acreage of state land exchanged	3,475.89
Total value of state land exchanged	$124,102.45
Total acreage of private land exchanged	4,780.57
Total value of private land exchanged	$124,417.11

Class "B" Land

Total exchanges completed	3
Total acreage of county land exchanged	1,190.02
Total value of county land exchanged	$ 28,117.75
Total acreage of private land exchanged	1,224.77
Total value of private land exchanged	$ 29,572.06

Class "C" Land

Total exchanges completed	1
Total acreage of state land exchanged	17.20
Total value of state land exchanged	$3,000.00
Total acreage of private land exchanged	29.50
Total value of private land exchanged	$3,068.80

LAND EXCHANGES COMPLETED DURING FISCAL YEAR JULY 1, 1973 - JUNE 30, 1974

Exchange No.	Name	Class A,B,C	State Acres	State Value	County Acres	County Value	Private Acres	Private Value	Federal Acres	Federal Value	Date File Completed
260	Lake-Forest Enterprise, Inc.	A&C	97.4	$ 3,233.00			56.25	$ 3,315.80			7-2-73
259	Quadna Mountain Corp.	A&C	44.85	6,930.00			34.50	6,970.00			10-11-73
266	E. J. Houle, Inc.	A	8.85	3,540.00			49.14	3,623.80			11-2-73
267	Surfland Dev. Co.Inc.	C	.83	1,200.00			.83	1,200.00			10-10-73
285	Leland C. Johnson	A	3.70	1,200.00			16.80	1,255.50			3-12-74
290	Emery Gullard	A	117.20	15,282.50			120.00	15,410.00			3-11-74
269	Hanson Silo Co.	A	30.7	7,675.00			73.5	7,677.50			3-28-74
254	Edwin R. Kaczor	A	40.00	2,550.50			53.30	3,058.25			4-8-74
297	Viking Evergreens	A	115.00	48,300.00			160.00	51,600.00			5-17-74
B-46	Beltrami Co. Dennis & Nestle Grimes	B			20	$ 562.00	42.25	645.00			11-9-73
B-47	Itasca Co. Dennis Wayne Jacobson Jr. and George Jacobson	B			40.75	4,070.00	62.50	1,880.00			11-9-73
B-48	Itasca Co. U. S. Forest Service	B			79.75	1,936.00			40	$2,334.00	11-9-73

Class "A" Land

Total exchanges completed	6
Total acreage of state land exchanged	315.45
Total value of state land exchanged	$78,548.00
Total acreage of private land exchanged	472.74
Total value of private land exchanged	$82,625.05

Class "A-C" Land

Total exchanges completed	2
Total acreage of state land exchanged	142.25
Total value state land exchanged	$10,163.00

Class "A-C" Land (Cont.)

Total acreage of private land exchanged	90.75
Total value of private land exchanged	$10,285.80

Class "B" Land

Total exchanges completed	3
Total acreage county land	140.50
Total value county land	$ 6,568.00
Total acreage private land	104.75
Total value private land	2,525.00
Total acreage federal land	40
Total value federal land	$2,334.00

LAND EXCHANGES COMPLETED DURING FISCAL YEAR JULY 1, 1973 - JUNE 30, 1974 (Continued)

SUMMARY (Continued)

Class "C" Land

Land exchanges completed	1
Total acreage of state land exchanged	.83
Total value of state land exchanged	$ 1,200.00
Total acreage of private land exchanged	.83
Total value of private land exchanged	$ 1,200.00

Project		Parcels	Acres	Amount
Wildlife Management Areas	(Fee)	152	16,287.62	$ 1,057,856.90
	(Easement)	2	27.50	195.00
Fisheries Areas	(Fee)	25	402.57	112,919.00
	(Easement)	45	315.21	54,965.00
Public Access Areas	(Fee)	28	56.07	36,519.00
	(Easement)	9	21.55	-0-
State Parks	(Fee)	127	10,766.55	3,602,493.95
	(Easement)	2	9.00	800.00
State Forests	(Fee)	26	5,407.10	635,341.00
DNR Management Areas	(Fee)	6	1,406.41	-0-
Total	(Fee)	364	34,326.32	$5,445,129.85
	(Easement)	58	373.26	55,960.00
Grand Total		422	34,699.58	$5,501,089.85

LEGAL

Legal matters of the Department are handled by a Deputy Attorney General, and assistants appointed by the State Attorney General. Among the services provided during the biennium were the following:

* Litigation in State District Courts consisting of 108 cases, of which 71 were closed and the balance pending at the end of the biennium;

* Litigation in Federal Courts (including District Courts, Courts of Appeal and the Supreme Court) and state tribunals other than district courts consisting of 46 cases, with 24 closed;

* Acquisition of lands for the Department consisting of 246 tracts for the Division of Fish and Wildlife (wetlands, spawning areas, and public accesses to lakes), 169 for Parks and Recreation, and 18 for Lands and Forestry, or a total of 433 tracts for which abstracts were examined, title opinions written and deeds prepared;

* Various legal services necessary for the preparation and accomplishment of 28 public hearings before the Commissioner of Natural Resources;

* Collection of 36 of 65 delinquent timber accounts;

* Disposition of 20 legislative claims;

* Completion of 18 of 47 pending land exchanges;

* Approval as to form and execution of 4,389 documents including various contracts, permits, deeds, leases, licenses and federal aid documents;

* Preparation of one formal Attorney General's Opinion, and numerous written advisory opinions to the various agencies and offices served by the staff.

In addition to these specific, quantifiable legal services, the Legal Bureau staff has provided general legal services to the Department in connection with land transfer matters relating to Voyageurs National Park; the drafting of over 90 legislative bills for introduction in the 1973 and 1974 Legislative Sessions; the drafting of rules and regulations relating to wild and scenic rivers, BWCA boat storage, utility crossings, drainage, water permit fees, water surface use zoning, scientific and natural areas, recreational trails, and mined land reclamation; appearances before legislative commissions and committees; preparation of pamphlets containing the laws administered by DNR, such as the handbook of Game and Fish laws; and drafting, amendment and administration of the several hundred mineral leases currently in effect.

The staff also provided legal services to the State Soil and Water Conservation Commission; the Water Resources Board; the Land Exchange Commission; the Land Exchange Review Board; and the State Executive Council.

STATE SOIL AND WATER CONSERVATION COMMISSION

The State Soil and Water Conservation Commission was created as an independent agency of state government by the 1937 legislature. It remained independent until the 1971 legislature made it a part of the Department of Natural Resources. This legislation has proved to be very helpful to the Commission, as it more closely consolidated the conservation of soil and water resources with other related natural resources.

The Commission is composed of four ex-officio members. They are the Dean of the Institute of Agriculture, Forestry, and Home Economics, Director of the Extension Service, Commissioner of Agriculture and the Director of State Pollution Control Agency. In addition, there are five members appointed by the Governor from a list of present or past soil and water conservation district supervisors nominated by the Minnesota Association of Soil and Water Conservation District Supervisors. The policies and actions of the Commission are subject only to the approval of the Commissioner of the Department of Natural Resources.

The Commission has the following statutory powers:

1. To offer such assistance as may be appropriate to the supervisors of soil and water conservation districts, organized as provided hereinafter, in carrying out any of their powers and programs;

2. To keep the supervisors of each of the several districts organized under the provisions of this chapter informed of the activities and experience of all other districts organized hereunder, and to facilitate an interchange of advice and experience between such districts and cooperation between them;

3. To coordinate the programs of the several soil and water conservation districts organized hereunder, so far as this may be done by advice and consultation;

4. To secure the cooperation and assistance of the United States and any of its agencies, and of agencies of this state, in the work of such districts;

5. To disseminate information throughout the state concerning the activities and programs of the soil and water conservation districts organized hereunder, and to encourage the formation of such districts in areas where their organization is desirable; and

6. To subdivide and consolidate districts without a hearing or a referendum so as to confine districts within county limits, provided, further, that no district, when feasible and practicable, shall contain less than four full or fractional congressional townships.

Program Development

The Commission has completed the organization of soil and water conservation districts in Minnesota with the organization of Ramsey County into a district in 1973. Now the entire state is organized, including cities, Indian and state owned lands.

The major responsibilities of the Commission are related to rendering administrative, legislative, promotional and educational, coordinational, and financial assistance to the 92 soil and water conservation districts.

The Commission provides and keeps current a handbook for each district's use. This handbook provides administrative directives and procedures relating to district activities. There are 460 soil and water conservation district supervisors elected by the local people to manage the affairs of the districts. The limited staff of the Commission assists these supervisors in every phase of their programs.

State Appropriations

The State Legislature in 1973 made the following appropriations to the State Soil and Water Conservation Commission:

	1972-1973	1973-1974
Salaries	$ 51,902	$ 61,088
Supplies and Expenses	17,595	20,110
Soil and Water Conservation Districts	263,000	263,000
Watershed Planning	40,000	40,000

The allowable expenses for district supervisors are $15.00 per meeting, 14 cents per mile travel, and other necessary expenses. This accounted for approximately one-fourth of the direct assistance to district funds. The remainder of the funds is used to hire aides and clerks. By using a combination of state, federal, county and the districts' own funds, the districts have been able to employ approximately 196 aides and 93 clerks full and part-time during the past biennium.

Resource Conservation and Development

The State Soil and Water Conservation Commission has endorsed and encouraged the development of RC&D areas, as local soil and water conservation districts are one of the chief sponsors.

To date, there are three resource conservation and development projects (RC&D) covering thirty-two counties which have been approved for operations in Minnesota. These are the WesMin, the Onanegozie, and the Headwaters RC&D projects.

Southern Minnesota Rivers Basin Study

The State Soil and Water Conservation Commission is the sponsor of the Type IV Study of the Southern Minnesota Rivers Basin. A Southern Minnesota Rivers Basin Commission was established to promote the basin study. Very little state participation has resulted, and the Commission is due to expire on June 30, 1975, unless the Legislature approves a continuation of the Commission. With the limited funds available to the Commission, a very good job has been done under the funding limitation to acquaint the public with the many problems of the area through local policy committees.

Cooperation with Other Agencies

During the biennium, the State Soil and Water Conservation Commission has emphasized a closer working relationship with the Association of Minnesota Counties.

Since the Commission was made a part of the Department of Natural Resources by the 1971 session of the legislature, a much closer working relationship has developed with the divisions of DNR.

A very close working relationship exists between the Commission and the U. S. Soil Conservation Service. As the U. S. Soil Conservation Service, through a memorandum of understanding, provides technical assistance to the 92 soil and water conservation districts in the state, and since the sole purpose of the State Soil and Water Conservation Commission is to render administrative, educational, promotional and financial assistance to these same soil and water conservation districts, it is only logical that a very close working relationship must exist. The Commission works closely with the Institute of Agriculture, Extension Service, State Department of Agriculture, State Planning Agency, and the Minnesota Pollution Control Agency in rendering assistance to the soil and water conservation districts.

Assistance to Districts

In addition to the U. S. Soil Conservation Service, the districts, through the State Commission, have a memorandum of understanding with the U. S. Army Corps of Engineers. Many of the districts have memoranda of understanding with the Division of Forestry and Fish and Wildlife in Minnesota's Department of Natural Resources. These enable the districts to call on the state for technical assistance in developing programs in these areas.

The districts have a very important need for sub-professional help. They have been able to partially meet this need by using a combination of funds from federal, state, county and funds they have earned through their own income producing enterprises. State-wide,

however, they have not achieved their goal of being able to employ full-time district aides and clerks. They need additional funds to hire part-time help during the summer work season.

The districts have a number of income producing enterprises throughout the state on which they have earned money. On all of these projects, the district employees are paid from the income of these enterprises and no tax funds are used on these projects.

The districts, during the biennium, have hired 196 aides and 93 clerks on full and part-time. There also has been an increase in the number of districts receiving county funds. The total number is now 88.

District Program

The soil and water conservation district program is truly a program "of the people, by the people and for the people" in getting soil and water conserving practices established on the land of our state.

The districts were established by the democratic processes of petitions, hearings and referenda. After organization, the district is governed by five supervisors (elected by the local people) to operate and guide the ever-increasing responsibilities of their community or county.

The district program has developed to include not only land and water conserving practices, but many community programs such as Resource Conservation and Development programs (RC&D); Small Watershed Protection and Flood Prevention (PL 566); numerous environmental programs including recreation and outdoor classrooms; wetland preservation; enhancement of fish and wildlife programs; conservation education; river basin programs; and many other aspects of conserving and using wisely the natural resources entrusted to their care. A great challenge still faces the soil and water conservation districts in fully utilizing all services that can be provided by the various federal, state, and local agencies and organizations.

Small Watershed Program (PL 566)

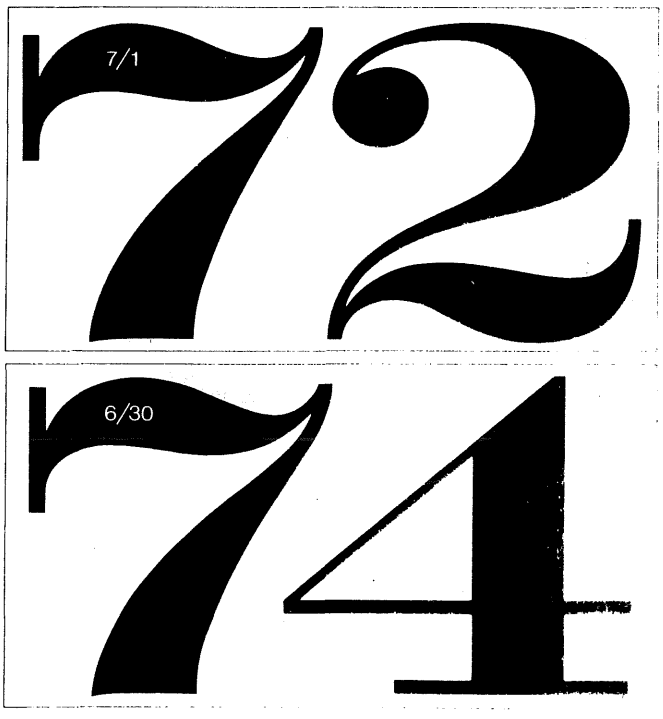
The State Soil and Water Conservation Commission sponsors the USDA Watershed Protection and Flood Prevention Act (PL 566) in the state, and has been designated by the Governor to approve all applications and determine priorities for planning. The technical assistance for this program, as well as the other programs of the districts, is provided by the U. S. Soil Conservation Service through a memorandum of understanding with the U. S. Department of Agriculture, and a supplemental

memorandum of understanding with the U. S. Soil Conservation Service. These applications requested assistance in controlling floods, reducing sediment pollution, agriculture water management, expanding recreational opportunities and protection, and enhancing fish and wildlife.

Of the 78 applications received by the State Soil and Water Conservation Commission, 69 have been accepted as applicable to plan under Public Law 566. The State Soil and Water Conservation Commission has given the Soil Conservation Service priorities to develop plans on 34 of the applications. Construction has been completed on seven projects.

# # #

Regions



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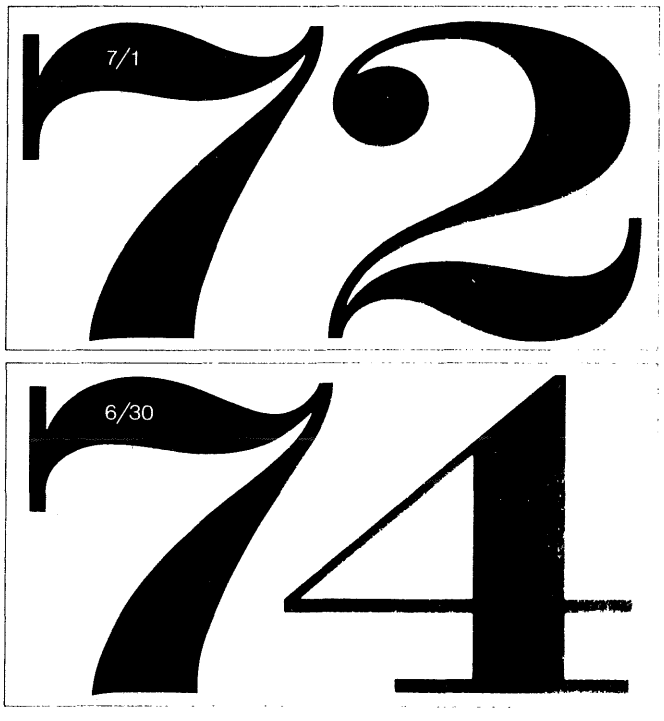

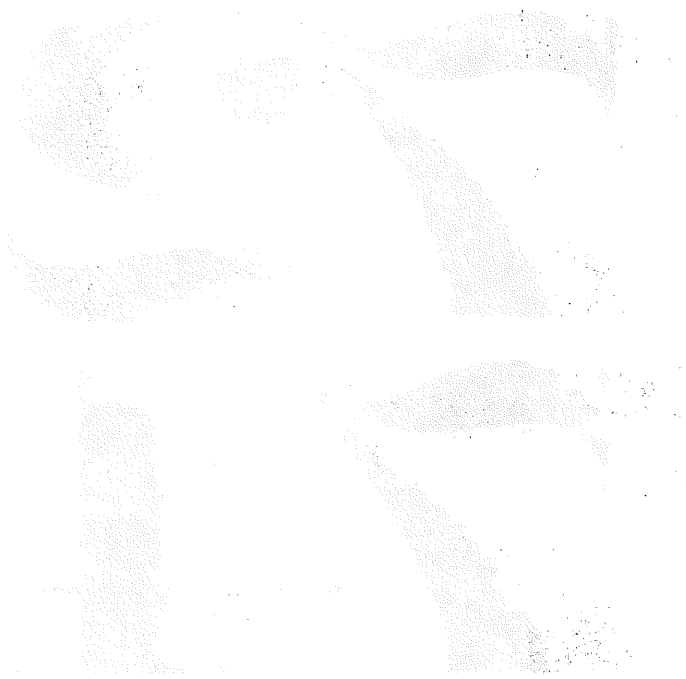

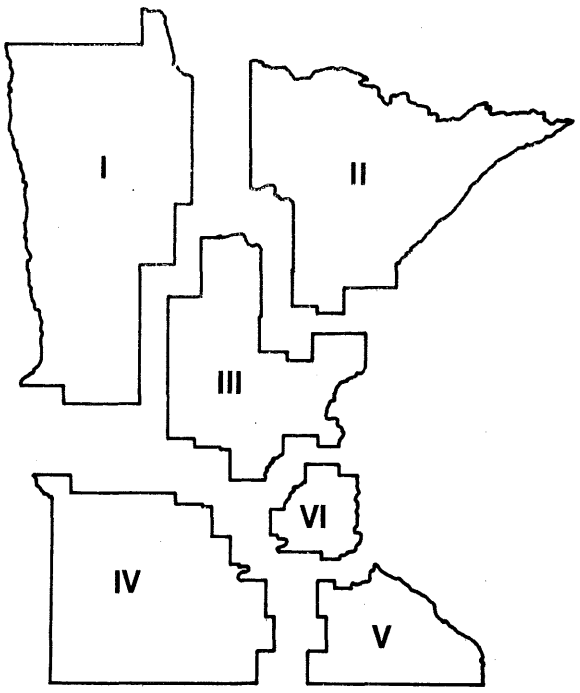

DIRECTORY

REGIONAL ADMINISTRATORS

REGION I (NORTHWEST)

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Bemidji, MN 56601

REGION II (NORTHEAST)

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REGION III (CENTRAL)

Mr. Roger Lorenz
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REGION IV (SOUTHWEST)

Mr. Maynard Nelson
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116½ No. Minnesota St.
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REGION V (SOUTHEAST)

Mr. Robert Story
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2300 Silver Creek Road
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REGION VI (METRO)

Mr. Donald Carlson
Regional Administrator
1200 Warner Road
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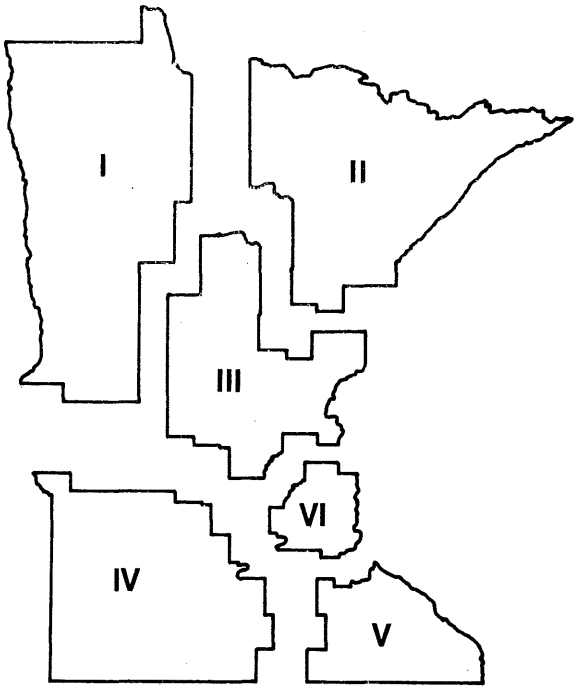

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REGION I (NORTHWEST)

The Northwest Region comprises 21 counties in northwestern Minnesota: Kittson, Roseau, Marshall, Beltrami, Lake of the Woods, Clearwater, Pennington, Red Lake, Polk, Norman, Becker, Mahnomen, Hubbard, Clay, Ottertail, Wilkin, Traverse, Grant, Douglas, Stevens and Pope counties. Within this region lie 2.3 million acres of state land.

All of DNR's Regional Managers for the various disciplines within this region moved into a new Department of Natural Resources regional headquarters in April, 1973. This new headquarters building was constructed near Bemidji on property which formerly was a part of Lake Bemidji State Park. Disciplines moving into the building at that time included Enforcement, Fisheries, Wildlife, Forestry, Parks, and Waters; an office manager, and an engineer.

In September, 1973, a Regional Administrator was appointed and moved into the regional headquarters late in October, 1973.

At the time that reorganization was initiated, the various disciplines had responsibilities that covered a variety of counties. It was not until July of 1974 that a common boundary was established. Hence, during the period covered by this report, the projects carried out by the separate disciplines were not from the same work areas.

Parks

Hayes Lake State Park was in a developmental stage, with a water control structure, and park dedication being completed. A campground within the park was placed into operation, and indications are that this will become a popular vacation retreat.

Itasca State Park continues to draw tourists from throughout the country. The 1973 attendance reached 1,155,165.

At Lake Bronson the sewer facilities were improved, and a new campground opened.

DNR's Interpretive Program was expanded with the appointment of a Regional Parks Naturalist. This region has had an excellent naturalist program at Itasca State Park for several years, and this new program provided expansion and coordination into several additional parks.

Wildlife

Wildlife managers have continued to feel the increase in hunting pressures, and demands on the resources. Many hundreds of acres of wild lands have been converted to pasture, grass lands, and other agriculture crops, with a concurrent loss or decrease in wildlife values.

The second moose season (which included a portion of this region) in 50 years was held during the fall of 1973. Nine zones were opened to moose hunting -- of which six were in northwestern Minnesota, and three in the northeast portion of the state. With 520 permits issued, 465 moose were harvested -- 306 coming from the zones within this region.

Canada goose hunters at the Thief Lake Wildlife Management Area saw changes taking place along the old firing line. Hunters along the west side of the unit were limited in 1973 to designated shooting sites. This tended to spread out hunting pressure, and provide for a quality hunt.

Development continued on several of the units, as funds were available. A new garage and storage building was completed on the Roseau Wildlife Management Area.

Eight water control structures were completed, improving 1,767 acres of waterfowl habitat. In addition, more than 41,000 feet of dike and 960 feet of channel was constructed.

Boundaries of various wildlife management areas were marked by the construction of 8.5 miles of fence, nearly 400 signs installed, and about 45 miles of boundary posted.

Trees and shrubs to provide cover for wildlife and non-game species were planted on 19 units; 19,700 shrubs and 4,347 trees were planted during this biennium.

Forestry

Within this region state foresters have responsibility for 15 state forests consisting of 1,973,027 acres of land. Within these statutory boundaries, 61 percent (1,198,661 acres) of the land is in state ownership. Within the region there are 2,362,400 acres of land in state ownership.

During the biennium, prices on timber and demand for timber products increased tremendously. During this period, 114 timber auction

sales were handled, with more than 59,000 cords sold. In addition, 2,123 informal timber sales were supervised, with 208,730 cords of timber, and 286,845 Christmas trees harvested.

The first year of the biennium proved to be a difficult one as far as fires were concerned. Foresters were called to 603 fires that burned over 145,214 acres. Annual rainfall during this period amounted to 19.45 inches, compared to a ten-year average of 23.65 inches.

During the second year of the biennium rainfall increased to 29.88 inches. Foresters were called to 173 fires, with area burned limited to 1,471 acres. Of this total, 1,120 acres involved non-forest land.

Planting continued on 101 plantations, with more than 2,000 acres and 1,415,200 trees planted.

Nearly 700 woodland owners were provided technical assistance, with management plans completed for 59 units. Timber stand improvement was carried out on 119 acres, and 26 tree farms were inspected.

Cooperation with other units of government included the following activities: fire training meetings; Auxiliary Forest inspections; radio and television programs; and numerous meetings.

Waters

A Regional Hydrologist was appointed in September, 1972. This individual has provided coordination between the disciplines, in the review of permit applications. He also has been able to review projects in the field, and confers with applicants to determine if a project will be detrimental to the environment. He has worked very closely with enforcement personnel on permit violations. During this biennium he has inspected and evaluated 546 permit applications.

Fisheries

Land Acquisition

Northern Pike spawning areas

Lake	County	Number of Tracts	Acres
Bullhead Lake	Becker	1	2.0
Elbow Lake	Becker	2	47.8
Middle Cormorant Lake	Becker	1	3.6
Sallie	Becker	3	1.3
Geneva	Douglas	1	1.6
Miltona	Douglas	1	123.0
Pelican	Pope	2	19.9
	Totals	11	199.4

Miscellaneous Sites

Unit	County	Number of Tracts	Acres
Hatchery site--Walker Lake	Otter Tail	2	39.0
Fish trap -- Maple Lake	Douglas	3	2.1
Totals		5	41.1

Stream Improvement

Stream	County	Miles Benefited
Kabekona Creek	Douglas	2.0

Northern Pike Spawning Area Construction

Contract Construction

Project	County	Acres
Geneva Lake	Douglas	19.3
Rush	Otter Tail	75.0
		94.3

Fisheries Construction Crew

Project	County
Little Floyd Lake	Becker
Little Toad Lake	Becker
Oscar Lake	Douglas

Fish Production

Improvements were made at the following fish production sites within the region:

At the Park Rapids hatchery, a well and temperature control system was installed to achieve better incubation of musky and walleye eggs. In addition, a large production pond was subdivided to provide a separate inlet and outlet for each pond.

Rough Fish Control

Development of control structures

Project	Type	County
Whiskey Lake	Rough Fish Barrier	Douglas
Ten Mile Lake	Rough Fish Trap	Otter Tail
Trappers Run Creek	Rough Fish Trap	Pope

Lake Rehabilitation

Lake	County	Acres	Species
Blacksmith	Hubbard	35.9	Coldwater
Robertson	Hubbard	17.9	Coldwater
	Total	53.8	

Enforcement

Predator Control

During the biennium, there were 582 trappers approved and 207 areas open to predator control. Payment was authorized for approximately 1,000 animals removed.

Public Access

There are 232 public access sites in the region. Development and maintenance was carried out on many of these sites, at a cost of about $30,000.

Wildlife Damage

Heavy rainfall during this period generated many requests for beaver control. Approximately 15 percent of the conservation officers' time was spent on control projects.

Permits Issued

Beaver	135
Shoot from Vehicle	55
Endangered Species	0
All Others	92

Safety Training

There were 7,709 youth trained during the biennium under the Firearms Safety Training Program, and 6,639 under the Snowmobile Training Program, in this region.

# # #

REGION II (NORTHEAST)

Under the new reorganization of the DNR, the regional office and the office of the regional administrator became active in October, 1973. Most of the remainder of the biennium was spent in orientation of the administrator and resolving fiscal and personnel problems within the region. By the end of the biennium the region was operating actively.

Grand Rapids was officially declared the Regional Headquarters for the northeast and offices were established on the second floor of the Northern Service Center. The staff included the office manager, two water hydrologists, and regional fisheries, wildlife, enforcement, and park managers. The major accomplishment during the year was the beginning of the integration of the various disciplines in the region into one working department. Economies were realized in time, money, and personnel; and no major problem evolved.

Enforcement

Enforcement personnel were placed directly under the regional administrator for all operations, with planning and programming to be handled by the St. Paul office.

Enforcement personnel experienced their first 30-day deer season, a major change from the traditional 9 days. No great problems resulted, and this new type of season is working well.

A new working contract agreement between the State of Minnesota and the Conservation Officers Association, as the negotiating agency was signed.

The predator control program was affected directly when the timber wolf was classed as an endangered species. Final resolution of this problem will have to be resolved with negotiation by DNR with the U. S. Fish & Wildlife Service.

After federal courts granted control of wildlife on the Leech Lake Indian Reservation, agreements were reached with the Indian Council as to fish and wildlife enforcement on the area. The agreement called for cooperative effort between Indian and DNR enforcement personnel.

Fisheries

The major thrust of the propagation program centered on collection of walleye eggs from three locations, and the operation of two major walleye hatcheries.

More than 300 lakes were stocked from this production. Fingerling production in ponds was reduced, and investigations are underway to determine the value of each of these programs.

The major event in the Region was the approval of the new cold-water hatchery at French River, construction of which will begin in 1974. The production from this hatchery will stock both Lake Superior and inland lakes with coldwater fishes.

Added emphasis was placed on the fisheries of Lake Superior. With the improvement of the lake trout population and the decline of herring, it has become important to further emphasize management work on this major body of water. Future plans include lake rehabilitation for both warm and cold water species; expansion of basic lake surveys; and major stocking programs for warm and cold water species.

Wildlife

A major change occurring in the wildlife program was the phasing out of the deer habitat improvement program, and its replacement by commercial cutting. The tremendous increase in the demand for wood fiber decreases the need for treatment under wildlife programs. These occurrences were predicted, and the plan to replace treatment programs with commercial cuttings is being carried out. A forest-wildlife opening survey was completed and the maintenance of the openings was begun, with more than 200 acres completed. Three marsh impoundment areas were constructed, or are under construction, including the Dish-pan unit of 160 acres, the Indian Pine unit of 43 acres, and the major Canosia Wildlife Management Area in St. Louis County near Duluth, which will provide both a 500-acre marsh and upland for forest-wildlife.

The new 30-day deer season is being administered and is well accepted by the public. Future work in wildlife will include access to timber, forest opening maintenance, and the use of prescribed fire. In addition, trails for walking hunters will be emphasized, and more work is planned on non-game species.

Forestry

The present reorganization effected the greatest change in forestry since its establishment in 1911. This includes the alignment of regional boundaries to conform with the other disciplines in the Department, and the socio-economic boundaries established by the State Planning Agency. Both Koochiching and Aitkin counties were added to the Region. Operational activities were transferred from St. Paul to the field. Eventually, all informal (Section 1) sales will be handled by the area offices.

Although fire detection continues to be handled mainly by use of lookout towers, added emphasis is being placed on the use of aircraft surveillance.

A tremendous increase in the demand for wood fiber was noted, and in many areas all available black spruce and jackpine was being sold. This trend is expected to continue. A new cooperative forest-wildlife program was initiated, in which wildlife habitat improvement is being integrated into state timber sales.

Recreation demands continue to increase. The region provides 38 campgrounds, 43 picnic areas, and 941 miles of recreation trails.

The increased demand for wood fiber and for recreation areas will add to the workload of the foresters in future years.

Parks

A major change in activities during the biennium involved the growing interest in recreational trails; including snowmobile, snowshoe, hiking, and cross country ski trails. Seven miles of new trail were added to Crosby-Manitou Park (a primitive recreation type area), and 8 miles were improved. Some parks showed less attendance due to the fuel shortage; yet other parks showed increased attendance from local and state residents.

A new parking lot and entrance road was a major improvement at Split Rock Lighthouse. Savanna Portage State Park attracted many new visitors on the cross country ski trails, and on hiking and snowmobile trails.

A major accomplishment at Scenic State Park was the remodeling of the lower campground and the institution of a naturalist program.

The naturalist program was expanded during the biennium and was very well received by the public.

A major physical change at Bear Head State Park involved construction of a new county highway into the area.

Tower Soudan State Park (underground mine) is one of the more unique parks in the state. The number of people who took the underground mine tour increased in 1974 from 24,000 to 29,000.

Routine improvements continue at Jay Cooke Park, and all telephone lines have now been placed underground. Jay Cooke is one of the parks which has experienced increased traffic.

Routine maintenance also continues at McCarthy Beach State Park; and a new water system was installed. Some new camp sites were developed, and others were removed to better distribute visitors.

Waters

The 1972-74 biennium saw Waters staff newly appointed to Region II. A regional hydrologist began working out of the Grand Rapids office on March 4, 1974; an assistant arrived on June 12, 1974.

During that relatively short time period, field review of all water permits was centralized in the regional office under the regional hydrologists, and all floodplain and shoreland management operational activities were implemented through the regional office. All local water inquiries are now made to the regional office.

The next biennium will see the regional waters staff assume responsibility for issuing certain types of water permits, and development of operational methods of dealing with long-standing water permit problems, such as time delays, and policies regarding permanent docks and boathouses. Resolution of several long-standing lake level controversies is expected.

The next biennium also will bring additional duties in land use regulation. The municipal shoreland management program is expected to be well on the way toward complete implementation, and continuing effort will be directed toward implementation of the floodplain management program.

Environmental studies, special studies relating to lakes and streams, and groundwater studies are expected to be undertaken.

# # #

REGION III (CENTRAL)

Fisheries

In carrying out fisheries management programs and activities in Region III, each year the following are operated: walleye spawn taking stations, sucker spawn taking stations, walleye hatcheries, trout and salmon rearing station, walleye rearing ponds (cooperative and state), northern pike controlled spawning areas, fish rescue operations, and rough fish trapping and removal (state and contract operations).

In order to plan and manage the fisheries resources, the fisheries managers conduct surveys on lakes and streams and make investigations of year classes of fish species by netting and creel census. Each year many applications to alter shorelines of public waters are investigated, and recommendations are submitted for these applications. The altering of the cross section of public waters in many cases can affect both fish and game habitat and their populations. Land acquisition is conducted to acquire tracts of land for northern pike spawning areas, fish trapping sites, and barriers for rough fish control. There are several research study programs being conducted throughout the region, which should benefit management of the fisheries resource in the future.

We had a major change in our salmon rearing program at our Spire Valley cold water rearing station. The shift was from Coho salmon to spring run Chinook salmon, primarily for stocking in Lake Superior. Coho salmon mature in three years, at which time both male and female spawn and die. The spring run Chinook salmon mature in four years. The Coho salmon should return to its spawning stream or stocking location in the latter part of October or November, at which time the weather conditions along the north shore of Lake Superior are too cold and severe for sports fishing. The spring run Chinook salmon, if they follow the same characteristics of spawning on the west coast, should return to their spawning or stocking areas in the spring of the year (May or June) and remain in the mouths of rivers until mid August or September, before spawning. This should provide more sport fishing for this salmon specie. DNR, in the fall of 1973, received approximately 500,000 eyed Chinook eggs from the State of Idaho. The eggs were hatched at Lanesboro, and the fingerling were then transported to our Spire Valley cold water rearing station. Some of these small Chinook fingerling were stocked in Lake Superior in the spring, and some were reared to a larger fingerling size and stocked in the fall of 1974 in Lake Superior. In addition, one small inland lake was stocked on an experimental basis.

Another highlight in fisheries management in Region III was the pilot program in Douglas County of controlling rough fish populations by watersheds. The pilot project is under the combined efforts of the Soil Conservation Service under their RC&D Program (Resource Conservation Development); the Department of Natural Resources; the county; Viking Sportsmen's Club; and other interested organizations and individuals in Douglas County. The project area is basically located within Douglas County, with a few exceptions, which are just across the border in Pope County. It encompasses the watersheds which make up the headwaters to the Chippewa and Long Prairie rivers. By constructing various types of fish barriers and trapping structures at strategic locations on the watersheds of the headwater areas, a degree of control over rough fish migration can be instituted. This will limit access to spawning areas, and reduce the reproduction of rough fish species. Because of the complexity in planning for a proposal of this magnitude, and the number of individuals and agencies involved, a task force (planning approach) was established and implemented.

Field investigations throughout the project area produced the possibility of sites for 89 structures, for the purpose of controlling rough fish. The various potential sites were reviewed in regards to acres of fish lakes, acres of marginal fish and game lakes, acres of marshes, and freeze-out characteristics which each structure would influence.

With this background, a priority listing was established, and a suggestion was made as to the type of structure which would be installed. This pilot program is planned for five years, with 50 percent cost sharing under the RC&D program. Initial total cost was estimated to be around $2 million. At the present time, an environmental impact assessment is being written before federal funds can be approved for this project.

Parks

Banning: This park is approximately 4,000 acres, and has 32 campsites, a fine picnic area, and good canoe access on the Kettle River. The park attendance had an increase of about 6 percent from 1972 to 1973. The two highlights for park visitors are the old town and quarry site of Banning and the wild and scenic Kettle River which flows through the park. The following projects were completed and added to the enjoyment of park visitors: a new campground toilet building; blacktopping the steep hill and parking area road to the canoe landing, gravelling the entrance road and the campground road.

Big Stone Lake: This park is approximately 1,000 acres and is split into two areas. One is called Meadowbrook, which contains a 42-unit campground, small picnic area, and a boat access. The other use area is called the Bonanza, and has a picnic area and a new

interpretation center. The new interpretive program has been very successful at Big Stone. The park had about a 2-3/4 percent decrease in attendance from 1972 to 1973. The development projects consisted of a campground trailer sanitation station; interpretation center; sewer system; and the completion of the displays in the interpretation center.

Charles Lindbergh: This park is the boyhood home of the famous flier. The park has a total of 295 acres. The attendance has remained about the same for the two years. A new campground sanitation building has been completed. The picnic shelter has been remodeled and shingled, and there has been major construction of the new campground.

Crow Wing: This park is located at the confluence of the Crow Wing and Mississippi rivers. It is the site of the old town of Crow Wing, which at one time had a population of up to 400 people. The attendance at Crow Wing dropped about 3 percent in the two-year period, probably due to the closing of the Donnybrooke race track north of Brainerd. Major development in the two-year period consisted of the construction of a trailer sanitation station for the campground, the development of a historical interpretation program, and the construction of a workshop and garage.

Father Hennepin: This park is located on Mille Lacs Lake and comprises 270 acres. The major visitor activities are camping and fishing. The attendance remained about the same for the two years, with camping up slightly. Projects completed during this period included the construction of a sanitation building at the swimming beach-picnic area and a trailer sanitation station; rehabilitation of a picnic shelter building; and the development of a picnic area.

Glacial Lakes: This park is located five miles south of Starbuck. It is approximately 1,400 acres, has 39 campsites, a very fine swimming beach, picnic grounds, and hiking and snowmobile trails. The attendance was up slightly in the two-year period. New developments included: a vault toilet at the beach area; riding center and trails; campground construction; and base and surface roads.

Inspiration Peak: This park is 80 acres, and the interesting feature is the hiking trail from the parking area to the peak. From this high point, one can see for about 50 miles on a clear day, with a fine view of many lakes, towns, and hilly, rolling farm land. The development consisted of a new well in the picnic area.

Lake Carlos: This park has approximately 1,100 acres, and is located on the north end of Lake Carlos. The park has 146 campsites, a fine picnic ground and swimming beach, a modern group camp, and 15 miles of riding and snowmobile trails. The attendance for the two years was stable. We have had a very active and popular interpretive program at the park the past two years. Our development of new facilities included: surfacing the campground roads; remodeling the assistant manager's residence; group camp ventilation; completion of the group camp staff-and-infirmary building; and a garage for the manager's residence.

Lake Maria: This park consists of 1,100 acres and is located eight miles west of Monticello. Attendance remained about the same for the two years. We need a campground at this park, which is located only about 40 miles west of the Twin Cities. Development consisted of: picnic ground improvement; fencing obliteration; and trails. A contract has been let for a new workshop and warehouse building.

Mille Lacs Kathio: Located on the west side of Mille Lacs Lake, this park encompasses some 7,000 acres, has a 45-unit campground and new pioneer camp (on the Rum River), and is used by non-family groups and canoers. A new interpretation center is located at the picnic-swimming beach area. The interpretive displays have been installed in the building, and we have had a naturalist and volunteer at the Center the past two summers. The development program at the park included: a new picnic area toilet building; warehouse and shop; campground improvement; and interpretive displays.

Monson Lake: This park consists of approximately 200 acres. Its facilities include picnicking, camping and hiking. Attendance dropped from 1972 to 1973. Most of the decrease was in camping, as we restricted the campers to a smaller area. Development consisted of completing the ranger residence.

St. Croix: This park, consisting of more than 33,000 acres, has two major rivers flowing through it -- the St. Croix and the Kettle. There are three campgrounds located on the St. Croix River, and also an all-seasons campground, used by non-family groups and trail enthusiasts. The park visitor attendance was close to 400,000 per year, with more than 90,000 campers each year. We have had a park naturalist for a number of years, and for the past two summers have had two volunteers helping the naturalist. The development program included: a campground sanitation building in the new campground; rehabilitation of buildings; planting and reforestation; replacement of equipment and lumber shed; and bicycle trails development.

Schoolcraft: This park, located eight miles south of Deer River on the Mississippi River, consists of 210 acres. It has a 38-unit campground and a picnic area. The attendance was about the same for the two-year period, with about half of the visitors being campers. Many visitors come to the park by boat from up and down the river. Development consisted of road improvements and enlarging the boat harbor and parking area

Sibley: This park is located seven miles west of New London, on the north shore of Lake Andrew, and consists of 1,360 acres. Facilities include camping, picnicking, swimming, group camping, hiking, and winter trail use. Attendance remained about the same for the two years. We have had a naturalist program at the park for the past few years, and it is well received by the park visitors. The development program was as follows: refectory addition, which included toilets for the beach area; surfacing of picnic parking area; remodeling of the campground shelter; and boundary survey and fencing.

In addition to the 14 parks in the Region, there are many canoeing rivers and snowmobile trails. Park managers and their staffs have spent a considerable amount of time to improve the visitor enjoyment of these two types of outdoor recreation.

Wildlife

Major emphasis on wildlife management in Region III for the biennial period from July 1, 1972, to June 30, 1974, was placed on the primary game species for this Region.

In the western portion of the Region, major emphasis was placed on pheasant and waterfowl habitat. Due to changing farming practices, demanding more intensive agricultural use, the Section of Wildlife was compelled to replace suitable habitat in an effort to maintain a suitable wildlife population in the western counties of Region III.

Trees and shrubs were planted for winter cover on state-owned wildlife management areas, and assistance was provided to private lands. Food plots and nesting cover were developed on state-owned lands, through cooperative farming agreements. Also, cost sharing assistance was provided to private landowners to develop and maintain food plots and cover plantings to supplement sloughs, fence rows, and farm groves vanishing from agricultural areas.

Water impoundments were developed for waterfowl and furbearers (mink, muskrat, beaver) throughout the region by constructing water control structures, dikes, and potholes.

Due to limited funds and rapidly rising land prices, only lands in immediate danger of drainage or development were acquired during this biennium. State-owned wildlife lands were fenced to keep livestock from damaging lands purchased and being preserved for wildlife habitat.

Noxious weeks were controlled on state-owned units in an effort to conform to local and state requirements.

In the forested portion of the Region, efforts were made to alter the plant succession toward a more beneficial forest wildlife habitatt. Primary emphasis to accomplish this task is done by encouraging commercial harvest of timber through the Division of Forestry. Primitive roads and trails were developed to provide access for private loggers to reach otherwise inaccessible areas to remove harvestable timber. Logging creates new forests through natural regeneration.

In non-merchantable stands of timber, private contractors are employed with machines for shearing with a Rome KG blade, bulldozing, spraying, and crushing with a Letro tree crusher.

The Section of Wildlife is working with other agencies to provide and maintain the habitat required to support huntable populations of game species.

Enforcement

One of the first types of wildlife management was enforcement. The first types of enforcement were: first, setting of bag limits; second, liberal season settings; third, requiring a hunting and fishing license.

Hunting seasons for the first part were from fall through spring. Limits were very generous in those days, when hunting was necessary to supplement food supplies. The same applied to the fishing season and limits.

As time progressed, seasons were shortened, bag limits were reduced, and license fees were gradually increased.

Additional duties were given to the enforcement officers: wildlife depredation and damage; management of the wild rice harvest; investigation of water permit applications and pollution; management and purchase of public accesses; firearm and snowmobile safety training; enforcement of recreational laws which includes snowmobiles, watercrafts, all terrain vehicles, state parks, and other recreational area enforcement.

Due to the shortage of manpower, this has been our worst year in regard to the illegal taking of game and fish by the people. Because of the high cost of meat and other commodities, unemployment, and the recession that we are presently having, if this condition still exists, this problem will get worse.

Waters

These past two years marked the beginning of an important change in the Department's method of water resource administration. During the prior biennium, a regional management concept for public waters was developed aiming at de-centralizing all operational activities of the Division. The intent was twofold: a closer and more unified degree of management; and better coordination with other established programs of resource management within the Department.

First steps of implementation have been the relocation of staff. At present, there are two field hydrologists located at Brainerd. It is anticipated that additional professional and sub-professional positions will be added as field responsibilities in water resource management increases. Over the past biennium, two major program activities were regionalized by June 30, 1974. Towards this goal, considerable effort has been directed at developing patterns of coordination and cooperation with local governmental officials.

Field review of regulated projects involving state waters under authority of Minnesota Statutes, Chapter 105, was regionalized at the beginning of the biennium. Further changes in this program are expected during the next two years.

Much of the Department assistance to land owners affected by the summer floods of 1972 was coordinated through the regional office. This included clearance of restoration work on roads and shorelines, coordination with other state and federal agencies, and suspension of direct Department assistance projects.

# # #

REGION IV (SOUTHWEST)

Following the LEAP Committee's studies early in the biennium, and independent studies within the Department of Natural Resources, reorganization on a regional basis really became effective with the appointment of regional administrators beginning in September, 1973. Under the current organizational structure, department-wide field operations are administered within the region by a Regional Administrator who answers directly to the office of the Commissioner. The Division offices in St. Paul no longer are responsible for field operations; but instead are responsible for established Department controls, objectives, plans and programs.

The new organization became operative during January, 1974, in Region IV with the assignment of the Regional Administrator, regional managers and clerical personnel to the newly established regional headquarters in New Ulm. Following is a summary of activities dealing with our natural resources in Region IV, during the biennium.

Enforcement

Because of recent legislation revising the definition of public waters, Enforcement Officers now find themselves much more involved in enforcement of our water laws. A relatively broad definition of what constitutes public water, and a surge in drainage activity for agricultural production, has created a pressure for drainage beyond that previously known in the region. As a consequence, officers are working closely with our hydrologist, wildlife managers, County and State attorneys to protect the public's rights and to deal with violations involving public waters. Similarly, conservation officers have become increasingly involved in the enforcement of state regulations within our parks -- a response to increased public use of our parks, and emphasis within DNR on greater internal cooperation.

Parks

Within the 27 counties comprising Region IV are 17 stated parks, waysides and monuments comprising more than 7,000 acres. Camp facilities and waste disposal systems within several of these units were modernized during the biennium. A new "natural" pool for swimming was developed at Flandreau State Park and the swimming area at Blue Mound was improved by remodelling of the dam.

Probably the most impressive development within our parks has been the interpretive program. Under this program naturalists have developed programs and led field tours for the public at Blue Mounds, Flandrau, Lake Shetek and Upper Sioux Agency state parks during the past season. An interpretive Center has been constructed at Upper

Sioux Agency, and progress continues in the development of displays and audio-visual aids for the visitor. Recreational activity also has been extended outside the parks, with continuous progress being made on development of three overland trails: Luce Line, Casey Jones, and Sakatah-Singing Hills trails. Most of the latter trail is in Region V. Canoe routes have been designated on the Crow, Minnesota and Des Moines rivers, and water level readings are recorded for public information weekly during the canoeing season.

Forestry

Surprisingly, forestry is a very real part of DNR activities in southwestern Minnesota. Rivers and streams through the area produce some excellent hardwood timber, and private land owners regularly ask assistance of regional foresters in timber management. Interest has also increased during the biennium in farmstead shelterbelts which have been cost-shared by both state and federal agencies. Unfortunately, interest probably will subside during the coming biennium, with the termination of ASCS and REAP programs. Such plantings provide effective protection for our soil, water and wildlife.

Waters

Pressure on our public waters, because of increased water use and increased interest in draining for agricultural purposes, has grown at an unprecedented rate during the biennium. One consequence of this has been the assignment of a hydrologist to the regional staff. Legislation providing for the protection of public waters has created a heavy workload for our hydrologist, largely because of the need for field investigations following requests for water use permits and because of reported violations of the water laws. Permits most often deal with requests for stream channelization and land drainage. Interest in irrigation, however, has increased, and has probably been accelerated by low precipitation during the biennium. Water stream flow data for the region have been analyzed, and correlation developed between low flow stream volume and drainage area of the stream. This will aid in determining the allowable water withdrawals from our stream for industrial and agricultural uses in the future.

Fisheries

The primary concern of a fisheries manager in southwestern Minnesota is the control of rough fish -- particularly carp. Control is largely exercised through barriers installed in streams, and carp removal by seining crews during winter months. Winter seining by state and contract crews was extended to 80 lakes during the past winter season. Currently, projects are being developed for additional carp control structures on 4 streams which serve approximately 40 lakes

important to fish and wildlife. Investigations are also being made for stream improvements for trout on the Redwood River and smallmouth bass on the Cottonwood River. Chemical rehabilitation of lakes for rough fish control is planned for the Dassel chain of lakes in Meeker County and Mary Lake in Wright County. Acquisition of northern pike spawning areas continues to be a top priority item, although such areas are difficult to acquire because of the desire of landowners in this region to convert wetlands to cropland.

A new area headquarters, including both shop, storage and office facilities, was completed during the biennium at Spicer to service a six-county area.

Southwestern Minnesota is blessed with some of the richest agricultural land in the nation. The dominate role of agriculture has been becoming increasingly prominent during the past three years. During this brief time span, our nation has seen a switch from a surplus to a shortage of agricultural commodities. This is largely due to a national policy of contributing as much food as possible to people of the world, and a subsequent increase in food exports. An obvious consequence has been a heavy exploitation of the land with extreme pressure to bring every acre possible into production of corn and soybeans - crops which leave the land plowed and barren at least six to seven months out of each growing season. This, in turn, has resulted in tremendous soil losses due to erosion. Sedimentation is causing additional problems through deterioration of our lakes and streams. Minnesota has already lost over one-third of its topsoil over a broad area of the state, and the risk of continuing loss is accelerating. Our lakes and streams are very productive, but they are aging rapidly because of siltation. Soil and water conservation measures are very inadequate and must be upgraded.

Similarly, the emphasis on all-out crop production is creating unprecedented pressure to eliminate marshes, shallow lakes, field woodlots, and other non-cropland. Stream channels are being illegally straightened for drainage purposes, and tiles and ditches are being extended into public waters. The regional staff is simply not adequate to deal with these pressures. Additional hydrologists are needed as are land managers and enforcement personnel, to protect the public's lands and waters from illegal uses and to regulate those public uses which are appropriate. Field personnel who can effectively relate to other agencies and public service groups dealing with these resources are desperately needed. Also needed are the funds to save a vestige of our prairie marshes, which serve as a focal point for all wildlife on the prairie.

State parks are gems of solitude and recreational freedom in this region of intensive land use. Funds are inadequate, however, to complete the acquisition of those lands within the statutory boundaries. As in the case of wetlands, funds are urgently needed to complete our acquisition program.

Intensified agriculture is rapidly changing rural lands in southwestern Minnesota into a dull and uninviting scene. Even the roadsides, which have heretofore been highly productive of wildlife, are becoming closely groomed, or they are actually converted to cropland. But this need not be the case. Given adequate staff, DNR field managers could work closely with highway engineers, township officers, 4-H and FFA, sportsmen, etc., in providing new beauty to our roadsides. Wildflowers and native grasses could be brought back to make roadsides more beautiful, and productive of wildlife.

# # #

REGION VI (METRO)

Regionalization of the Department of Natural Resources was by far the most progressive step taken in natural resources management during the biennium (July 1, 1972 - June 30, 1974). Five regions covering the entire state were established during the first three months of Fiscal Year 1974. Plans for a sixth region were announced when the five regions were organized. The sixth region (Metro) was to be carved out of the Southeast Region and was to encompass the Metro area counties: Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington. On June 26, 1974, a Regional Administrator was appointed. This completed regionalization that followed the Governor's Loaned Executive Action Program recommendations. Boundaries were to be concurrent with the established Economic Development Regions.

During the biennium, while the Department was undergoing an extensive reorganization, natural resource management within the boundaries of what was to be the Metro Region took many progressive steps towards fulfilling the DNR's announced metro goals.

Parks

Fort Snelling State Park reached maturity. Day use park attendance increased approximately 48 percent in 1974, over 1972. Annual permits rose from 9,325 in 1972 to 12,773 permits in 1974. During the winter of 1973-74, more than 2,000 skiers utilized the park's cross-country trail. Park development during the biennium included a snowmobile trail, a nature center, bicycle trail, swimming beach, sewage system and a new headquarters station.

Simultaneously, acquisition of lands continued in Afton State Park on the St. Croix River; and in the Minnesota Valley Trail System, that extends from Fort Snelling to near Henderson, along the Minnesota River.

Meanwhile, William O'Brien State Park, which borders the St. Croix River north of Stillwater, was being expanded. New facilities, including a sewage system, a new headquarters, and a road system, were planned and partially completed.

The Luce Line Trail was authorized by the 1973 Legislature. Easements were obtained to the abandoned Chicago Northwestern Railroad right-of-way from the Village of Plymouth in Hennepin County to Glueck in Chippewa County.

Forestry

Regional forestry operations began in the Metro area in November, 1973. Highlights of Metro forestry include a cooperative wild fire protection program with local municipalities. An extensive forest pest

program was initiated for the rural areas affected by the ever increasing dutch elm and oak wilt diseases. An overall wood utilization survey was initiated, to locate and remove the diseased trees. Utilization of the wood to provide more fiber and a return to defray costs of diseased tree removal was of prime concern. This program was carried out in conjunction with the Minnesota Department of Agriculture, the Metro counties, and the local municipalities. The Carlos Avery Tree Nursery handled and shipped approximately 3 million seedlings annually. The nursery processed over one-half of the private tree orders placed with the three state nurseries.

The 1973 energy crisis placed an unheralded demand upon forestry to provide or locate fuel wood for thousands of the Metro's fireplaces and wood burning stoves. In addition, foresters participated in a study program to determine the possibilities of substituting wood chips as fuel in power generating plants.

The energy crisis also placed new demands upon Metro area fishing. Hunting increased on the Carlos Avery Wildlife Management Unit and the other 14 units. Water surface use increased with many boaters, canoers, swimmers and fishermen staying closer to home to enjoy the out-of-doors. These increased activities placed added law enforcement responsibilities upon the Metro Region Conservation officers.

As Metro Region Natural Resources were being imposed upon at an accelerated rate, wildlife managers were establishing additional wildlife food plots, wildlife habitat areas and water impoundments on public lands, in addition to assisting private landowners wishing to provide wildlife habitat. Nearly 150,000 pheasant chicks were hatched and delivered to sportsmen's groups, F.F.A. and 4-H for distribution in the pheasant range.

Fish managers continued with the Donaldson trout program at the State fish hatchery in St. Paul. Muskie and walleyes were hatched and shipped statewide. Fish managers instigated a creel census program on 18 metro lakes. They conducted extensive netting operations to determine fish populations, and investigated permit applications to alter lake and stream beds.

Water use expanded, which resulted in many new legislative mandates in 1973 and 1974. Water resource managers became more actively engaged in flood plain management, shoreland management, and water use permits. To aid the water resource managers the Conservation officers were assigned additional law enforcement responsibilities.

During the biennium the Department of Natural Resources acquired nearly 1,100 acres of the Stillwater Prison Farm lands from the Department of Corrections. Natural Resources planners set forth in the development of a comprehensive plan to utilize the newly acquired lands.

The Metro Region looks ahead. Even though the overall picture is one of accelerated use, resources are abundant; they can be properly managed provided more funds and manpower become available.

The region has 200 fish lakes covering 53,000 acres, several trout streams, substantial portions of three of the mightiest rivers: the Mississippi, Minnesota, and St. Croix. Water is the outstanding resource; no other metropolitan area in the United States encompasses this much water area.

The St. Croix River Valley is peculiar to the Metro Region and the southeast part of the Central Region. Master plans of the States of Minnesota and Wisconsin and the United States Department of Interior are setting the stage for one of the most unique scenic areas within the Midwest. Emphasis will be on protection and preservation.

Corridor trails will be providing untold days of recreation for snowmobilers, skiers, bicyclists, hikers and horseback riders. Use of our state parks will increase through the improved swimming beaches, the interpretive program, expanded picnic grounds, and the limited campgrounds.

Meanwhile, additional demands for wood products and fiber and the utilization of diseased trees will bring additional marketing opportunities to the owners of woodlots, municipalities, and even single tree owners.

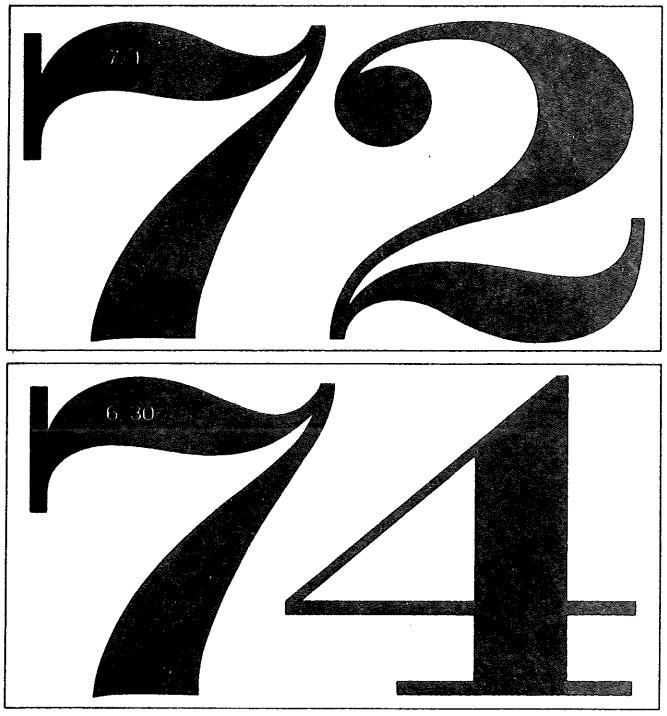
Hunting and fishing pressures are expected to double. With these pressures comes the need for expanded programs in habitat restoration, food plots, water impoundments, and stricter wildlife and fish law enforcement.

Water use is expected to continue to skyrocket; more utilities and industries are expected to need water. Metro population using water surfaces will necessitate water use zoning.

The Metro Region is being geared up to provide outdoor classrooms for ecology, environmental education, and interpretive services. Prime centers will be Fort Snelling State Park, Stillwater Prison Farmlands, Afton State Park, and Carlos Avery Wildlife Management Area.

Everything indicates that natural resource management will be put to ever-increasing demands. With the new regional organization concept and public concern for the environment and natural resources, the job of providing a better place to live for approximately 50 percent of the State's population is challenging. The Metro Region accepts the challenge and will reach the goals of the Department of Natural Resources for metropolitan people.

Planning and Research



ENVIRONMENTAL PLANNING AND PROTECTION

The 1972-1974 period witnessed major recreation planning accomplishments including: completion of the 1974 State Comprehensive Outdoor Recreation Plan; creation of a more comprehensive and adaptable Statewide Recreation Facilities Inventory System; and an expanded recreation research effort. Details regarding each activity area are provided as follows:

1974 State Comprehensive Outdoor Recreation Plan - SCORP

Completion of the new Minnesota SCORP was announced in 1974 by award ceremonies involving staff contributors, the Governor, and officials from the United States Department of Interior (Bureau of Outdoor Recreation).

Minnesota was one of a select few states granted five year eligibility, based upon evaluation of the Plan's quality, as well as performance in carrying out previous SCORP project commitments. Approval of the new Plan allows for continued participation in the federal LAWCON Program (Land and Water Conservation Fund Program), which to date has contributed some $18,000,000 to Minnesota's growing state and local recreation systems.

Innovative features of the 1974 Plan include: detailed discussion of the respective regions recreation potentials; region-specific recommendations regarding the roles of various governmental levels and the private sector in meeting recreation facility deficiencies; and finally, detailed state and regional action programs.

Recreation Facilities Inventory System

During this two-year period, a Statewide Recreation Facilities Inventory System was developed and now is recognized as one of the best such systems in the nation. Although the on-file information requires additional expansion before fully satisfactory coverage is attained, this is a short-term problem which will be accomodated by one of the system's most favorable attributes, i.e., that the system has been designed to minimize the difficulty of obtaining updated information. That achievement is spelled out by item #2. Other system development accomplishments also are listed below.

1. Completion of the system's statistical-graphic design.

2. Completion of the system's softwear package. (Includes the unique capability to produce reports from input data, which in turn can be mailed to agencies and the private sector, for updating the information file.)

3. Initial data collection, file building and data expansion. During 1974 the National Association of Conservation Districts used item 2 capability printouts to expedite their Minnesota recreation facilities survey operations.

4. Statewide mapping of inventory data on county map sheets. A total of 129 map sheets cover Minnesota's 87 counties. Potential clientele for such maps is large, and the availability of this series will be a major benefit in coordinating knowledge and planning among state and local government, as well as the private sector.

During this time, considerable recreation research was carried out by Department staff and parties working under contract with DNR.

The 1974 State Park Survey (Supplement #1, 1974 SCORP), was a massive effort to provide quality benchmark information on the State Park and Recreation Area System. The survey covered 49 installations and was conducted during randomly selected hours over the entire summer and part of the fall user season (approximately Memorial Day through October 5). Many improvements were made by capitalizing on the experience gained from the 1970 Survey. Improvements included: question clarification; upgraded sampling design; improved control of survey procedures; and derivation of confidence levels. Specific information output included: crowding indices; turnover rates; size of party; user preferences; user origins, etc. The 1974 Survey will provide legislators, administrators, and the public with credible information needed in assuring that their state-administered recreation facilities operate in a manner which protects unique resources, and meets the changing expectations of an expanding clientele.

Similar research, focusing on the Twin Cities Area's local and regional recreation facilities, was conducted for DNR by the Metropolitan Council Staff. That study provides use levels and activities data for some 25 Twin Cities Metropolitan Area recreation facilities. Equally important, the study contributed an empirical evaluation of certain research techniques. Included among the latter contributions were: evaluation of certain regression equations in predicting use levels; and market area analysis, i.e., calculation of the relative drawing power of various facilities. While additional research must be conducted before these techniques can provide suitably refined information, the Metro Council effort is recognized as an important beginning toward building satisfactory recreation research models.

Water Resources Planning (FY 1973-1974)

During Fiscal Year 1973-1974, the Water and Related Land Resources planning function of the Bureau of Environmental Planning and Protection had responsibility in three areas: Interstate water resources planning through participation in the activities of three Federal-state river basin commissions; coordination of water resource activities of State agencies by chairing the Minnesota Water Resources Council; and work leading to the preparation of a Framework Water Resources Plan.

The water resources planning staff provided the state's representatives to the Great Lakes, Missouri and Upper Mississippi River Basin commissions with staff support required for Minnesota's participation. Issues addressed included navigation, lake levels, and water marketing, among others.

During fiscal 1974, the Minnesota Water Resources Council was formed by Executive Order 71. DNR's Assistant Commissioner for Planning chairs this group. The Council is charged with coordinating the water resource activities of State agencies; assisting the staff in River Basin Commission activities; and preparation of the State Framework Water Resources Plan.

Several reports were prepared during the biennium as background for a State Framework Plan. These reports examined: Basin Commission studies to determine their impact on Minnesota; flood damage reduction alternatives; costs of meeting required water quality standards; wetland drainage problems; water supply alternatives for the Twin Cities; and existing and necessary State water resources policy. In addition, an outline for the preparation of a Framework plan was prepared. This outline proposes that "possible futures" be developed which would indicate three levels of water resource needs for the State to the year 2000. Finally, water resource information systems of State agencies, the University of Minnesota, and State and private colleges were inventoried. This is an initial step in the preparation of a legislatively required Statewide water resources information system.

Land Use Planning

The major thrust of land use planning has been oriented toward rivers of the State in terms of the Minnesota Wild and Scenic Rivers System and the Upper and Lower St. Croix River programs. Other continuing activities include the Land Use Classification program; and liaison with several commissions, organizations, and groups concerned with land use planning.

Wild and Scenic Rivers System

The Minnesota Wild and Scenic Rivers Act was passed in May, 1973. The Land Use Planning Section assisted in drafting this legislation and was instrumental in guiding it through the legislative process. After passage, the Land Use Planning Section prepared statewide rules and regulations, as required by the Act. After conducting public hearings and receiving considerable written testimony on these regulations, a final set of regulations was prepared and officially promulgated April 29, 1974, as the "Statewide Standards and Criteria for the Minnesota Wild and Scenic Rivers System".

The Division of Parks and Recreation is now in charge of the Minnesota Wild and Scenic Rivers Program which includes: preparing management

plans; working with the local units of government to adopt zoning ordinanaces consistent with the statewide standards and criteria once a river is designated; and acquiring fee title and scenic easements on lands adjacent to rivers in the Minnesota Wild and Scenic Rivers System. The role of the Land Use Planning Section is now supportive; providing advice and assistance when needed.

Upper St. Croix Plan

The Upper St. Croix Resource Management Plan was published early in 1974. Encompassing two state forests and two state parks and totaling more than 115,000 acres, this planning effort was coordinated with the National Park Service and the State of Wisconsin to manage this area in keeping with the intent and philosophy of the St. Croix National Scenic River designation. The Draft Environmental Impact Statement on the federal and state plans is near completion and will be available for review late in 1974. A project proposal has been submitted to the Bureau of Outdoor Recreation requesting federal funding assistance for the implementation of the acquisition and development proposed in the plan.

Lower St. Croix Plan

The federal Lower St. Croix River Act of 1972 included the Lower St. Croix as the ninth component of the National Wild and Scenic Rivers System. Accomplishments to date include a joint effort on the part of the National Park Service and the states of Wisconsin and Minnesota (through the Department's Land Use Planning Section) in preparing a comprehensive master plan and environmental impact statement for the river; designating the river a state Critical Area and administering interim development regulations, in cooperation with the Environmental Quality Council and local units of government; and conducting hearings and environmental impact studies on the plan.

Implementation of the master plan, expected early in 1975, will consist primarily of fee acquisition, scenic easements, and zoning to preserve the existing scenic and recreational qualities of the Lower St. Croix River.

Environmental Review

Environmental review, and coordination of its associated activities, has greatly accelerated in the past biennium due to the widespread public concern for the environment, resulting in enactment of the State Environment Policy Act which followed on the heels of the National Environmental Policy Act of 1970.

The ramifications of environmental review within the Department of Natural Resources have accelerated at a phenomenal rate since midyear of 1971. From that time, the Bureau has played an ever-increasing role to coordinate departmental review, and assist in the drafting of policy

guidelines used in reviewing projects of a similar repetitious nature (i.e., highways, transmission systems, pipelines).

Also, the functions of the Environmental Quality Council, of which the Commissioner of Natural Resources is a member, require considerable staff review of items of potential environmental significance pending EQC action.

Because of the requirements on environmental review imposed on private construction, DNR has experienced a considerable amount of inquiry and requests for advice and counsel to help the private individual minimize adverse environmental impacts.

Environmental review has expanded from the commonly associated environment impact statements or negative environmental declaration. DNR also reviews and comments on the following types of projects on a continuous basis:

* Highways (State and County State Aid)
* Airport Expansion
* Electrical Transmission Systems and Power Plants
* Pipelines
* Minnesota Pollution Control Agency permit applications
* Corps of Engineers projects and application for permits
* Soil Conservation and Development Plans

To assist in the coordination of review and preparation of a consolidated departmental reply, the Assistant Commissioner for Planning utilizes a Planning and Environmental Review Team comprised of high echelon, decision-making representatives from each Division. From here, either final Department decisions are made as on highly complex matters, or Department advice is forwarded to the Commissioner's office for the final decision.

Special Projects

In addition to the major responsibilities of comprehensive planning for outdoor recreation and water resources, environmental review and federal grants-in-aid, the Bureau is assigned various special projects. Because of their comprehensive nature (i.e., involving several divisions, or in some case other agencies) these have been the responsibility of the Bureau.

Some of these special projects include:

* St. Croix River (Upper) - To coordinate efforts to implement a resource management plan that will satisfy the federal Scenic Riverway Program, and provide supplemental state programs for the adjacent public lands.

* National Wild and Scenic Rivers Program. Provide liaison between state and federal Bureau of Outdoor Recreation on studies, proposals, etc.

* Voyageurs National Park. Assist Arrowhead Regional Development Commission and State Planning Agency in providing land classifications and other information.

* Federal Legislative Review. Review and distribute appropriate federal legislative matter.

* State Planning. Maintain liaison with the State Planning Agency on studies and plans, and provide comments on certain responses to the federal agencies on federal matters.

* Operational Planning and Review. Provide planning assistance to operating divisions and review project proposals such as public access, park and forest land acquisition, etc.

* Recreation User Survey. This was conducted at state parks to obtain geographic use patterns, data on visitors, and activities and attitudes on existing recreational facilities.

* River Basin Commissions. Participated in work groups as Minnesota's representative for recreation planning on the Souris Red Rainy River Basins Commission, Great Lakes Basin Commission, Missouri Basin Inter-Agency Committee, and Upper Mississippi River Comprehensive Basin Study Coordinating Committee.

Federal Aid Programming Unit

This unit is responsible for the administration of the Federal Land and Water Conservation program to state agencies, and for Federal Contingency Reserve projects funded with monies in addition to Minnesota's apportionment. It is also responsible for Federal Aid coordination both on an inter and intra departmental basis. It has been instrumental in procuring additional Federal funds for the Department from sources such as the Upper Great Lakes Regional Commission, and Housing and Urban Development for studies as well as acquisition and development projects. The Land and Water Conservation Fund activity given below was for the acquisition and development of outdoor recreation facilities such as parks, trails, state forests, etc.

Land and Water Conservation Fund

Active state agency and Contingency Reserve projects totalled 157.

Projects submitted and/or approved: 62 projects - $8,924,954.50 Federal Share

Acquisition:	42 projects totaling	$4,130,382.00
Development:	18 projects totaling	1,755,822.50
Acquisition & Development:	2 projects totaling	3,038,750.00

Reimbursements Received

Acquisition	$ 357,991.55
Development	283,071.25
Total Reimbursements -	$ 641,062.80

# # #

FISH and WILDLIFE

Section of Fisheries

The State of Minnesota contains about 2.5 million acres of fishing water which require management to satisfy its 1.8 million anglers. This is the job of the Section of Fisheries whose field force operates from six regional and 26 area and sub-station offices. It is accomplished through improvement of the habitat for game fish, propagation and distribution of fishes, rough fish control, and lake rehabilitation.

A large survey program is maintained to provide current information on the status of the fish populations and a basis for the distribution of the management effort, and a fisheries research program to develop new management methods, improve techniques and supply the basic information for understanding of the problems.

Habitat development is preceded by acquisition of control of the sites through purchase of the land in fee title or purchase of perpetual easements for the necessary rights. Easements on about 20 land tracts on 10 trout streams have been acquired each year for habitat development and access for fishermen. About 10 land tracts on 8 sites have been acquired for northern pike spawning area development each year, and several sites are acquired each year for the different structures needed in the program such as fish barriers, trapping sites and hatcheries.

Stream improvement (habitat development) has been performed on about 19 trout streams, benefiting 36 miles of stream each year. These streams are located mostly in southeastern and northeastern Minnesota. During the 2-year period, 6 northern pike spawning areas were constructed and improvements were made on three. During the same 2-year period, 4 rough fish barriers were constructed and 3 sites were permanently improved for rough fish trapping.

Each year about 250,000,000 fish are raised and distributed from the following facilities:

18 Walleye Spawning Stations
7 Muskellunge Spawning Stations
20 Sucker Spawning Stations (to supply food for muskie growth)
13 Walleye Hatcheries (7 of which also hatch sucker eggs and 4 of which also hatch muskie eggs)
5 Trout Hatching and Rearing Stations
190 Walleye Rearing Ponds
146 Controlled Northern Pike Spawning Areas
15 Muskellunge Rearing Ponds.

Improvements during the biennium were made at four hatchery facilities and nine fish rearing sites. The hatchery improvements included temperature control for egg incubation, improved water supply and construction of rearing tanks.

During each of the years of this report there were more than six million pounds of rough fish removed, with an estimated value of $400,000 and $475,000 each year. This removal was accomplished by contract fishermen working on about 375 lakes, and fisheries personnel on about 135 lakes each year. Kinds of fish removed included carp, bullhead, buffalofish, sheepshead, suckers, perch and others in descending order of amount. Actual annual receipts to the Division of Fish & Wildlife from this operation amounted to about $78,000.

Lake rehabilitation, consisting of the complete removal of the fish population with toxicants and restocking with game fishes, was accomplished on 16 lakes during the fall seasons of 1972 and 1973. These were waters in which rough fish or other undesirable species were dominant. One was a large warm water lake and the remainder were small, stream trout lakes.

Comprehensive biological surveys were made on about 180 lakes and 15 trout streams each year, and fish population inventories were made on as many more. These surveys aid in the programming of fish stocking and other management effort.

Commercial fishing is authorized by law on certain waters to utilize valuable food fish. This activity is supervised to prevent damage to sport fishing interests. Waters involved are Lake Superior, the St. Croix and Mississippi rivers, Lake of the Woods, Namakan Lake, and Rainy Lake. Collectively, the amounts removed each of the years were 3,134,360 and 4,210,665 pounds respectively, with value to the fishermen of $306,268 and $439,826. Kinds of fish in the largest numbers removed were tullibees, whitefish, carp, yellow pike, smelt, suckers, and burbot.

The fisheries research program, which is conducted to supply basic and practical information on current and anticipated problems, includes 23 studies containing 45 distinct supporting jobs having to do with the following subjects:

Fish propagation methods
Population dynamics and harvest on major walleye waters
Interrelationships of certain associated fishes
Selective breeding techniques to improve hatchery trout stocks
Experimental management of lakes and streams
Evaluation of existing programs.

The major capital improvement projects during the reporting period were the installation of a new heating plant at the St. Paul fisheries headquarters, and the construction of a new area fisheries headquarters at Spicer.

Acquisition and Development of Fish Habitat

Land Acquisition:

A total of 66 tracts of land was purchased for fish management purposes. These tracts amount to 602.61 acres on 31 units and are for the following purposes:

Access to Trout Streams:

Unit		County	No. of Tracts	Acres
1.	Big Springs Creek	Fillmore	3	18.8
2.	Camp Creek	"	3	26.1
3.	Diamond Creek	"	2	1.6
4.	Duschee Creek	"	2	21.7
5.	No. Branch Creek	"	3	17.2
6.	Riceford Creek	"	1	14.05
7.	Torkelson Creek	"	1	2.6
8.	Willow Creek	"	1	8.2
9.	Crooked Creek	Houston	9	95.0
10.	Swede Bottom Creek	"	1	13.6
11.	West Beaver Creek	"	4	17.0
12.	Knife River	Lake	1	1.0
13.	Stewart River	"	3	9.8
14.	Carey Creek	St. Louis	1	1.5
15.	Lester River	"	4	40.0
16.	Talmadge River	"	2	1.8
		Totals	41	289.95

Northern Pike Spawning Areas:

1.	Bullhead Lake	Becker	1	2.0
2.	Elbow Lake	"	2	47.8
3.	Middle Cormorant Lake	"	1	3.6
4.	Big Stone Lake	Big Stone	1	36.0
5.	Bingham Lake	Cottonwood	1	17.0
6.	Geneva Lake	Douglas	1	1.6
7.	Miltona Lake	"	1	123.0
8.	No. Brook (Green Lake)	Isanti	1	11.5
9.	Minnie Belle Lake	Meeker	2	0.23 (plus easement)
10.	Pelican Lake	Pope	2	19.9
11.	Maple Lake	Wright	4	5.53
12.	Sallie Lake	Becker	3	1.30
13.	Wolverts Lake	Crow Wing	1	32.80
		Totals	21	302.26

Miscellaneous Sites:

Unit	County	No. of Tracts	Acres
1. Hatchery Site;Walker Lake	Otter Tail	2	39.0
2. Fish Trap; Maple Lake	Douglas	3	2.1
3. Rough Fish Barrier; Granite Lake	Wright	2	3.1
4. Pub. Access; Clear Lake	Martin	1	0.3
5. Tower Hatchery	St. Louis	2	36.47
		10	80.97
Totals - All Sites		69	673.18

Stream Improvement:

This work was performed on trout streams to prevent bank erosion and siltation, improve water depth and temperature, provide more fish shelter, improve spawning conditions, and provide fishing and stocking trails. Acquisition of easements from landowners for public fishing, and improvement by fisheries crews was necessary before this work was accomplished. The on-site work included fencing and rock rip-rapping of stream banks to prevent erosion; the clearing of trails for fishing and stocking and the construction of various channel devices to control stream flow; and providing fish shelter and better spawning areas. In several of the streams of the Lake Superior drainage, an important feature was the creation of step-pockets in the falls to provide passage for trout and salmon, thus making more stream length available for spawning and fishing.

Stream	County	Miles Benefited
Gauthier Creek	Cook	0.2
Flute Reed Creek	Cook	1.0
Knife River	Lake	1.0
McCarthy Creek	Lake	0.5
Stewart River	Lake	0.5
Sucker River	St. Louis	10.0
Gooseberry River	Lake	1.0
French River	St. Louis	1.0
White Pine River	St. Louis	0.7
Sucker River	St. Louis	0.8
Flute Reed River	Cook	0.6
Irish Creek	Cook	2.0
Cascade River	Cook	1.6
Six Mile Creek	Cook	1.5
Beaver Creek	Winona-Wabasha	2.5
Bee Creek	Houston	1.5
Duschee Creek	Fillmore	7.4
Riceford Creek	Fillmore	(0.6 acre)
No. Branch Creek	Fillmore	3.0

Stream	County	Miles Benefited
Crooked Creek	Houston	2.0
Torkelson Creek	Fillmore	1.0
Trout Run Creek	Winona-Fillmore	11.0
East Beaver Creek	Houston	2.5
Badger Creek	Houston	0.8
Rush Creek	Winona	4.0
Swede Bottom Creek	Houston	1.0
Tower Creek	Lake	0.5
Finland Creek	Lake	0.1
Arrowhead River	Lake	0.1
Kimball Creek	Cook	0.7
Timber Creek	Cook	1.2
So. Branch Creek	Fillmore	2.2
So. Fork Crooked Creek	Houston	0.5
Little Isabella River	Lake	0.5
Nine Mile Creek	Lake	0.6
Scott Creek	Lake	0.2
Lester River	St. Louis	4.0
Kabekona Creek	Hubbard	2.0
	Total	71.7 miles and (0.6 acre-pond

Northern Pike Spawning Area Construction:

The construction of northern pike spawning areas has been important on lakes where shoreline development has infringed upon or is expected to destroy natural spawning areas. Development of proper areas on natural water courses or adjacent to lakes, by construction of dikes, water control structures, and pumping stations in some cases, insures that reproduction of pike will be perpetuated. Introduced brook stock spawn in the flooded areas and the water levels are maintained until the progeny are large enough to migrate.

Six spawning areas were constructed during the years 1972 and 1973 by contract construction.

Project	County	Size in Acres
1. Geneva Lake	Douglas	19.3
2. Duck Lake	Blue Earth	9.0
3. Rush Lake	Otter Tail	75.0
4. Little Birch Lake	Todd	30.0
5. O'Dowd Lake	Scott	7.4
6. Chisago Lake	Chisago	23.1
	Total	163.8

In addition to the aforementioned contract construction work, there were three spawning area improvement projects completed by the fisheries construction crew at: Little Floyd Lake, Becker County; Little Toad Lake, Becker County; and Oscar Lake, Douglas County.

Fish Production and Distribution

Each year, fish from State hatcheries, rearing ponds, and rescue sites are stocked in some 1,300 public fishing waters where facilities for natural reproduction of certain species are lacking; or where current local conditions have been unfavorable. Included are about 175 managed stream trout lakes, and 290 trout streams, that are stocked annually.

A total of 448,989,094 fish weighing 667,349 pounds were stocked in the two-year period. While most of these fish were produced in State rearing facilities, there was some augmentation from Federal hatcheries--most significant the annual contribution of 225,000 lake trout yearlings for stocking in Lake Superior.

Listed below are the numbers of fish by species and sizes:

Fish Stocking 1972-1973:

Species	Adults	Yearlings	Fingerlings	Fry
Walleye	10,785	128,513	6,220,447	428,767,543
Northern Pike	46,594	226,739	7,748,202	492,265
Muskellunge	3	26,335	24,778	539,731
Largemouth Bass	2,517	963	522,213	
Smallmouth Bass	-	-	90,260	
Channel Catfish	166	-	115,182	
Crappie	39,693	23,504	45,076	
Sunfish	50,298	92,300	182,592	
Yellow Perch	4,954	7,200	-	
Bullhead	34,855	19,900	11,200	
White Bass	30	-	-	
Brown Trout	1,288	411,300	385,951	
Brook Trout	14	128,961	265,114	
Rainbow Trout	2,728	195,092	774,600	
Steelhead	-	-	9,000	
Splake	20	-	16,102	
Lake Trout	281	645,470	298,678	
Coho Salmon	-	179,846	199,811	
Totals	194,226	2,086,123	16,909,206	429,799,539

Spring-run chinook salmon eggs were obtained from the State of Idaho in September, 1973, and hatched at Lanesboro. The Spring chinook are intended to supplant coho salmon in our Lake Superior salmon stocking program. Spring chinook have the advantage (over other salmon) of moving into streams in early summer, making these fish available to anglers during months when weather conditions are conducive to fishing the North Shore.

The first spring chinook planting was made in June, 1974, when fingerlings were stocked in three North Shore streams: French, Cascade, and Baptism rivers. To determine the best stocking time, we intend to stock smolts of this year class in the fall of 1974 and spring of 1975.

About one-third of rainbow trout fingerlings stocked in managed stream trout lakes are now of the fast growing Donaldson strain. Donaldson brood stock are maintained at the St. Paul hatchery, and small fingerlings are shipped to Spire Valley for summer rearing in ponds.

In 1973, several commercial diets were tested for lake trout rearing at Lanesboro. Lake trout are more difficult to rear than stream trout, and do not adapt well to dry diets used for rearing stream trout. One commercially available diet gave results far superior to the others in that fish grew faster, mortalities were lower, and feed conversions were better in small fingerlings. We intend to use this diet for early rearing of lake trout fingerlings, changing to the regular production diet when the critical survival stage is past.

Improvements were made at fish production sites, as follows:

* Equipment was installed at the Winton Headquarters and walleye hatchery facility to provide better temperature control for incubation of walleye and other fish eggs and fry.

* Concrete fish rearing tanks were constructed at the St. Paul Headquarters to provide better conditions for the rearing and research of the Special Donaldson strain of rainbow trout.

* Repairs were made to provide hatchery supply water at St. Paul.

* Improvements by the fisheries construction crew and station personnel were done on four northern pike spawning areas, four walleye rearing ponds and one trout rearing pond.

* At the Park Rapids hatchery a well and temperature control system was provided to achieve better incubation of muskie and walleye eggs.

* To increase muskellunge production at Park Rapids, the fisheries construction crew subdivided a large production pond into two ponds; and provided a separate inlet and outlet for each pond.

Rough Fish Control

Development of Control Structures:

Installation of rough fish traps and barriers has been an effective measure for the control of rough fish populations. In some cases, with barrier installation and lake rehabilitation, total rough fish removal has been achieved. Commercial contract construction of rough fish barriers was done at three sites in three different counties. One rough fish barrier and three rough fish trapping sites were constructed by the fisheries construction crew. A list of these projects are:

Project Name	Type of Project	County	Construction
Whiskey Lake	Rough Fish Barrier	Douglas	Contract
Lura Lake	" " "	Blue Earth	"
Granite Lake	" " "	Wright	"
Wye Lake	Filter Barrier	Lake	Fisheries
Francis Lake	Rough Fish Trap	Meeker	"
Ten Mile Lake	" " "	Otter Tail	"
Trappers Run Creek	" " "	Pope	"

In addition to the above projects the Section of Fisheries cooperated with local governments in the installation of two additional rough fish barriers: Lake Winona, Winona County -- Engineering design for electrical fish barrier; and French Lake, Rice County -- Purchase of steel sheet piling for outlet dam.

Rough Fish Removal:

In this biennium removal efforts were extended to 664 lakes totalling 550,000 acres. From this acreage 12,500,000 pounds of rough fish were removed, having an estimated value of $875,000. Actual return to the Fish and Wildlife fund, from day labor sales and contract percentage, amounted to $158,759.69.

Contract fishermen operated in 405 lakes. These fishermen are limited to seines, hoopnets and trapnets which allow the return of game fish unharmed to the water. Contract fishermen pay a set price (as stated in each contract), arrived at by bid, on species by size class. This source of revenue contributed $87,242.20 to the Fish and Wildlife fund.

Day labor pertains to those operations conducted solely by state personnel. These may be rough fish removal, rescue, or carp trap operations which took place in 259 lakes this biennium. Sales of fish from this source, handled by the St. Paul Office, returned $71,517.49 to the Fish and Wildlife fund.

Under normal weather conditions, 60 trap sites and 30 shut-offs are operated annually to deny access of rough fish to spawning areas, or lesser infected waters. These methods include the heavy use of free permits issued to private individuals or interested organizations.

Listed below are the pounds of fish by species and the approximate value of those fish removed in each fiscal year. These estimated values are based on FOB lakeshore prices.

Species	1972-73 Pounds	1972-73 Est. Value	1973-74 Pounds	1973-74 Est. Value
Carp	3,098,534	$ 80,000	2,906,946	$ 110,000
Bullhead	1,653,472	112,500	1,559,404	122,000
Buffalofish	940,989	180,000	1,007,689	200,000
Sheepshead	302,006	10,000	137,086	10,000
Suckers	198,518	5,000	229,985	10,000
Perch	37,849	1,500	27,667	2,000
White Bass	30,750	10,000	26,565	15,000
Dogfish	4,746	-	5,387	-
Eelpout	42,706	1,000	106,757	6,000
Shad	4,350	-	100	-
Garfish	100	-	315	-
Tullibee	200	-	-	-
Turtles	12	-	-	-
Totals	6,314,232	$ 400,000	6,007,901	$ 475,000

Lake Rehabilitation

The rehabilitation of rough fish infested lakes by Federally approved toxicants is carried out where the lakes can be isolated from immigration. This allows the restocking of desired fishes and the structuring of a population for a desirable balance of species. The total recreational interests also are benefited (including boating, swimming and waterfowl hunting) because of the increased water clarity, and better growth of aquatic plants and organisms. The beneficial effects of a rehabilitation project have lasted for about ten years; thus it has been necessary to re-treat some lakes -- at about ten-year intervals.

Lake	County	Lake Acres	Species Type
Hazel	Cass	14.3	Coldwater
Musquash	Cook	141.0	"
Meditation	Cook	27.0	"
Rog	Cook	51.0	"
Blacksmith	Hubbard	35.9	"
Robertson	Hubbard	17.9	"
Erskine	Itasca	49.0	"
Greeley	Itasca	16.0	"
Kremer	Itasca	75.0	"
Lucky	Itasca	13.0	"
Beetle	Lake	23.2	"
Echo	Lake	42.0	"
Wye	Lake	55.9	"
Briar	St. Louis	70.0	"
Silver	St. Louis	34.1	"
Winona	Winona	329.0	Warmwater
Totals - 16 lakes		994.3	

Lake and Stream Surveys

Major emphasis is placed on acquiring lake surveys, both for initial information and for updating previous surveys. Utilizing federal aid, under the Dingle-Johnson Act, 358 lake surveys were completed in this biennium. These surveys provide the local fish manager with up-to-date information on the physical, chemical and biological conditions in fish lakes and reveal the current status of fish stocks. Continuity of this information is vital to the fish manager, of each area, so he can provide knowledgeable distribution of the management effort.

Stream surveys are conducted for the purpose of determining the current status of fish populations and existing stream conditions. In the biennium, detailed biological surveys were completed on 30 trout streams, and fish populations were assessed on an additional 59 streams.

Commercial Fishing

Licensed commercial fishermen operate under provisions of the Statutes on the International boundary waters, Lake Superior, and the Interstate waters of Lake St. Croix and the Mississippi River. These operations are closely supervised and regulated by DNR to allow utilization of commercially valuable food fish at a level compatible with sport fishing interests. Revenue return to the Fish and Wildlife fund from commercial fishing license sales for the biennium amounts to $10,000.

Listed below are the catch in pounds, by species, and the approximate value of the catch to the fisherman, in the different waters where licensed commercial fishermen operate.

Lake Superior

	1972		1973	
Species	Pounds	Value	Pounds	Value
Herring	172,188	$ 32,715	187,974	$ 49,058
Ciscoes	46,406	9,745	35,133	9,948
Smelt	879,160	26,375	1,655,253	61,643
Menominees	1,813	399	2,054	610
Burbot	1,929	-	450	-
Suckers	12,850	129	857	-
*Lake Trout	13,717	8,916	25,008	16,255
*Whitefish	2,893	1,447	3,113	1,556
Totals	1,130,956	$ 79,726	1,909,842	$ 139,070

*Taken during assessment netting operations under special permit and sold on the market.

Minnesota-Wisconsin Boundary Waters

Species	1972 Pounds	1972 Value	1973 Pounds	1973 Value
Carp	251,765	$ 7,552.95	405,239	$16,209.56
Buffalofish	67,440	10,116.00	116,509	16,311.26
Sheepshead	12,726	509.04	30,567	2,445.36
Catfish	15,957	7,180.65	26,770	9,369.50
Bullheads	1,375	137.50	1,650	231.00
Suckers	250	7.50	460	18.40
Quillback	598	11.96	2,071	82.84
Mooneyes & Goldeyes	82	-	7	-
Garfish	918	-	2,115	63.45
Bowfin	115	-	334	16.70
Totals	351,226	$25,515.60	585,722	$44,748.07

Lake of the Woods

Species	1972 Pounds	1972 Value	1973 Pounds	1973 Value
Yellow Pike	286,922	$135,922.94	312,115	$160,820.75
Saugers	13,006	3,120.69	19,592	5,636.55
Northern Pike	66,451	8,160.43	61,431	9,158.30
Tullibees	890,536	30,439.10	774,853	31,550.61
Whitefish	205	44.55	254	64.50
Perch	10,470	1,559.04	11,533	2,239.14
*Burbot	161,478	4,165.59	250,155	8,201.69
Suckers	151,590	4,636.29	200,297	16,122.44
Bullheads	32	5.00	596	86.42
Quillback	1,414	-	3	-
Goldeyes	-	-	-	-
Redhorse	-	-	-	-
Totals	1,582,104	$188,053.63	1,630,829	$233,880.40

*Includes 41,890 pounds burbot in 1972, and 106,220 pounds borbot in 1973, taken by special permit.

Namakan Lake

Species	1972 Pounds	1972 Value	1973 Pounds	1973 Value
Yellow Pike	-	-	-	-
Saugers	-	-	-	-
Northern Pike	-	-	-	-
Tullibees	3,968	-	1,782	
Whitefish	7,545	$2,263.50	4,996	$1,627.04
Perch	-	-	-	-
Burbot	1,705	-	735	-
Suckers	3,675	-	1,390	-
Bullheads	-	-	-	-
Quillback	-	-	-	-
Goldeyes	-	-	-	-
Redhorse	-	-	-	-
Totals	16,893	$2,263.50	8,903	$1,627.04

Rainy Lake

Species	1972 Pounds	1972 Value	1973 Pounds	1973 Value
Yellow Pike	10,104	$ 5,594.20	15,641	$ 9,883.30
Sauger	-	-	-	-
Northern Pike	6,273	752.76	8,556	1,827.46
Tullibees	4,383	-	4,900	15.99
Whitefish	15,548	4,353.44	30,244	8,731.02
Perch	87	8.70	6	1.68
Burbot	6,255	-	5,340	5.07
Suckers	9,873	-	10,679	36.09
Bullheads	-	-	-	-
Quillback	-	-	-	-
Goldeyes	-	-	-	-
Redhorse	657	-	3	-
Totals	53,180	$10,709.10	75,369	$20,500.61

Fisheries Research

The fisheries research program during the biennium covered a wide range of studies in support of the fish management program.

Included in the program were two studies on basic problems associated with walleye rearing; 11 studies involving warm water species; and 10 studies dealing with trout and salmon.

During the biennium five studies dealing with warm water fish and four studies concerning trout and salmon were completed; and four new studies were initiated, including one joint Research-Management Pilot Project.

Approximately 90 percent of the program was carried out under the Federal Aid to Fish Restoration Program (D-J Project F-26-R), and qualified for 75 percent reimbursement.

Information from completed and continuing research included:

* Information on survival and food habits of stocked yearling northern pike from winter rescue operations, which will lead to more effective use of these fish in lake management.

* A publication, for distribution to the public and professional fish manager, which details the life history of the steelhead trout, and the fishery it provides on Minnesota's shore of Lake Superior.

* Demonstration of a more effective, lower cost technique for application of toxicants to eradicate fish in soft water lakes.

* Information on stocking and survival rates of trout in reclaimed lakes, for more effective and efficient management of stream trout lakes.

* Insights into the interrelationships of lake trout and smelt in inland trout lakes, which can be used to evaluate the smelt as a forage species in these lakes.

* An evaluation of the coho salmon as a sport fish in Lake Superior, which led to a decision to terminate the stocking of this species in favor of the Chinook salmon as a potential sport fish for these waters.

* A study which is defining the growth, survival, and intensity of harvest of walleye in Cass Lake and connecting waters.

* The experimental management of a lake for walleyes and forage species only, to establish guidelines for expanding this type of fish management.

Research Reports Published

Anderson, Dennis; 1974. A biological trickling filter system for water reuse in trout rearing. Section of Fisheries Investigational Report No. 322, 26 pp.

Hassigner, Richard; and Donald Woods; 1974. Evaluation of Fintrol as a fish toxicant in deep softwater lakes. Fisheries Investigational Report No. 325, 13 pp.

Newburg, Huon; 1973. Evaluation of potential use of pulsed direct current electro-fishing gear in some fish management activities. Section of Fisheries Investigational Report No. 321, 18 pp.

Schupp, Dennis H.; 1974. The fish population structure and angling harvest of Lake of the Woods, Minnesota 1968-70. Section of Fisheries Investigational Report No. 324, 16 pp.

Scidmore, W. J.; and Leonard Wroblewski; 1973; Mail survey of Minnesota resident fishermen, 1972. Fisheries Investigational Report No. 320, 5 pp.

Miscellaneous Reports

Hassinger, R. L., J. G. Hale, and D. E. Woods; 1974. Steelhead of the Minnesota North Shore. Minnesota Department of Natural Resources, Division of Fish and Wildlife, Technical Bulletin No. 11, 38 pp.

Investigations Completed - Reports in Preparation

Anderson, Dennis. Utilizing cold water from depths of lake to reduce outlet stream temperatures.

Davis, Robert. Food habits of walleyes in a southern Minnesota lake.

Hassinger, R. L. Evaluation of coho salmon as a sport fish in Lake Superior.

Johnson, Fritz. Interaction of walleye and white sucker in soft-water lake.

Johnson, Merle. Handbook for management of stream trout lakes.

Newburg, Huon. Bibliography of largemouth bass.

Olson, Donald. Interaction of three species of bullheads and associated game species in a eutrophic lake.

Olson, Donald. Preliminary walleye fry rearing trials.

Capital Improvements

Installation of a modern heating plant at the Fisheries Headquarters in St. Paul. This is now the Regional DNR Headquarters and Southern Service Center.

* A new headquarters was constructed at Spicer to provide offices, and storage and maintenance for fisheries equipment.

* Grading and landscaping was completed at the Bemidji Area Headquarters, to provide for proper drainage and maintenance.

* Extensive grading and landscaping was accomplished at the Spicer Headquarters, to provide for better drainage and maintenance.

* Construction and painting of small outbuildings was carried out at four different stations.

* Repairs were made to prevent freezing of a domestic water line at Crystal Springs.

Environment Section

The Environment Section (formerly Technical Services) provides the regions and the central office staff diversified support and technical services, essential in carrying out successful fish, wildlife, water, and other natural resource programs. For convenience, these services have been grouped into five units or areas of concern. They are:

* Habitat Evaluation Studies
* Monitoring and Control
* Special Projects
* Biology Laboratory
* Chemistry Laboratory

Following is a summary of activities and accomplishments for the biennium.

Habitat Evaluation Studies

The primary work of this unit is aimed at providing biological and related data for the purpose of evaluating the effects of proposed development and construction projects on fish and wildlife resources, and recommending measures for their protection and enhancement. Studies, evaluations, and reviews were carried out on the following projects during the biennium:

U. S. Army Corps of Engineers Projects

1. Root River Dam and Reservoir (Lanesboro). Field investigations and reconnaissance were conducted, attended basin meetings and coordinated information; report being edited, revised and typed.

2. Roseau River Flood Control Project. Monitoring of water levels in potholes of the area continues but will be replaced or supplemented by an aerial photography method. Aerial reconnaissance of project area was conducted and meetings were attended.

3. Warroad River-Bulldog Creek Flood Control Project. Meetings were attended and information coordinated with other agencies, aerial reconnaissance of area was conducted, and letter for Governor's signature prepared.

4. Red Lake River Dam and Reservoir (Huot). Conducted field reconnaissance of proposed 20 reservoirs. Attended Basin Commission meetings and reviewed and commented on environmental study report by Bemidji State College. Prepared statement on project for Commissioner's signature and read statement at Basin Commission meeting.

5. Chaska Flood Control Project. Field investigation conducted; reviewed and commented on Environmental Impact Statement, interim survey report, and Section 205 detailed project report; attended meetings.

6. Mississippi River Channel Maintenance Dredging. Aerial and boat reconnaissance of river conducted, reviewed and commented on Environmental Impact Statement, attended meetings, taped interview for Channel 11 TV half hour program on river dredging problems.

7. Duluth Harbor Dredging. Field investigation conducted, report prepared, attended meetings, reviewed and commented on Environmental Impact Statement.

8. Warroad Harbor Jetty. Field investigation conducted, reviewed and commented on Environmental Impact Statement.

9. South Branch Wild Rice River-Felton Ditch. Field investigation conducted, compiled maps, meetings attended, reviewed and commented on Environmental Impact and made recommendations.

10. Wild Rice River (Twin Valley) Dam and Reservoir. One field investigation conducted, one survey and data summary prepared, reviewed and commented on Environmental Impact Statement; attended meetings.

11. Days High Landing Dam (Mississippi River at Deer River). Reviewed Environmental Impact Statement and coordinated information for Departmental letter, attended meetings.

12. South Branch Zumbro River (Rochester) Flood Control Project. Reviewed and commented on Environmental Impact Statement.

13. Bigstone Lake - Whetstone River Flood Control Project. Reviewed plans and made comments, coordinated project review and information with other agencies, drafted letter for Commissioner.

14. Master Plan, Part II - St. Anthony Falls Pools and Pool I (Mississippi River). Reviewed and drafted memorandum of comments.

15. North Mankato-Le Hillier Flood Control Project. Reviewed plans, attended meetings, drafted letter of comments and recommendations.

16. Vermillion River (Dakota County) Flood Control Project. Reviewed and commented on Environmental Impact Statement and Section 205 detailed project report.

17. Minnesota Point Proposed Breakwater. Reviewed and commented on plans and attended meetings.

U. S. Army Corps of Engineers Permits

1. Pig's Eye Lake Soft Coal Terminal. Two field surveys conducted, reports prepared, reviewed plans, attended meetings and hearings, drafted memos and letters of comments and recommendations, and coordinated information with other agencies.

2. Metro Sewer Plant (Pig's Eye) Levee. Two field investigations conducted, meetings attended, and reviewed and commented on Environmental Impact Statement.

3. Mississippi River Metro Sewer Crossing (St. Paul Park). Field investigations conducted (3), meetings attended, coordinated comments and recommendations with other agencies.

4. Farmers Union Grain Terminal Association (Savage Shipping Terminal. Three field investigations conducted, attended meetings, wrote comments and recommendations.

5. Crooked Slough (Frongings of Iowa) Grain Shipping Terminal at Winona. Field investigations conducted, reviewed plans, and wrote comments and recommendations.

The plans for 21 other Corps projects were reviewed, meetings attended, and letters and memos prepared recommending measures for protection, mitigation, and enhancement of fish and wildlife habitat.

In addition, 155 Corps of Engineers permit applications were processed which required reviews, field investigations, comments and recommendations, and coordination.

U. S. Soil Conservation Service (PL-566) Projects

1. Thompson Valley Watershed. Final report prepared.

2. South Fork Watonwan Watershed. Field investigation conducted.

3. Crane Creek Watershed. Post construction field investigation conducted and evaluation report prepared.

4. Okabena-Ocheda Watershed. Field investigation conducted and report prepared.

5. Canby Creek Watershed. Field investigation conducted and reviewed and commented on Environmental Impact Statement and watershed plan.

6. South Zumbro Watershed. Inter-agency field tours and meetings attended.

7. Upper Deer Creek - Lake Hendricks Watershed. Field investigation conducted.

Watershed Districts

1. Minnehaha Watershed District. Inventory and classification of Lake Minnetonka wetlands.

2. Lower Minnesota River Watershed District. Reviewed and commented on overall watershed plan.

3. Riley-Purgatory Creek Watershed District. Reviewed and commented on overall watershed plan.

4. Roseau River Watershed District Project #3. Reviewed and commented on plans.

5. Yellow Medicine Watershed District Ditch Project #2.

6. Valley Branch Watershed. Field tour of completed project.

7. High Island Watershed District Project #6. Reviewed and commented on plans.

County and Judicial Ditch Systems

1. Ten Mile Creek Watershed (Judicial Ditch 8). Post construction field investigation and evaluation report.

2. Chippewa County Ditch #58. Field investigation and court litigation.

Highway Program and Plans Review

From April 1, 1972, through March 31, 1974, 299 proposed highway projects were reviewed and investigated for potential fish and wildlife problems. About 22 percent of the projects had such problems. Recommendations for the protection, mitigation, or enhancement of fish and wildlife resources prepared.

Other Projects and Assignments

1. Rum River electro-fishing and bottom fauna surveys and field investigations of river dredging below Onamia.

2. Knife Lake R.C.D. Project (Kanabec County). Field investigation, meetings, reviewed and commented on Environmental Impact Statement.

3. Reviewed and worked on Kettle River data for a river report.

4. Shiely Grey Cloud Island Quarry Project. Redrafted report, attended meetings; aerial reconnaissance of area conducted.

5. Minnesota Power and Light (Pillager Reservoir) Project. Field investigation conducted, meetings attended, and project renewal reviewed, comments and recommendations prepared.

6. Minnesota Power and Light (Winton) Project. Reviewed and commented on project renewal plans.

7. Minnesota River Dome Pipeline Crossing. Reviewed and made comments.

8. Lake Traverse Master Recreation Plan. Reviewed and made comments.

9. Eden Prairie Major Center Development Plan. Reviewed and made comments.

10. Gleason Lake (Hennepin County). Field investigation conducted in an advisory capacity for wildlife preservation and development (a private action).

11. Constructed new pulsating D.C. boom-shocker for electrofishing on rivers.

12. Rural Environmental Conservation Programs. Reviewed and commented on Environmental Impact Statement.

13. Sioux Pipeline. Reviewed project and attended meetings.

14. Made fish production estimates for two Corps projects: Root River (Lanesboro); and Wild Rice River (Twin Valley).

15. St. Louis River (St. Louis County). Preliminary analysis of the chemical and biological data collected.

16. Cedar Island Lake (Hennepin County). Worked on water quality problems for Division of Waters, Soils and Minerals.

17. Great Lakes Basin Preliminary Report. Reviewed and commented on report.

18. Upper St. Croix Scenic River Plan. Reviewed and commented on Plan.

19. Reviewed and commented on Garrison Diversion project Environmental Impact Statement.

20. Reviewed and commented on Souris-Red-Rainy Type I and II studies Environmental Impact Statement.

21. Thirteen projects involving Division of Waters, Soils and Minerals permit applications required field investigations, meetings, comments, and recommendations regarding effects of proposed projects on fish and wildlife resources.

Monitoring and Control

Aquatic Nuisance Control

This unit supervises the statewide control of nuisance aquatic plants algae, leeches, and snails (causing swimmers' itch) through issuance of permits; testing of commercial sprayers; selection, testing, and recommendation of suitable chemicals, dosages, and methods; and by providing information to commercial sprayers and the public on the foregoing.

During the biennium, the following aquatic nuisance control work was carried out:

Calendar year 1972: A total of 600 aquatic nuisance control permits issued on 318 lakes; 878 nuisance conditions covered; 27 applicators' licenses issued to commercial sprayers; and permits issued to three aquatic operators to mechanically remove vegetation.

Calendar year 1973: A total of 600 aquatic nuisance control permits issued on 303 lakes; 868 nuisance conditions covered; 64 applicators' licenses issued to commercial sprayers; and permits issued to three aquatic operators to mechanically remove vegetation.

More than 1,700 leaflets on control of aquatic vegetation were distributed to lake shore property owners, lake associations, students, and other interested individuals.

Two hundred areas, for which control of aquatic nuisances was requested, were surveyed during the biennium, and recommendations made to individuals concerned. Three toxic algae blooms were investigated. Numerous talks on aquatic nuisance problems were given to interested groups. (Detailed annual summaries of aquatic nuisance control work are available.)

Pollution Investigations

Approximately 220 pollution reports were processed during the biennium. A report is a telephone call, letter, memorandum, or official pollution report. Upon receipt, the complaint is either referred to the local conservation officer or fisheries manager, to the Pollution Control Agency, or investigated by unit personnel, depending on the problem and location.

Eighteen pollution complaints were investigated in the field during the biennium.

Numerous oral presentations regarding various forms of environmental pollution and effects on fish, wildlife, and their ecosystems were given to interested groups.

Fish Kills

Five pollution-caused fish kills were investigated during the biennium. Six fish kills caused by natural means, oxygen depletion and Columnaris (bacterial infection in fish) also were investigated.

Special Assignments

Fish were collected and prepared for mercury analysis.

Continued study of Little Silver Creek in Carlton County was conducted to determine long-term effects from oil refinery discharges on trout, food organisms, and habitat.

A Water Quality Monitoring Study was begun in 1973. Its objective is to establish a limnological data base for ten Minnesota lakes representing various management and ecological classifications. Every other year, five of the lakes will be sampled twice during the open water season. (Detailed chemical and biological information obtained from the sampling is available in special publications for the lakes sampled each year.)

Power Plant Monitoring

Work continued on the final report on the six-year study of effects of the Allen S. King plant on fish and fishing in Lake St. Croix. Fish sampling was effected in Lake St. Croix in August, September, and October; as part of the continued monitoring of fish populations in Lake St. Croix. Additional work is planned for the summer of 1975.

A new study was begun to assess effects of the Prairie Island Nuclear Power Plant on fish and fishing in the Mississippi River near Red Wing. A creel census was begun in June, 1973; fish sampling began in July of 1973.

The fish population is being sampled by trapnets, gillnets, and electro-fisher, trawls, and seines. Nearly 5,000 fish were captured during this sampling. The information obtained will be used to assess the effects of the Prairie Island Nuclear Power Plant on age structure, rate of growth, distribution, and abundance of fish in the Prairie Island area. During the creel census, numerous river anglers were interviewed. These anglers had fished a total of 5,100 man-hours prior to being interviewed. Fishing was best for sauger, white bass, and walleye, respectively. It is anticipated that this study will continue for several more years.

An electro-fishing survey was made of the Mississippi River from Monticello to Elk River in August, 1973, to assess effects of the Monticello Nuclear Power Plant on the fish population. The river continues to support a healthy, diverse fish population. Excellent reproduction of smallmouth bass was evident. This survey was repeated in August of 1974 and will be repeated in 1976.

Special Projects

Lake Sounding and Mapping

Number of fish lakes depth sounded by fathometers: 186 (46,024 acres).

Number of fish lake depth contour maps drawn and later filed in the Documents Section for reproduction requests: 372 (70,737 acres).

Number of copies of depth contour maps provided by the Environment Section for DNR files and management and enforcement personnel: 2,232.

Number of copies of depth contour maps sold by the Documents Section to the general public: approximately 30,000.

The statewide lake sounding and mapping program is a continuing federal aid project financed in part (75 percent) by Dingell-Johnson funds. It is designed to sound and man all state fish lakes. A lake is "sounded" with a boat-mounted electronic fathometer (depth finder) which records the bottom profiles on paper tape. The tape data is later transferred to the lake outline map, and depth contour lines drawn. The finished product is a lake depth -- or "fishing" map. The sounding is done by two crews during the open-water season.

In the "off" season, the crews make up the maps and also prepare lake outlines for the following summer's work. This work has been going on, as presently conducted, since the early 1950's. Through June 30, 1974, approximately 6,300 lakes (3,700 fish lakes and 2,600 wildlife lakes) have been sounded and mapped. There are a minimum of 7,200 lakes (each of which are ten acres or more in area) yet to be charted (including many small, marginal, or remote lakes but also some of the largest lakes in the state).

Depth contour maps are needed by DNR lake surveyors to locate suitable areas for placing test fish nets; taking water clarity readings; conducting shoreline seining to determine reproductive success of fish species; and plotting extent of fish spawning areas, shoal soil types, and aquatic plant beds. Anglers use the depth contour maps for locating the good fishing spots. Outdoors publications and atlas publishers enhance the value of their products with DNR lake maps.

The lake sounding and mapping crews also collected limnological data useful to fisheries and other natural resources managers as indicators of lake conditions and productivity. Included in these collections were Secchi disk readings for water clarity, water temperatures, and water samples for determination in the laboratory of water quality and fertility. Approximately 60 man-days were spent on various charting and graphing projects related to water oriented programs.

Statewide Creel Census

A statewide creel census, started in April, 1971, is continuing. It is designed to provide an index of fishing pressure and success for principal game fish species in a wide range of lake types and trout streams. The method used involves censusing fishing for each target species, when and where fishing for that species is considered to be best. The census will be repeated in succeeding years and trends in fishing pressure and/or success will be determined.

During the 1972 and 1973 fishing seasons (May 1, 1972, to February 29, 1974), 80 lakes totalling 194,824 acres, and 38 stream sections totalling 40 miles, were censused each year. Nine fishing periods (varying in length from two weeks to two months) were censused separately during both fishing seasons. A total of 13,692 anglers were interviewed during the 1972 census season. These anglers had fished a total of 31,962 man-hours prior to being contacted. A total of 24,634 fish of all species were caught. The median catch rate for all species combined was 0.77 fish per man-hour.

A total of 11,128 anglers were interviewed during the 1973 census season. These anglers had fished 28,311 man-hours prior to being contacted. A total of 21,249 fish of all species were caught. The median catch rate for all species combined was 0.75 fish per man-hour. The creel census has been in progress during 1974. The data will be tabulated following the end of the last census period (February, 1975).

Major River Surveys

This project is designed to provide information regarding the fish and wildlife of the major rivers of Minnesota. Scientific data collected will assist DNR administrators in determining which rivers or portions thereof have potential for the Wild, Scenic, and Recreational River System -- as defined by the 1973 Legislature. In addition, the survey data will be used by fish and wildlife personnel in managing the aquatic and game resources and determining which areas of river require special management considerations. The data will also be useful to canoeists and boaters in selecting sections of rivers for their preferred kinds of fishing and hunting; and in photographing or observing wildlife.

The project was divided into two phases. The first involves a wildlife survey and general reconnaissance of the entire river or stretch being considered for inclusion into the system. The second phase consists of a fisheries survey utilizing a boat-mounted electrofisher.

Since its inception in May, 1974 (near the end of the current biennium), the project has been staffed, preliminary office and equipment preparations completed, and field operations begun. As of June 30, 1974, the 120-mile study area of the North Fork Crow River from Lake Koronis to the confluence with the Mississippi has been completed for wildlife reconnaissance, and work started on the Rum River, from its source at Mille Lacs Lake.

Future projections include the completion of both phases on the Crow, Rum, and Upper Mississippi (St. Cloud - Minneapolis) rivers by November, 1974.

Lake and Stream Inventories and Data Processing

Number of fish lakes with new map information made available: 372.

Number of fish lake survey reports with new or updated resource data made available: 161.

Number of depth sounding maps provided by the Environment Section for the U. S. Geological Survey topographic mapping program: 1,157.

Number of requests for physical, chemical, and biological information on lakes and streams: 6,000.

According to their various needs, various resource groups, individuals, and the public have access to the biological, chemical, and physical information stored in the Environment Section files. Available is the general information on each of Minnesota's 15,000+ lakes (10 acres or larger in area) and 25,000 miles of flowing waterways. More detailed information already is available from 3,184 fish lake survey reports, 3,700 fish lake maps; 2,600 wildlife lake survey reports and maps; 627 stream survey reports and maps; 16,427 lake and stream water analysis reports; and 8,958 permits to destroy or control aquatic vegetation or organisms.

Several meetings were held, regarding computerizing of water related data. The lake and stream inventories and data processing activity should be staffed to carry out the updating of survey information in the existing lake and stream files; work on machine processing of survey data; and provide data requested by DNR personnel, other agencies, and the public.

More than 6,000 requests for physical, chemical, and biological information on lakes and streams by schools, public agencies, companies, and individuals were processed -- via office calls, telephone, and mail during the biennium.

Statistical Services

The most important statistical services during the biennium were the following:

* Consulting and advising about the sampling surveys in Minnesota state parks.

* Completing the calculations for the sampling survey of waterfowl breeding grounds in Minnesota. Writing up the survey and its results.

* A model of a beaver population. This model serves to show the effects of various biotic factors (mortality, incidence of litter among females, litter size) on the size of successive generations of beavers. The model also serves to show the effects of changes in biotic factors on future population size.

* A sampling survey of Minnesota fishermen. The survey dealt with attitudes of fishermen toward fishing and fishing regulations. The data from the survey provided the information about attitudes as well as the margin of error in the data from the survey.

* A six percent sample from the approximate 13,000 small game hunter report cards which hunters returned to the Department. The purpose of the sample was to obtain the information on the 13,000 report cards and to have the information from the sample sufficiently reliable for the purpose at hand.

* Studied the changes in the Minnesota pheasant population and related these changes to weather factors like temperature, precipitation, and snow cover.

* Consulted with people in the Department about sampling procedures and the capabilities of samples to provide reliable information.

* A proposal of a mathematical technique to deal with the problem of duck hunters who overstate the number of ducks which they report. This is a problem which has an effect on estimates of the total harvest of ducks and it is a problem which has concerned investigators for many year.

Biological Laboratory Services

Fish and wildlife specimens are examined to determine physical condition and the nature of any pathological processes causing illness or mortality. The laboratory maintains a complete diagnostic service to help prevent and control diseases of fish and game in hatcheries, rearing ponds, and brood areas. Tests also are conducted to determine the efficacy of antibiotics, chemotherapeutics, germicides, and other chemicals upon the animals and their environment. A cooperative working relationship with the Food and Drug Administration and Environmental Protection Agency promotes safe and effective usage of these chemical compounds.

Technical advice and recommendations on the preparation of therapeutic diets for hatchery fish is provided to fishery production managers. Special assistance is offered DNR personnel requiring information on disease and malnutrition in connection with their wildlife projects. Serological determinations of races and strains of fishes, and identification of animal tissues in law enforcement cases are performed. Determinations are made of the causes of natural mortality and morbidity in wild game populations, investigating the significant bioparameters (including pesticide chemicals and pollutants).

The laboratory initiates original research to develop new techniques and uncover new knowledge relating to the isolation of infectious organisms, diagnosis, prevention and control of diseases of fish and wildlife. A treatment developed by the laboratory to control infectious pancreatic necrosis (IPN) of hatchery brook trout was discussed at a meeting called by the United Nations Food and Agricultural Organization in Amsterdam, Netherlands. Prior to this fish disease symposia in Holland, the laboratory was invited to give a formal paper on this subject at the 18th Congress of the International Association of Limnology, Leningrad, U.S.S.R.

New applications for the use of this IPN chemotherapeutic (polyvinyl-pyrrolidone-iodine) were explored for trout hatchery sterilization, disinfection of trout eggs, and treatment of bacterial gill disease; with promising results during this biennium.

The etiology of lymphosarcoma occurring in northern pike is the subject of a current investigation by the DNR's Laboratory and the University of Minnesota College of Veterinary Medicine. The apparently frequent occurrence of lymphosarcoma (a malignant tumor of lymphoreticular origin) in northern pike from the Minn-Tac Reservoir near Mountain Iron, Minnesota, came to the attention of the Laboratory in 1973. The presence of an accessible population of naturally affected fish provides a unique opportunity for further study of the causative factor(s) related to this condition. It is likely that definition of these factors would contribute additional important and useful information to the science of fish pathology and fish management practices.

The 1973 duck mortality at the Lake Andes National Wildlife Refuge in South Dakota caused by duck plague (duck virus enteritis or DVE) was the first major outbreak of this disease in wild waterfowl. More than 40,000 ducks died at Lake Andes; dramatically illustrating the potential impact of this disease on the waterfowl resource. The Laboratory task force has had extensive correspondence and conducted several conferences with waterfowl managers to bring all available information on this disease to the crucial areas. Slide talks were developed to aid field personnel in recognizing the symptoms of DVE. Contingency plans for each major waterfowl locality have been developed in case of an outbreak, and laboratory materials and methods have been devised for rapid diagnosis. Several plans are in development for prevention and early warning. Controlling density of waterfowl, their proximity to commercial or private flocks, and blood testing are examples of the approaches being pursued.

A committee of fish pathologists was appointed by the Great Lake Fishery Commission in 1973, to develop and coordinate measures to prevent and control the spread of fish diseases in the Great Lakes Basin. We have the responsibility of: (1) conducting an inventory of diagnosed fish diseases in state and private fish hatcheries and fish operating farms in Minnesota's Lake Superior area; (2) determining agency surveillance and formulating regulations that relate to control of fish diseases; and (3) propose measures to the Great Lakes Fishery Commission for eradication and control of fish diseases in the Great Lakes Basin. The laboratory has provided all available data on Minnesota's fish rearing facilities (located within the Lake Superior Basin) which release fish into the waters of the basin, or those facilities, located outside the basin, which transport eggs or fish into the basin. With the contribution of similar data from other member states and provinces, a map was prepared showing the geographical location of specific diseases and the species of fish affected. Emergency eradication plans were adopted for whirling disease and viral hemorrhagic septicemia, in the event of their occurrence in state, federal, and provincial hatcheries. Inspection of all brood stocks supplying Great Lakes Fishery Programs will be required by December, 1975, and this laboratory expects to finish all tests of resident brood stock by November of 1974.

During the biennium, the laboratory processes approximately 1,550 fish and wildlife specimens on which some 3,400 autopsies, examinations, or tests were performed. Analyses were made in the areas of bacteriology, histopathology, parasitology, serum electrophoresis, and biochemistry.

Chemical Laboratory Services

During the biennium, the following work was carried out by the chemistry laboratory:

* Move to Carlos Avery Research Center and setup of improved, safer laboratory was completed.

* A total of 218 fish from Minnesota rivers and lakes, and two wildlife specimens, were analyzed for total mercury.

* Twenty-one wildlife specimens were analyzed for 1080, strychnine, and other economic poisons. Several of these analyses proved positive.

* Twenty-seven fish and wildlife specimens, and selected state waters were analyzed for chlorinated hydrocarbons, pesticides, and polychlorinated biphenyls.

* A total of 364 water samples, collected largely in connection with fish and game biological surveys around the state, were analyzed for water quality and signs of eutrophication. This involved approximately 3,300 individual analyses.

* Nutrients in eight samples of trout hatchery foods were determined by chemical analysis. These included crude protein, trace metals, fats, and moisture.

* Some 700 samples from test wells were analyzed for light hydrocarbon gases -- involving the pilot underground gas storage area near Waseca, Minnesota. This work was done for DNR's Division of Waters, Soils, and Minerals.

* Several determinations were made, involving lead residues in fish tissues and water samples collected near bridge construction and maintenance sites.

* Several special study projects were initiated by, or were conducted through, the laboratory. In either case, the laboratory generally participated in all phases of the study. These studies included:

    1. A literature review and report of the impact or possible hazard of clay pigeon fragments on wildlife.

    2. A literature review and report of the impact of creosote on aquatic life.

3. A paper study, followed by laboratory work, of the possible effect of water treatment chemicals on fish and wildlife, as proposed by the Koch Refinery dredging operation.

4, An analytical field and laboratory study was conducted, and testimony provided, on the effect of refinery waste on Little Silver Creek, Carlton County.

5. Identification of an oil spill in Hutchinson, and subsequent evaluation of the cost of state time committed to the spill for reimbursement purposes.

6. Study of the effects of nitrogen gas supersaturation on fish, in connection with DNR hatchery operations. This study is partly basic research and will be reported at the Midwest Fish and Wildlife Conference in 1974.

7. A field and laboratory study of the gas generation problem from a sanitary landfill site in Lake City, Minnesota. The gas explosion hazard was investigated in connection with a proposed mobile home park expansion plan on the site.

8. A series of gasoline soluble dyes were investigated in the laboratory for use by fire marshalls to trace gasoline leaks into wells.

9. Chlorophyll A determinations were made to study the efficacy of an experimental algaecide ("Clean Flo"), in several metropolitan lakes.

10. Methods to develop or improve the analysis of phenols, 1080, zinc phosphide "Avitrol" (an avicide), citrate levels, pentachlorophenol, and nitrogen gas were investigated in the laboratory.

Anticipated Future Work

The work enumerated above is expected to continue at the same level or above. The following work also is anticipated:

* Analysis of trace metals, nutrients, and moisture in 114 soil samples from deer feeding areas.

* Design and evaluation of devices to expel supersaturated nitrogen gas from water.

* Begin a study to survey amino acids in aspen buds, and to evaluate their benefit to ruffed grouse (through a controlled feeding study).

* Further research on improved methods for the measurement and sampling of light hydrocarbon gases in gas test wells.

The goal of the laboratory will be to satisfy the immediate chemical needs of the Department. This will be accomplished by maintaining a small but diversified laboratory capable of delivering results on an immediate basis. Large and long-term projects will be coordinated when feasible with other state laboratories, to preserve the flexible service possible with a small staff, and to answer today's questions -- today.

# # #

Section of Wildlife

Forest Game Management

Deer hunting quality and recreational opportunity were improved during the biennium ending June 30, 1974. This was made possible by the authority to set up a more flexible deer season given to the DNR by the 1971 State Legislature.

The new deer season framework allows the hunter to design his own season. In both 1972 and 1973, hunters could choose either a short season of two or three consecutive days early in November, or five consecutive days later in the month. This framework succeeded in spreading out hunting pressure, reducing the harvest rate, improving the quality of the hunt, and giving the hunters a choice of dates and weather conditions. In 1973, a portion of east-central Minnesota receiving high hunting pressure was limited to antlered bucks only to help build up the population.

The Comprehensive Forest-Wildlife Management Program, cooperatively designed by foresters and game managers in the previous biennium, has been implemented. Because of a shortage of funds and manpower, however, the implementation has been on a smaller scale than had been hoped. Even so, over 400 forest wildlife habitat improvement projects were completed during the biennium on over 16,000 acres of land.

The second moose hunt was held in the fall of 1973. A total of 520 party permits of four hunters per party (2,080 hunters) were issued to Minnesota residents. Permits allowed the taking of one moose per party. The three-week splot season was open from September 22 to October 7 and December 8 to December 16. Permit holders were allowed to hunt for as long as required, within the framework, to take an animal.

The nine moose hunting zones established was an expansion from six zones in 1971. Six zones were in the northwest portion of Minnesota and three in the northeast.

During this second moose season, 465 moose were taken for an 89.5 percent hunter success ratio. The 1971 hunt had approximately the same success at 93.5 percent. Males made up 74 percent of the harvest compared to 64 percent in 1971.

Hunters assisted in the determination of moose physical condition by turning in moose blood samples at the registration stations; where age, sex, and kill location data were collected.

Timber Wolf Management

During the biennium ending June 30, 1974, a timber wolf management plan was developed in cooperation with representatives of the University of Minnesota and the U. S. Departments of Interior and Agriculture. Support for this plan was withdrawn by the Washington office of the Department of the Interior and the 1973 Minnesota Legislature did not pass enabling legislation. The federal Endangered Species Act of 1973 gave the timber wolf complete protection.

Subsequently, a Minnesota Endangered Species Act was passed which also gave the timber wolf complete protection beginning August 1, 1974, and continuing until the animal is removed from the federal endangered species list.

Wildlife Land Acquisition and Management

The "Save Minnesota's Wildlife Lands" program continues to progress. A total of 152 tracts of wildlife lands, primarily wetlands, were purchased in 50 counties throughout Minnesota. The total land purchases were 16,288 acres at a cost of $1,057,856. The 152 transactions included two easements and 15 land transfers on 112 wildlife management areas. Because of inflation and reduced funding, the acreage purchased decreased 26 percent from the previous biennium.

The primary development of Wildlife Management Areas included the construction of 51 waterfowl structures that impounded 3,758 acres of water. To provide nesting and winter cover for upland game and nongame species, 221 plantings, totaling 233,300 trees and shrubs, were established in agricultural areas. More than 880 food plots were established to provide food for wintering wildlife. Also, 6,700 boundary and information signs were established or replaced along 590 miles of wildlife management area boundaries.

The use of Wildlife Management Areas by hunters, trappers, fishermen, hikers and other uses accounted for over 1,850,000 man-days of recreation annually.

Lake Designation

Four additional waterfowl lakes were designated for wildlife management. The lakes are Bear and Lower Twin in Freeborn County, Heron in Jackson County, and Pierce in Martin County. A temporary drawdown was completed on Bear Lake with excellent results.

Cooperative Assistance

The Private Land Development Program continues to be readily used by private landowners. The cost-sharing (about $100,000) during the biennium provided landowners with incentives to develop winter woody cover plantings, food plots, nesting covers, and waterfowl areas

(dugouts and impoundments). Besides administering the financial assistance, area wildlife managers also provide landowners with technical assistance.

The FFA in 1973 was given a special MRC grant for wildlife habitat development and pheasant stocking. Area wildlife managers assisted many local FFA chapters in developing wildlife habitat projects of value.

The Minnesota Acres for Wildlife Program, developed and put into operation late in the last biennium, was successful. Approximately 20,000 acres were enrolled on 420 projects. This program provides recognition and information to landowners who undertake wildlife habitat development on their own.

Pheasant Chick Program

The Carlos Avery Game Farm distributed about 105,000 day-old pheasant chicks to cooperating sportsmen's clubs, FFA chapters and 4-H clubs. Birds are supplied to organizations for release into the wild.

State Fair

The State Fair wildlife display continues to be a very popular attraction. The public has a chance to ask questions and obtain information at an information booth manned by area wildlife managers. New informational displays were set up each year. Most of the live animals were displayed in natural-type settings.

Cooperation with Agricultural Agencies

Close cooperation was maintained with the Agricultural Stabilization and Conservation Service (ASCS), and the Soil Conservation Service of the U. S. Department of Agriculture. Section of Wildlife personnel served as members of the advisory group which develops cost-sharing practices beneficial to wildlife under this farm program. Recommendations were made regarding land use measures under the farm programs and Water Bank programs

Technical assistance in wildlife and recreation was provided by Section personnel at state and county meetings of the Minnesota Association of Soil and Water Conservation Districts.

Also, one man from the Section of Wildlife has been assigned full-time to aid in directing resource conservation development projects in west central Minnesota, under programs authorized by the U. S. Department of Agriculture.

Wildlife Research

Forest Wildlife Populations and Research

Aerial moose censuses and a summer productivity survey are annually undertaken to determine the population, production and survival of moose.

The spring census of deer continued during the biennium. Data obtained in the survey have been used extensively in regulating the harvest. New techniques developed for aging of white-tailed deer were put into use during this period.

During the 1973 deer season more than 2,000 hunters were interviewed in the field to determine the level of compliance with the new deer season framework in northern and southeastern Minnesota. This survey indicated that 94 percent of the hunters were in strict compliance of the law, with 3 percent questionable.

Additional surveys and censuses undertaken included:

* Deer hunting pressure surveys
* Summer deer track count census
* Fetus and doe condition indices from road-kill deer
* Bear hunting pressure survey
* Ruffed grouse drumming census
* Beaver and otter surveys and harvest evaluation

Research focused on coyotes and deer habitat requirements and deer physiology. Habitat requirements were studied throughout the year, using radio-marked animals. Use and avoidance of habitats within the animals' home range were noted, as was their use of food plants in these areas.

The physiological response of deer to different levels of crude protein in their diets was studied. The study provided information regarding protein requirements and parameters, whereby range quality can be measured using blood samples from deer.

Research on the long term effects of fire on wildlife populations and vegetation was conducted on the Red Lake Wildlife Management Area. The two-square-mile experimental area was burned in 1968, 1971 and 1973. Wildlife surveys conducted on the two areas show that the burn area has supported three to four times as many deer as those found on the control area.

Wetland Wildlife Populations and Research

Primary investigations continued, including the study of fall waterfowl responses to small refuges in western Minnesota; ecology and

management of the ring-necked duck; and the introduction of giant Canada geese on management areas.

Ring-necked ducks have continued to provide an unusually high proportion of the state duck bag -- having ranked second to the mallard in recent years. Expanded breeding ground surveys indicate that the majority of these birds are derived from breeding grounds in northern Manitoba and northern Saskatchewan.

The introduction of breeding populations of giant Canada geese has shown progress. Private, state and federal management areas have reached a level of 800 breeding pairs that reared 2,100 young to flying stage in the summer of 1973.

Annual May breeding ground surveys have been conducted to estimate the number of waterfowl breeding in the state. A rather substantial decline in breeding mallards has been reversed in recent years, and the state now has 60,000 breeding pairs of mallards (an increase of 25,000 from 1972). The total state breeding population of ducks is 200,000 breeding pairs.

The statewide waterfowl banding program is conducted and coordinated by the Wetland Wildlife group as directed by the U. S. Fish and Wildlife Service. The group is responsible for issuing bands, administration of proper banding techniques, schedules and reports -- all for the purpose of monitoring duck harvest, distribution, and changes in regulations. The group bands some 5,000 ducks annually in Minnesota.

Farmland Wildlife Populations and Research

Each year, May and August roadside counts provide valuable information on wildlife populations for such species as the pheasant, Hungarian partridge, cottontail rabbit, jack rabbit, mourning dove, deer, red fox, and skunk. This information is helpful in establishing seasons and in keeping the public informed as to the status of wildlife populations in relationship to various environmental factors -- such as weather, habitat, land use, and pesticides.

Presently, there are three projects dealing with the effects of hunting pressure on sharptailed grouse and ring-necked pheasant populations. In conjunction with one of the previous projects, the value of pheasant stocking as a management tool in maintaining pheasant populations is being measured. Using the previous mentioned pheasant census data, the relationship between available nesting cover and pheasant population levels is being analyzed.

The most promising of our management research projects is the feasibility of providing imperatively needed nesting cover by managing roadside vegetation in the intensively farmed areas of Minnesota. The net effect of this management practice on ground nesting wildlife populations also will be measured. In an attempt to provide winter

food and cover, we are evaluating the effectiveness and the feasibility of providing winter food and cover for wildlife, using corn and sorghum plots, and feeder cribs in good winter groves.

Our project of developing sharptail habitat in forested areas is well underway. It is providing very useful and interesting information on the effects on deer and ruffed grouse populations of repeated burning of forests.

The state turkey stocking program in southeastern Minnesota appears to be headed toward a successful conclusion within the next three years. Both the eastern and Merriam turkey stock appear to be rapidly increasing their range.

Operation Pheasant

The "Operation Pheasant" project, now in its sixth year, continues to be a source of valuable information concerning methods, costs, and benefits of pheasant habitat management on private lands.

Study areas have been established in south-central, west-central, and east-central Minnesota, thus providing a broad base from which to gather information that will affect future management decisions for the entire pheasant range.

The project is expected to continue until at least 1980.

Goals

Acquisition

1. To complete acquisition of 217,000 acres of high priority lands within existing areas and purchase an additional 157,000 acres of wildlife management areas by 1985 with a 35 million dollar bonding proposal.

2. To accelerate the statewide acquisition of wildlife lands to a goal of 1,000,000 acres by the year 2000. Because of the many values of wetlands besides providing wildlife habitat and public hunting, the primary existing projects should be completed and other primary areas must be purchased.

Management

1. To handle where possible wildlife management requests and public relations problems at the regional and local level.

2. To maximize wildlife production on wildlife management areas by maintaining existing cover and to improve wildlife habitat.

Research

1. To continue to monitor and update census and survey techniques to determine breeding populations, reproductive success, harvest and environmental conditions.

2. To obtain wildlife populations data, life history information and to develop new wildlife management techniques.

3. To continue the special "Operation Pheasant" project.

# # #

FORESTRY

The Department of Natural Resources' three forestry activities are diversified. The Forest Management activity includes timber harvesting and state land management, seedling production, tree improvement, and the various phases of cooperative forest management.

The Section of Resources and Products encompasses utilization and marketing and forest inventory.

Finally, the section of Forest Environmental Protection is made up of wildfire suppression and prevention, rural fire protection, forest roads, forest pest control and environmental studies.

Forest Environmental Protection

Wildfire Prevention and Suppression

As of this writing, it appears that it is possible that Minnesota is entering a period of dry fire seasons with corresponding wildfire hazard in rural areas. For instance, during 1973, the number of wildfires increased by 110 percent and acres burned by 225 percent. Suppression costs (for hired firefighters and equipment only) increased from $46,462.00 to $126,323.00, an increase of 271 percent. A total of 747 miles of fire line was constructed by forest service personnel and equipment in 1973. This trend continued in early 1974.

The attitude that devastating fires involving major loss of property, and even life, are a thing of the past was dispelled May 15, 1973. On this day, fire conditions were extreme. Burning material blown from a dumpground, which was repeatedly ignited by the local public, started a crown fire in jack pine which eventually burned over 2,205 acres. Four homes burned with total damages amounting to $208,989.00

There was a beneficial result to this, however, since the fire season of 1973 accentuated the need for the concentration of forces in: fire protection; rural fire protection; railroad fire protection; and fire department agreements. A specialist in rural fire protection has now been assigned, and complement positions of fire protection forester and fire prevention forester have been authorized to be filled.

Causes of 1,795 fires in 1973 were: incendiary, 956 fires; debris burning, 442; equipment use, 182; smoking, 91; campfire, 41; lightning, 5; and miscellaneous, 98.

Rural Fire Protection

For many years, DNR foresters have been assisting rural fire departments with equipment loans and fire training. During 1973, a new program was initiated to provide departments with excess military equipment which has been converted for structure and wildfire control purposes. Four such vehicles have already been converted and assigned to volunteer fire departments. In addition, training efforts have been increased, with personnel from 30 rural fire departments having completed fire simulator training. The fire simulator is an instrument which generates actual wildfire conditions, using slide projectors, sound effects, and simulated communications. The system goes a long way towards exposing the trainee to conditions which can occur during an actual wildfire.

Emphasis has been placed on giving fire departments better training in the use and maintenance of equipment.

Forest Roads

More than 1,300 miles of forestry truck trails are maintained to provide access to 1,289,000 acres of state forest land and 2,000,000 acres of land in other ownerships.

Wildfire protection is enhanced by the use of these roads -- through speed and access to fires which otherwise could require much more time to initiate attack. Many roads serve as firebreaks, protecting valuable conifer plantations.

Timber management access also is a beneficial result of the presence of these roads, since timber can be harvested more efficiently, and areas scheduled for reforestation or site preparation are more accessible.

Recreation access is another benefit. Hunters are able to get into more remote areas, and are better able to utilize the forests. Campers find it easier to find suitable campsites.

Environmental Studies

During this biennium, with the advent of public law 91-1900, foresters became involved with the revision, research, analysis, and accumulation of factual data relating to Minnesota forests, on all projects relating to Federal funding. Similar involvement was required on a variety of state and private projects -- following enactment of the State Environmental Policy.

Projects reviewed originated from several state and private organizations, including the Soil Conservation Service; U. S. Corps of Engineers; State and County Highway Departments; and the U. S. Forest Service. Projects from this private sector have been submitted by pipeline, electric, and construction companies.

About five extensive reviews are made per month on projects that have a major impact on the forest resources. These include the establishment of rights-of-way for pipelines, power companies, and new road locations. Some of these projects involve several man-days of effort by forestry staff specialists and field foresters. This review also is coordinated with other DNR specialists, through the Department's Planning and Environmental Review Team.

From 12 to 30 projects of a localized nature (such as road right-of-way changes) are submitted monthly to foresters for review and local contacts. Their comments are compiled by staff specialists, and are submitted to DNR's Bureau of Planning for reply.

Through these project revisions, foresters are able to minimize adverse impacts on the state's forest resources.

Forest Pest Survey and Control

Forest Pest Survey and Control became a responsibility of DNR as of July 1, 1973. Governor's Order No. 21 authorized this transfer from the Department of Agriculture. The transfer included all personnel -- plus the responsibility for all phases of forest pest surveys, evaluations, and control operations; with the exception of the oak wilt and dutch elm disease program within municipalities and the seven-county metropolitan area. This program remained with the Department of Agriculture.

Twenty-five major forest pests, as well as more than 100 minor pests, are dealt with annually. They are surveyed, evaluated, and, if necessary -- controlled. Over the biennium, more than 26 million gross acres of forest land were aerial surveyed for intensity of defoliation by the spruce budworm, the large aspen tortrix, and the forest tent caterpillar. Ground surveys were made to determine the extent of damage done by the jack pine budworm; the fall defoliator complex, on hardwoods; the pine tussock moth, in the General Andrews State Forest area; and other important pests. On spruce budworm and pine tussock moth, egg mass surveys were made to determine future potential and trends. A few surveys led directly to minor control operations. A relatively large spray operation was conducted in June, 1974, on 3,500 acres, to control the spruce budworm.

Forest Pest personnel also diagnosed 214 samples of miscellaneous problems sent for analysis. Each sample was identified, evaluated for damage potential, and recommendations made for control.

Another project initiated in 1973 involved determining the extent of a number of needle diseases in Christmas tree plantations. Because these diseases cause the loss of needles, the output of trees in a number of plantations has been sharply reduced.

Forest Management

Timber Sales and Harvest

The timber sales and harvest activities of the Department continued their upward trend over the previous biennium. This is reflected in both volume of timber sold and the volume of timber harvested. Correspondingly, the value of timber sold and receipts deposited reflect this increased activity and demand for forest products.

Volume of Timber Sold and Cut (in cords)

	1971-72	1973-74
Volume Sold	610,745	893,100
Volume Cut	669,000	786,000

Value of Timber Sold and Receipts

	1971-72	1973-74
Value Sold	$1,602,354	$3,184,000
Receipts	1,772,600	2,537,000

This increased activity in the harvest and sale of State timber is the result of a combination of factors:

* Increased demand and expansion of existing industry
* Use of highly mechanized and improved harvest techniques
* Reduction in forest land base acreage of other ownerships
* Continued diversion of forest lands to uses other than the production of timber
* Reduced activity on certain Federal lands, due to litigation in courts.

Forest Development of State Lands

Forest development of state lands continued to center in two major programs. There were 6,475,410 seedlings planted on some 6,227 acres of state land during fiscal years 1973 and 1974. In addition, some 2,794 acres of state land were direct seeded. A helicopter was used on the first sizeable direct-seeding project on state lands in Minnesota.

There were 1,700 acres of black spruce seeded by helicopter in Koochiching County in the late winter of 1973.

Timber stand improvement projects, consisting mainly of the release of conifer reproduction from competing vegetation, amounted to some 9,579 acres during the biennium. Thinning and planting practices were conducted on an additional 800 acres.

Seedling Distribution

The state tree nurseries shipped 12,305,945 tree seedlings during the 1972-73 growing season; and 12,838,520 during the 1973-74 growing season. There were 9,050 tree seedling applications filed during these years.

Forty-two percent of the seedlings were shipped for planting on public lands. Private land owners purchased 56 percent of the production. The remaining two percent was sold to various industries. It is expected that these seedlings will reforest some 23,000 acres of land.

Tree Improvement Program

This program, to improve the quality and quantity of timber resources through the improvement of inheritable traits of trees, was greatly expanded during the biennium. It was instituted in order to help provide for the increasing demand for wood products from a diminishing area of timber land.

During this biennium, white spruce was the main species being developed. Approximately 3,000 trees have been grafted. The root stock was native white spruce grown in DNR nurseries. The scions (shoots or buds) grafted to the stock were obtained from Ontario sources. Initial plantings into seed orchards (which will eventually provide superior seed for the nursery program) and direct seeding is scheduled for the spring of 1975. Results of several years of testing show that a 15 percent increase in growth can be expected from this stock.

Future planning in tree improvement includes black spruce, which is our most valuable species on an income basis; and black walnut, which is the most valuable individually, in addition to jack pine, Norway pine and poplar.

Small Land Owner Assistance

Minnesota has about 150,000 small landowners with holdings amounting to 7 million acres. The Department of Natural Resources assists owners (with less than 1,000 acres of forest land) in developing and managing their small forests.

In 1973-74, DNR foresters helped 8,800 small forest landowners

improve management on 185,000 acres of forest land, thus providing present and future generations with quality benefits from forests. Trained foresters (with the owners) examine the woodlands; design plans for continuous management; and then prescribe forest practices to fulfill the plans. The forest practices include tree planting, thinning, release, pruning, and harvesting.

Foresters' recommendations also include much more than the growing and care of trees for wood production. They also provide for watershed protection, wildlife habitat improvement, recreational development, and scenic beauty.

Forestry Incentives Program

The forestry incentives program (FIP) was developed in 1974 to share the cost of tree planting and timber stand improvement projects with small forest landowners. Timber stand improvement projects include the thinning, release, and pruning of forest stands to improve growth, or increase potential stand quality.

Eligible forest lands are those capable of producing a forest crop. They also must be at least 500 acres in size.

Funding, covering about 75 percent of the landowners' costs, is provided by the Federal Government. DNR foresters provide the technical assistance. The forester examines the property and determines the need for the practice. A plan is presented to the landowner; and assistance is given in getting the project started. When the project is completed, the forester inspects the work and certifies satisfactory performance. The Agricultural Stabilization Conservation Service (ASCS) administers the program.

Six hundred practices were serviced by DNR foresters during the period April through July, 1974.

The program is designed to increase timber production and improve quality. Small landowners not only help themselves, but also improve our timber resources and our environment.

School Forests

This is a program which is increasing at a rapid rate. At present there are 63 school forests, including seven in the metropolitan area. During the past biennium, DNR foresters helped plan, create and develop nine new school forests.

School forests actually are outdoor classrooms which provide a completely new experience to many students. They provide an appreciation and respect for nature that cannot be learned by studying textbooks, or listening to lectures in an indoor classroom.

This program is an important factor in the development of our greatest resource -- the Human Resource.

Forest Resources and Products

Forest Inventory Surveys and Studies

Many changes are taking place in the use of Minnesota's forests.

Demands for timber have been increasing rapidly, but even more striking has been the growth in demand for recreational uses of forest areas; and for management of forest cover to improve water yields and wildlife habitat, and to preserve scenic values.

In view of the many changes that have been occurring in both economic and environmental factors, a new look at Minnesota's forest supply, and the demands upon it, is considered essential.

The DNR completed a plan for a Forest Resource inventory which will provide the factual data necessary for intelligent forest management decisions. This plan, which will provide Forest Resource data on all lands in the state, will be implemented during the 1974-76 biennium.

During this current biennium, an inventory was completed of the forest lands on the 53,000-acre Camp Ripley Military Reservation, and a management plan was prepared.

An inventory of the forest resource in the seven-county Metro Region has been completed. It provides information necessary to implement action toward the control of Dutch Elm and Oak Wilt diseases prevalent in this area.

An additional 253,099 acres of state forest land administered by the DNR was reinventoried for district management planning.

Forest Products Marketing and Utilization

Minnesota's forest lands comprise more than 19 million acres, of which 17 million are capable of producing merchantable forest products. In 1973, this forest land produced $483 million in timber products, and the forest lands have the capacity to provide more than 1 billion dollars of forest products annually, if modern utilization techniques are implemented and adequate markets developed. Since timber is a renewable resource, this production can be sustained indefinitely. A modest ten percent increase would generate an additional $48.3 million in the state's economy and contribute significantly to increased employment in rural areas.

The Forest Products Utilization and Marketing (F.P.U.) provided marketing assistance to private forest landowners, and technical assistance and training to wood processors. This training will result in increased efficiency and better utilization of Minnesota's forest resources, as well as higher productivity.

Four sawmills participated in a "Sawmill Improvement Program" which has been demonstrated to increase lumber production and improve quality by ten percent, through the development of better processing methods and more efficient equipment maintenance. A ten percent increase in production will help to extend Minnesota's diminishing resource of the much sought after Red and White pine.

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PARKS and RECREATION

History and Growth

The Division of State Parks was established as a unit of the former "Minnesota Conservation Department" in 1935. At that time there were 32 state park areas established by statute; nine of these units were monument sites of one acre or less in size. The total dedicated park lands embraced 43,410.77 acres, of which 72 percent, or 30,000 acres, were in Itasca State Park. Camp Release State Park, a 12-acre historic site, and the first unit of the system, was established by the legislature in 1889. Itasca State Park was established in the 1891 legislative session.

The 32 park and monument sites, formerly administered by local boards and commissions under several state official authorities, formed the nucleus of the present Minnesota State Park System. Growth of the system proceeded rapidly in view of federal assistance programs in the last half of the 1930 decade. By 1940, the system comprised 47 units with a gross land area of 45,711 acres, and a total valuation (lands and improvements) of $6,640,480. Of this, $1,409,880 represented land values, and $5,230,600 represented capital improvements.

Long range plans for Minnesota's State Park System -- developed and published in 1939 -- were neared completion in 1958. A re-evaluation at that time dictated an expansion of the plan to adequately protect the unique natural features of this great state, protect historic heritage areas, and provide opportunities for outdoor recreation for an increasing state population.

A new study in 1959, completed with the assistance of the National Park Service, projected the Minnesota Park and Recreation Plan of 1939. This resulted in the recommendation to add 35 new park areas to the system. It further recommended the expansion of some 23 previously dedicated parks, to provide for the ever-increasing use, threatening the destruction of the natural features of these parks. This study resulted in the recommendation for removal of nine park areas from state jurisdiction because of loss of significance, due to modern developments and loss of state heritage significance.

As of June 1, 1974, the Minnesota State Park and Recreation Area System comprised 98 units as follows:

Unit	Units	Authorized
State Parks	59	204,094 acres
State Recreation Areas	6	5,001 acres
State Waysides	13	4,961 acres
State Monuments	9	21.5 acres
State Trails	11	709 miles

The lands actually acquired in the name of the State as of this date totalled 146,568 acres, and 267 miles of recreational trails. The total land cost amounted to $12,196,082. The appraised value of State Park and Recreation areas would be considerably higher. The actual land cost does not include park areas previously deleted from the system and transferred to local governmental jurisdictions.

Acquisition

Legislation enacted during the 1973 session established St. Croix Wild Rivers State Park, with 6,522 statutory acres. Present state ownership within the boundary is 316.2 acres. Four state park boundaries were expanded by the Legislature during this session. Included in boundary expansion legislation were: Afton State Park (+363 acres); Rice Lake State Park (+5 acres); Sibley State Park (+1,450 acres); and William O'Brien State Park (+765 acres), for a total added responsibility of 2,583 acres.

Establishment and authorization of park and recreational areas by statute is only the first step in the realization of public objectives. Private lands within these dedicated areas must be obtained, with legal title vested in the State of Minnesota. Land ownership and full state jurisdiction of dedicated park areas is accomplished in only 32 units of the present 98 park entities. Total jurisdiction for management and development of dedicated lands remains to be accomplished in 55 park areas -- and will require acquisition of approximately 53,000 acres of private, county, tax forfeited, Federal, trust fund, state and University lands as of June 30, 1974. The majority of these lands not under the jurisdiction of the State of Minnesota, Division of Parks and Recreation, is private lands comprising 33,685 acres. There were 129 parcels acquired during the previous two years -- involving 10,775.75 acres at a cost of $3,603,294, with funds made available by appropriations from the Natural Resources Acceleration Program, and supplemented with Federal Aid.

All lands acquired were successfully obtained through direct negotiation with owners, except three tracts, which required eminent domain procedures. It appears that the goal of acquiring all park lands at the present rate of acquisition will require a minimum period of 26.5 bienniums -- or 53 years. It is well established that land costs are increasing each year, while available funding has remained constant.

We therefore recommend that the acquisition of 53,000 acres of lands located inside our State Park boundaries be acquired as soon as possible. A bonding program should be considered to provide funds for an accelerated acquisition program. We suggest a $25,000,000 bonding program be authorized for purchase of these lands. A portion of this amount could be used to develop lands acquired. The program could be accomplished in less than 10 years with considerable savings in land purchase prices realized. Bonding programs in operation in other states has proven to be the most economical means of acquiring recreation lands and preserving them from private development.

Permanent Improvement Programs

Capital improvement programs during the biennium provided road construction and parking areas on previously acquired land areas within park and recreation areas. Family campground facilities were completed in several parks, including modern toilet and shower facilities as well as camp sites. Primitive campground facilities were developed in several parks. Three new beaches were completed, providing additional swimming facilities in the system. Major emphasis has been in design and construction of sewage disposal systems for modern service buildings, and meeting the standards of the Minnesota Pollution Control Agency. Eight systems were designed, of which one has been completed, and three are under construction. Four others have been designed -- awaiting approval from the Minnesota Pollution Control Agency.

Major emphasis centered also on development of displays at recently completed visitor centers at Mille Lacs Kathio and Big Stone Lake State Parks. A third visitor center was planned, designed and constructed at Upper Sioux Agency, and displays will be installed during 1975. Plans and specifications have been completed for a fourth visitor center at Helmer Myre State Park, and bids will be advertised for during 1975.

At Hayes Lake State Park, completion of dam structure created a 120-acre lake, providing one of the beach areas mentioned previously.

Major construction continues at Fort Snelling State Park, with completion of a contact station and office, a nature center, picnic sanitation station, and improvements to roads and parking areas.

A major entrance road and bridge structure were constructed at Camden State Park, providing more positive circulation and control of park visitors.

Many improvements were made to facilities constructed by the CCC and WPA programs during the 1930's. These were in need of major rehabilitation and improvement, having long been neglected. Other facilities constructed and developed include boat launches, picnic areas, parking sites, roads, wells, water systems, trailer sanitation stations, bridges, and picnic shelters, among others.

Park Attendance

Attendance and activity programs continue to grow in parks and recreation areas. Interpretive Service programs were expanded during the summer season of 1973, and expansion was to continue in 1974, with expanded interest and participation. Activities included guided nature trail hikes, motor caravans, and campfire programs.

There were several major noteworthy events: Fort Snelling's second Annual Rendezvous; Forestville State Park's Fine Arts Festival during 1974, which is hoped can become an annual event; dedication of Hayes Lake State Park; implementation of night patrol service for overnight campers in 16 major parks; and increased lifeguard services at 29 beaches.

Natural disasters also affected the park system. During the spring of 1974, flash flooding of the Whitewater River caused severe damage of facilities in Whitewater State Park, most of which were to be replaced or repaired during the summer of 1974. This, however, was to necessitate the closing of such facilities temporarily during the summer.

The annual attendance recorded for the State Park System during the biennium reflects major utilization demands in visitor days:

	1972	1973
Cabins and Rooms	10,958	10,974
Organized Youth Camps	77,303	76,490
Tourist Camps	869,049	816,073
Day Visitors	6,082,748	5,975,538
Total:	7,040,058	6,879,075

The minor drop in park attendance can be attributed to the temporary gas shortage and mass closing of gasoline stations on Sundays during the summer of 1973; and extremely wet conditions in various parts of the state during the spring of 1974.

Special Fee Services

It has been a Minnesota state park's tradition, dating back over 50 years, that special privilege facilities be subject to fees and charges. Special service for privileged use of state park property and facilities is logical, and in the public interest.

The fee schedules now in effect include: family campsites, boats and canoes, organized youth camp areas, cabin and lodge units, special building rental for private group programs, launch rides, mine tours, and golf course green fees.

Supplemental services include refectories, souvenir shops, camp supply outlets, and dining room service.

Income from the fees and services operation (which is handled by state personnel, with the exception of five contract operators) was recorded as follows:

1972-1973 Fiscal Year	$1,060,460.40
1973-1974 Fiscal Year	1,128,211.54
Total	$2,188,671.94

This income is deposited in the State's General Revenue Fund, except that receipts for merchandise sold is available for re-expenditures during the fiscal year for replacement of stock. At the end of the fiscal year any unencumbered balances in excess of $50,000 are transferred to the General Revenue Fund. There is no flexibility in management, merchandising, or fixture replacement, all of which are subject to a fixed appropriation allocation.

The Motor Vehicle Permit Law, first enacted in 1953, was designed to provide a source of revenue for major maintenance and development of the State Park System. These permits are required to be affixed to motor vehicles, as defined in laws for operation on the public road systems of the state. It is a vehicle fee system (not a personal obligation) in the form of a park entrance fee. There are no fees for persons on foot entering state parks, or on bicycles, or riding in motor vehicles properly equipped with a permit. Snowmobiles are deemed to be exempt from motor vehicle permit requirements, since they are licensed by the DNR and classed as off-the-road vehicles.

The Motor Vehicle Permit ("park sticker") is available for $3.00 on an annual basis. There is a fee of $1.00 for a two-day period of operation within the park. Parks less than 50 acres in area are not subject to the motor vehicle requirement.

The income from motor vehicle permit sales in the biennium was as follows:

1972-1973	$484,037.00
1973-1974	512,553.00
	$996,590.00

These funds are deposited in a special account identified as the State Park Development Account, which is appropriated each succeeding biennium for development and construction of park facilities.

The Division of Parks and Recreation is responsible for more activities than its title implies. Included responsibilities are: review, study, acquisition and recommendation of areas for designation as Scientific and Natural Areas and finally, development and maintenance of established Scientific and Natural Areas; review, study and recommendation of rivers proposed for inclusion in the Minnesota Wild and Scenic Rivers Program, and subsequently these rivers are developed and maintained; acquisition, development and maintenance of boating and canoeing rivers; acquisition, development, maintenance and operation of forest recreation areas; acquisition, development and maintenance of a recreational land corridor trail system, including a growing grants-in-aid program to local communities for the acquisition, development, and maintenance of bicycle, cross-country ski and snowmobile trails, acquisition, development and maintenance of primitive facilities along sixteen designated boating and canoeing rivers; and, a program on interpretation and naturalist services in park and recreation areas. All of these additional activities have been greatly expanded upon within the July 1, 1972 - June 30, 1974 biennial period.

Recreational Trail System

The DNR Recreational Trail System consists of a network of 5,600 miles of various types of recreational trails interconnecting with those constructed in state forests and state parks. This represents an increase of approximately 2,000 miles over the last biennium, and resulted largely from the Grants-in-Aid Program to local municipalities. Although a relatively new program, which got off to a slow start in 1973, it has been enthusiastically endorsed by both snowmobile clubs and local municipalities.

There are now ten overland corridor trails authorized by statute. The establishing acts provide authority for acquisition and development of lands for trail purposes. During the past biennium, a total of 2,156 acres of land have been acquired along the authorized routes.

The Grants-in-Aid Program is one that provides funds to local municipalities on a 65-35 percent basis for the acquisition, construction, and maintenance of snowmobile trails.

In other words, the State pays 65 percent of the cost, while the local municipality is responsible for the remaining 35 percent, which can be made up in work done by snowmobile clubs on the trail, or rental of equipment by the local unit of government for plowing parking areas, grooming trails, and similar activity. This is DNR's most productive and effective trail program, with nearly 1,500 miles of new snowmobile trail constructed in a 20-month period (from October, 1972, to June, 1974).

Snowmobile trails in State parks and State forest were somewhat limited until after the first registration of snowmobiles was required in 1967, when 18,300 were registered. Minnesota now has approximately 275,000 "active" snowmobiles registered; however, a total of 375,000 snowmobiles have been registered in the State since 1967.

The Trail Section not only has the responsibility to provide trails for snowmobilers, but also to provide areas for 70,000 cross country skiers, 1,300,000 bicyclists, 157,000 horseback riders, and unknown thousands of youths and adults who are using trails for hiking purposes.

To alleviate the problem of having separate trails for each recreational group, DNR is constructing multiple-use trails on the eight authorized corridor trails, whereby snowmobilers, bicyclists, horseback riders, and hikers can make use of different trails, within the same right-of-way.

The Trails Section also has prepared and distributed to the public 200,000 snowmobile guides, 120,000 maps of different snowmobile and bicycle trails, 6,000 maps indicating the location of the corridor trails, and 2,000 copies of a winter trails manual.

Volunteers in Parks

The Volunteer in Parks Act legislated in 1973 enabled the Commissioner of Natural Resources to provide for the subsistence of volunteer workers in our state parks. Receiving only food and lodging for their services, more than 50 men and women have rendered valuable service to our state park programs.

Volunteers have assisted park naturalists toward achieving environmental education goals through nature hikes, film programs, evening lectures and demonstrations, and a variety of similar programs. Without the help of volunteers the task of providing quality park experiences would have been much more difficult and costly. The value of their contributions, considering the modest cost of the state funding required, is tremendous. In the past, volunteers have ranged from college students, retired teachers, professionals, and others who have the time and talent to enlarge our interpretive objectives. Some of the college students earned academic credit for their work.

It is anticipated that volunteers will continue to contribute creative expertise to state park nature programs. The objectives of the Interpretive Services Program rely heavily on the cooperation and assistance of our volunteers. The past performances of these volunteers indicate the extent to which we have achieved some of the objectives of the Interpretive Services Program.

Forest Recreation

During the 1973-74 biennium, forest recreation development was minimal. Big Bend Landing was added as a canoe campground on the Crow Wing River. Two campgrounds (King William Narrows and Mukooda) were abandoned because they fell within the boundaries of Voyageurs National Park. Camping fees were increased from $1.00 to $2.00 per campsite per night. Maintenance was given to 62 campground and 46 picnic areas, 170 public boat accesses, and more than 1,500 miles of trails.

Forest Recreation has been an active program under the Division of Land and Forestry for many years. Some of the campgrounds were established by the CCC's. The program expanded especially during the late 60's. In September, 1964, a Forest Recreation staff position was created. The Departmental Reorganization transferred recreational activities to the Division of Parks and Recreation, with the Forest Recreation position changed to Assistant Trail Coordinator. Operation and maintenance continues to be primarily the responsibility of Forestry.

Interpretive Services Program

Prior to 1972, a maximum of five naturalists per summer season were employed by the Minnesota Division of Parks and Recreation.

In May of 1972, the position of Chief of Visitor Services was legislatively established, outlining responsibilities to be equally divided between Interpretive Services, and Scientific and Natural Areas. Since that time, planning, administration and operation of the Interpretive Services Program has been directed by the Chief of Visitor Services.

With the appropriation of Natural Resources Accelerated Funds, the summer of 1973 saw the Interpretive Staff expanded to service more than 30 parks throughout the state.

In the Fall of 1973, the position of Regional Naturalist was established. The Interpretive Program expanded its scope and effort to include environmental education, both within and outside of state parks. Regional Naturalists were established in MDNR Regions I, III, and V -- providing statewide impact in this important educational area.

Fulltime naturalists also were assigned to the Pike Island Nature Center at Fort Snelling State Park, to provide year around environmental education programs designed for maximum use by Metro Area school districts, and to serve the general public.

The growth of the Interpretive Services Program can be traced directly to the ever-increasing awareness of the need and demands made on state parks to provide information and education concerning human and natural history, for the benefit of our park visitors.

Scientific and Natural Areas

The Minnesota Legislature in 1969 authorized the Commissioner of Natural Resources to acquire, establish, and maintain scientific and natural areas; and to adopt rules and regulations in relation thereto.

In 1972, funds were allocated to employ, at half time, an Executive Secretary for the Advisory Committee. On September 7, 1972, acting on Advisory Committee recommendations, the Commissioner issued Policy Directive No. 17, which defines and classifies scientific and natural areas. It establishes four classes of scientific and natural areas: research, educational, interpretive and rare species areas. Finally, at a meeting in March, 1973, the Advisory Committee recommended to the Commissioner that he officially establish Minnesota's first four scientific and natural areas at these four locations:

Rush Lake Island Heron Rookery; a 20.27-acre island in Rush Lake in Chisago County. The island provides nesting habitat for herons. It was purchased from private parties by the Department of Natural Resources.

The Purvis Lake - Ober Foundation Natural Area; 148 acres in St. Louis County. A gift of the Ober Foundation, this area provides an undisturbed, scenic, natural area within the range of the timber wolf.

Lake Itasca Wilderness Sanctuary; about 2,000 acres in Clearwater County. This sanctuary, fostered by the Minnesota Academy of Science, originally was established in 1938.

Salt Lake Scientific and Natural Area. This area was first nominated by Dr. Walter Breckenridge, a member of the Advisory Committee, in 1968. It consists of a 220-acre lake surrounded by 380 acres of land recently acquired by the Department of Natural Resources. Its value lies in its attractiveness to a great variety of bird life. Because of its high alkalinity, the lake attracts not only birds that favor such sites, but also a variety of salt-loving plants. The area is located in Lac Qui Parle County, on the Minnesota-South Dakota boundary.

To date, the first two areas, Rush Lake Island Heron Rookery and The Purvis Lake - Ober Foundation Natural Area, have received official designation by the Commissioner as Scientific and Natural Areas.

During this time more than 200 nominations have been received by the Advisory Committee for possible designation as Scientific and Natural Areas. Each of these areas are under study by the Committee, and will be reported out following final Committee recommendations.

Other lands under consideration by the Commissioner for final designation are:

Kettle River Scientific and Natural Area
Hastings Scientific and Natural Area.

Also included are fourteen properties of the Nature Conservancy which would be leased to the state and managed as Scientific and Natural Areas.

Minnesota's Wild, Scenic and Recreational Rivers Program

The Minnesota Wild, Scenic and Recreational Rivers Program was established by the Legislature in 1973. The purpose of this Act is to protect Minnesota's outstanding rivers and their adjacent lands. This is accomplished by the adoption and administration of comprehensive, local land use controls, and by a program of acquisition of lands, or interests in land.

There was a $100,000 appropriation from the Minnesota Resources Commission to accomplish the initial planning efforts necessary for the establishment of the program. To date, the statewide standards and criteria necessary for the establishment of the system have been prepared. These standards and criteria were drafted by the Department of Natural Resources, and three public hearings were held on these regulations. Following the hearings, the draft regulations were revised and officially filed April 29, 1974, with the Secretary of State and Commissioner of Administration.

However, before any river can be designated a component of the system, an individual river management plan must be prepared, and public hearings conducted. At the present time, the Department of Natural Resources is studying the Kettle, Mississippi (St. Cloud to Anoka), and Crow (north fork) Rivers for possible inclusion in the Minnesota Wild, Scenic and Recreational Rivers System. The preliminary draft of the Kettle River Management Plan was to be completed in October, 1974. Local public informational meetings will be held on this plan in November, 1974, and official public hearings will be scheduled for February, 1975. It is also anticipated that a preliminary draft of the Mississippi River Management Plan will be prepared for public review in January, 1975. Finally, the preliminary draft of the North Fork Crow River Management Plan is expected to be completed by July 1, 1975.

Public information meetings and hearings will also be conducted on each of these plans.

The 1973 Minnesota Wild and Scenic Rivers Act requires that public hearings be held in each county which contains a portion of the designated area. For each of the three river study areas, this would mean: Kettle, two public hearings; Mississippi, five public hearings; and North Fork Crow River, three public hearings.

All aspects of each of these projects involved considerable local input. For example: from July 1, 1973, through September 1, 1974, the staff has had more than 160 local meetings, field surveys and contacts with riparian owners to obtain their input on the planning and management processes.

Canoe and Boating Route Rivers Program

This program was established by the legislature in 1963, with the designation of four rivers.

Twelve other rivers were added in 1967 to this system, bringing to 16 the number of designated Canoe and Boating Route Rivers that exist today. These 16 rivers include more than 2,000 miles of canoe and boating routes.

The first appropriation for the implementation of the Canoe and Boating Route Program was from the Minnesota Resources Commission in 1973; $85,000 to accomplish the planning, protection and development of designated Canoe and Boating Route Rivers.

For the 1974-75 biennium, $50,000 was appropriated to the Division of Parks and Recreation from the Building Commission, for the development of these river routes. During the current biennium,

development projects will be accomplished on five rivers. In addition, signs will be distributed for ten rivers throughout the state. These informational signs, marking recreational sites, river hazards, and points of interest, are distributed on request and with the cooperation of local units of government.

Although these river-recreational development projects were implemented and supervised entirely by regional personnel, the plans, contracts and other necessary documents were prepared by the St. Paul staff. A brief overview of this program is provided below:

Task	Unit	Quantity
Development of Primitive Campsites	Each	24
Development of Canoe Access Points	Each	5
Portage Trails Cleared and Improved	Rods	470
Canoe Route Signs Manufactured	Each	350
River Level Gauges Distributed	Each	40
Weekly River Level Reports Prepared	Each	30
River Route Maps Prepared	Each	5
Voyageur Trails Addendums Printed	Each	2,000
Slide Inventories Prepared by River	Each	5
Meetings Attended and Field Checks	Each	75
Technical Reports Prepared	Each	2

Included in the development program was the establishment of 13 canoe campsites and rest areas on the St. Louis River. This project involved acquisition of 13 parcels of land for a token amount of $130. In addition, a number of campsites,portages, and accesses were developed on the Vermillion River, in a cooperative project with the U. S. Forest Service.

The weekly River Level Reporting Service provides water level and general canoeability information on 15 rivers throughout the state and is distributed by DNR's Bureau of Information and Education, utilizing radio and other media.

New informational publications concerning recreational use of rivers are being developed. Among these are the River Route Maps for the St. Louis, Vermillion, Pine, Upper Mississippi, and Red Lake Rivers. These maps are intended for use by canoeists, fishermen, and other river users, and include pertinent information on each river.

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WATERS, SOILS AND MINERALS

Waters Section

This Division, through its Waters Section, has the primary responsibility for managing the water resources of the state, including more than 15,000 lakes of 5 acres or more, some 25,000 miles of streams, and many billions of gallons of underground water.

The management program consists of a number of major activities. These provide data, hydrologic collection and analysis, environmental effect evaluations, and regulatory control of water and related land uses. Management goal: to insure wise use and development of the water and surrounding land resource of the state within a framework of environmental protection and environmental quality enhancement.

Management Program Problems

During the biennium the Waters Section was confronted with severe problems in adequately discharging its duties and responsibilities in water resources management due to a lack of sufficient staff. This occurred largely as a result of the substantial amount of new legislation enacted in the 1973 Legislative Session without the recognition of staff and financial commitments necessary for implementation of the legislation. Following is a list of significant legislation enacted as Laws of 1973, which has had a severe impact on manpower requirements for water resources programs:

Chapter 211	Water Permit Fees
Chapter 271	Wild and Scenic Rivers Act
Chapter 315	State Water Powers
Chapter 344	Dams and Water Control Structures
Chapter 351	Flood Plain Management
Chapter 379	Shoreland Use
Chapter 402	Environmental Policy Act
Chapter 412	Water Supply Management
Chapter 434	Stream Maintenance Program
Chapter 479	Drainage Systems
Chapter 479	Utility Crossings
Chapter 702	Lake Improvement Districts
Chapter 702	Water Surface Use Regulation
Chapter 720	Lake and Channel Improvement

In the enactment of all of these laws, the legislature either specifically or by implication required the development of numerous rules and regulations to establish the detailed policies and procedures necessary for implementation of these new or amended programs. Many of these required rules and regulations carried specific dates for implementation with no recognition of staffing requirements and funding necessary to achieve these objectives.

Enactment of the laws represented a substantial step forward in the management of the state's water resources but there can be no real programs if there is a lack of the means for implementing the laws. The current staff available for all existing water resources management programs (as well as the new responsibilities resulting from this recent legislation) is approximately 40 employees, including both St. Paul and the field staffs. A recent function-by-function analysis of all DNR water resources programs indicates conservatively that the absolute minimum manpower requirements necessary to carry out the new and existing responsibilities is approximately 175 employees -- or a present deficit of more than 130.

Although there were serious problems in staffing and funding the water resources management program during the biennium, there were a number of notable accomplishments, and the Section did complete at least a part of the many rules and regulations and guidelines necessary for implementing the laws.

Biennial Programs by Water Resources Activity

There are 12 major activities for which the Waters Section has major responsibilities, as follows:

1. Water Resources Permits

The activity includes the program for regulating changes in public waters (surface waters), and the appropriation of waters of the state (surface and underground). A permit is required to appropriate (or take) any underground waters or confined surface waters within the state, except for domestic use by less than 25 persons. A permit is also required to conduct any work in the beds of public waters -- such as dredging, filling or construction of permanent structures. "Public waters" means those waters of the state which serve a beneficial public purpose. Permits also are required for utility line crossings of public waters and for storing gases and liquids underground.

During the biennium, approximately 3,200 new permit applications were received by the Waters Section. Of this total nearly one-third (1,001) of the permits were received during the first half of 1974, largely as the result of the increased regulatory controls provided by Chapter 315, Laws of 1973. During this same period about 2,300 permits were issued and 260 permits were denied. There was a significant increase in the number of violations in the laws over the biennial because of the 1973 Laws. In Calendar Year 1972 there were 60 violations; during Calendar Year 1973 there were 121; and during the first half of 1974 there were 113 violations.

There also was a significant increase, over 100 percent, in the number of applications pending action at the end of the biennium, because of the increased permit load and the need for more careful examination of permit applications.

During the biennium the Section promulgated rules and regulations, as required by 1973 Laws, Chapter 211, establishing a fee schedule for water permit applications, field investigations and monitoring of permitted projects.

The Waters Section also promulgated rules and regulations (under 1973 Laws, Chapter 479) for utility line crossings of state lands and public waters.

Other rules and regulations -- either directly required by specific laws or necessary for proper administration of Chapter 315, Laws of 1973 -- have not been completed due to inadequate staff.

2. Flood Damage Reduction

In Minnesota, there are approximately 435 flood prone counties and communities which incur estimated average annual flood damages of more than $30 million. Because of development in flood prone areas, damages have shown increases by nearly $2 million annually. During the biennium, floods in northwestern, central and southeastern Minnesota, and the Duluth area, cost the taxpayers about $40 million and resulted in the loss of six lives.

The objective of this activity is to reduce this property damage and to safeguard public health and safety during future flood events by working with flood prone localities, other state agencies, other states (where inter-state waters are involved), and with several federal agencies, in developing comprehensive locally implemented programs to achieve these purposes.

Progress was made in providing better management of flood plain areas during the biennium. The Waters Section conducted 17 studies to define local flood hazard areas in detail, and attended 280 meetings or sessions with local officials to provide assistance in developing local flood damage reduction programs. As a result of these actions, the number of local flood damage reduction programs in effect increased from 21 at the end of the 1971-72 biennium to 41 at the end of this biennium. Thus, about ten percent of our flood prone localities have now adopted regulations and programs to control the manner in which their flood hazard lands are used in the future.

To assist those who already live on the state's flood plains, the construction of public works projects is being supported wherever justified, to limit the extent of flood waters. Then, too, more than 90 percent of Minnesota's past flood victims now can purchase federally subsidized flood insurance to indemnify themselves from future flood losses. Efforts are being redoubled to qualify all of Minnesota's flood prone areas, so that all of our citizens may be afforded this protection.

3. Shoreland Regulation and Technical Assistance

The Statewide Shoreland Management Program is a successful state/local cooperative program of resource management and land use control. The program directly affects all land use activities within 1,000 feet of any lake, or within 300 feet of any river or stream. This affects more than 10,000 lakes, some 25,000 miles of rivers and streams, encompassing almost 14 percent of the total land area of the state. It provides statewide minimum standards to local government for their implementation, administration, and enforcement via local ordinance. It provides a mechanism for statewide accountability regarding local shoreland use decisions, and for the provision of technical assistance and advice to local officials regarding state standards dealing with placement of structures, lot size, sewage disposal, land subdivision, and preservation of the natural topography and vegetation.

The 1973 Legislature amended the 1969 County Shoreland Act (1973 Laws, Chapter 379) to require the state, and all municipalities with shoreland, to undertake a shoreland program similar to the original 1969 county (unincorporated area) program. This affects approximately 1,000 lakes, several thousand miles of rivers and streams, and more than 600 cities and villages. The 1973 Municipal Shoreland Act substantially increased the workload, required level of effort, and level of service, by requiring the development of statewide shoreland regulations for incorporated areas; the review of virtually every existing municipal zoning ordinance affecting shoreland use; numerous amendments of municipal ordinances by local officials; numerous initial ordinance adoptions by cities not presently having zoning ordinances; and substantial follow-up assistance and advice on the part of the state to each affected municipality. Rules and regulations for shoreland management were required to be promulgated by April 1, 1974, but have not been completed due to lack of staff.

Shoreland management activities include the collection, analysis, and distribution of shoreland use and development information to the public (especially to ecology groups, lake conservation groups and lakeshore home owners), and to federal, state and local agencies regarding the physical and development character of lake and river shorelines. A primary responsibility of shoreland management is to assist and supervise townships, counties and municipalities in the establishment and administration of local shoreland use control programs for zoning, subdivision, building codes, sanitary codes, and alterations of natural shorelands. Also, to review, comment and advise counties and municipalities on proposed ordinances, ordinance amendments, variances, conditional uses, plats and other shoreland related projects. The staff attends local governmental meetings to provide information related to implementation, administration, and enforcement of shoreland controls.

All Minnesota counties (except Hennepin and Ramsey, which were excluded from the 1969 Shoreland Act) have now adopted and are attempting to enforce shoreland management ordinances. During the biennium about ten percent of Minnesota counties amended their shoreland ordinances to provide for shoreland development standards which are more stringent than the state minimum standards.

In addition, shoreland management staff attended 95 meetings with local officials, and about 50 public meetings. The staff prepared two special shoreland management reports, during the biennium, and distributed 1,500 copies of the reports. Also, 525 local government variances and plats were reviewed.

Efforts were increased, at both state and local levels, to provide better education and training regarding shoreland ordinance administration and enforcement, so that local ordinances may be more effective in controlling lakeshore development. Efforts are being substantially increased to more closely monitor and evaluate shoreland program enforcement on a statewide basis.

4. Water Surface Use Regulation and Technical Assistance

Water surface use management responsibility was designated by the 1971 and 1973 Legislatures (Chapter 702) and provides for state and local regulation of public water surface use. (See M.S. Chapters 378 and 361). Implementation process can be initiated upon request of local governments. The Department of Natural Resources must, by statute, develop state regulations by January 1, 1975. The program requires continual monitoring of adopted individual regulations to ensure effectiveness of regulations, and monitoring on a statewide basis to ensure consistency in program administration and enforcement. Water surface use activities include the collection, analysis and distribution to public and governmental agencies, information on the use of public waters for recreation, such as boating, fishing, canoeing, swimming, and other activities.

Duties include:

1. Developing supporting data and background facts for evaluating the types of controls to be placed on watercraft in water safety conflict situations.

2. Developing and maintaining (and revising as needed) general guidelines and standards for local and state regulation of watercraft use on all public waters.

3. Developing and maintaining a system for processing, reviewing and establishing priorities on requests of local governments for state regulations governing the use of watercraft on public waters.

4. Reviewing and analyzing facts and testimony concerning the uses of public waters; and developing and writing specific watercraft use regulations to solve documented problems.

5. Establishing and supervising a system for monitoring lakes and streams for which water surface use regulations have been developed.

6. Advising and assisting local governments in implementing, administering, and enforcing water surface use controls; and advising state and federal agencies regarding surface use problems, and their relationship to other aspects of water and related land management.

5. Establishment of Lake Improvement Districts

The lake improvement district program was created by the 1973 Legislature (Laws 1973, Chapter 702).

The purpose of the program: to provide for local implementation, enforcement, and financing of water and related land management, protection and rehabilitation activities; to provide for increased use and enjoyment of water and related land resources; to preserve the natural character of lakes and their shoreland environment; to improve the quality of waters in lakes; to provide for reasonable assurance of water quantity in lakes; and to assure protection of lakes from the detrimental effects of man's activities.

The Department of Natural Resources is responsible for setting forth statewide guidelines for use by local government in establishing lake improvement districts; as well as to approve or disapprove certain petitions for establishment of lake improvement districts. Lake improvement districts can provide for efficient local administration of water and related land management activities, such as water surface use management; lake rehabilitation activities; undertake water and related land management research; receive financial assistance; and join with state and federal agencies for the study and treatment of pollution problems, and demonstration program related to them.

Although lake improvement district activities were instituted by Laws 1973, Chapter 702, there presently are no such activities being undertaken.

Future activities (as defined by law) include providing state rules and regulations, standards, criteria and procedures for the establishment of lake improvement districts, and the continual supervision and maintenance of the lake improvement district program.

Lake improvement activities should, in the future, be carried out by professional state, regional, and local personnel. There presently is no staff complement allocated to carry out this activity. The financing of this activity will provide the mechanisms for local action programs aimed at improving lake and shoreland quality with a resulting increase in the quality of life, as well as providing for a more stable local tax base in lake and shoreland areas. Lake improvement district programs will provide for meaningful citizen involvement in regulating lake and lakeshore activities which directly affect them, and will provide for a logical extension of county management authority on a local scale.

6. Metropolitan Land Use Review and Advice

Metropolitan land use activities were initiated by the passage of Laws 1974, Chapter 565. Future activities are defined by law and include: providing technical assistance to the Metropolitan Council in the preparation of minimum standards and criteria, and model ordinances for local implementation and approving the same for the following:

Wetland protection; protection of groundwater recharge areas; protection and retention of existing forests and woodlands; the protection of areas containing unique or endangered species and the regulation of the extraction of minerals. The Department of Natural Resources is also responsible by law to approve any regulations proposed in these categories.

Metropolitan land use activities will be carried out in the seven-county metropolitan area, comprised of the counties of Hennepin, Ramsey, Dakota, Washington, Scott, Carver, and Anoka.

The program was not funded by the 1974 Legislature and thus there was no activity during the biennium. Without proper funding or staffing attention given to this legislatively established program, the Department of Natural Resources would be seriously impaired from providing meaningful and well-informed advice, assistance, and approval to the Metropolitan Council regarding the establishment of the various land use standards noted previously. The net result could be the development of specialized land use standards in the metropolitan area without the benefit of properly utilizing the considerable expertise gained in outstate areas concerning various continuing DNR programs; such as state shoreland and flood plain management. It would not be desirable to develop metropolitan land use standards which were not consistent with statewide land use and resource management efforts.

7. Watershed Management

The major responsibilities of this activity are to review water resources management and development proposals; to advise and assist in local watershed management, including public drainage systems and dam safety and maintenance problems; to provide technical advice to the Water Resources Board, watershed districts, and soil and water conservation districts; and to develop policy, procedural guidelines, and appropriate studies related to watershed management activities or water control facilities.

The DNR is not a construction agency for water resources development projects. Review, advice and assistance relative to watershed management activities or water control facilities is provided, however, to local agencies such as the 93 Soil and Water Conservation districts, the 87 Boards of County commissioners, the 33 Watershed districts, and the numerous municipalities in Minnesota.

One of the major tasks involved in the watershed management activity is to develop policy and procedural guidelines for the establishment or improvement of public drainage systems, and for maintaining coordination between DNR and the various public drainage authorities. To this end, considerable time and effort has been, and continues to be expended holding public meetings, and working with a task force of representatives of various groups interested in drainage, to formulate the drainage criteria required under Laws 1973, Chapter 479; and Laws 1974, Chapter 352.

The most significant and controversial new laws affecting the watershed management activity were the 1973 and 1974 amendments to Minnesota

Statutes, Chapter 106, the State Drainage Code. Under these amendments, the Commissioner of Natural Resources is to promulgate, by January 1, 1975, statewide criteria for the establishment or improvement of public drainage systems.

During the biennium a draft of the criteria was reviewed and revised, with the assistance of a Task Group. The draft report will be completed during the first half of Fiscal Year 1975. It is anticipated that considerable additional work will be necessary during the next biennium, even after promulgation of the drainage criteria by January 1, 1975, to resolve coordination problems between DNR and local interests.

Chapter 479, 1973 Laws, also increased the DNR's workload regarding the review of public drainage proposals. The law now required submission to DNR of the preliminary, as well as the final plan, and preparation of Commissioner's Reports on both the preliminary and final plans. The law further provides that drainage authorities may now request a DNR determination of the status of waters--are there any public waters involved? Frequent meetings with local officials to review advisory reports and public waters determinations, are another necessity.

While the benefits of increased coordination between DNR and local sponsors are obvious, the amount of effort needed to determine the status of waters, prepare the Commissioner's Advisory Reports on both the preliminary and final plans, and to attend a number of local meetings, is substantially more than was devoted to the watershed management program in the past.

The 1973 Legislature also enacted several important legal changes related to dams and dam safety. The Department is now required to develop policy and procedural guidelines for operation of dams and reservoirs constructed before a permit was required; controlling the abandonment of dams; ordering engineering evaluations of dams of questionable safety; and for emergency dam repairs, to safeguard life and property.

The rules and regulations adopted by the Minnesota Environmental Quality Council (MEQC) require a mandatory Environmental Assessment for water resources development projects affecting 50 or more acres of certain valuable wetlands in outstate Minnesota, or five or more acres in the seven-county metropolitan area. Coordination with the EQC has required a substantial time commitment from the central office staff assigned to the watershed management activity.

During the 1973-'74 biennium, the activity involved the field review of 17 public drainage systems, attendance at 31 county board or watershed district meetings, and preparation of 62 Commissioner's reports on public drainage proposals. The staff assisted in preparation of the national dam inventory of the U. S. Corps of Engineers, which has identified 641 dams in Minnesota substantial enough to be included in their report to Congress. The DNR regulates dam abandonment and transfer of ownership, and is required to promulgate rules and regulations for dam operation and maintenance.

8. Grants-in-Aid to Local Units of Government

The grants-in-aid activity provides funds to local units of government from monies appropriated by the Legislature. The activity develops rules and regulations and procedural guidelines for the administration of the program.

(1) In accordance with provisions of Laws 1973, Chapter 344, Section 4, Minnesota Statutes; Chapter 105 was amended by adding a section to provide for a state program for the repair and reconstruction of dams owned by the state, and for dams owned by local governmental units. One of the major features of the new law relates to grants-in-aid to these local governmental units to repair or reconstruct dams owned by those units. The law provides that the program be administered by the Commissioner of Natural Resources. This is an ongoing program that can be expected to increase substantially as the dams age and become in need of repair.

(2) Appropriations for stream management were first made by the 1961 session of the legislature for removing snags from the Minnesota River, primarily for the purpose of improving that river for recreational navigation. A 1963 appropriation for removal of snags from the Thief River was primarily for flood control purposes. Subsequent appropriations were broadened to include the principal tributaries of the Minnesota River; and the 1969 appropriation was "for improvement of lakes including a pilot project on Lake Shetek and for channel improvement on the Minnesota, Ottertail, Buffalo, Zumbro, and Poplar Rivers and the tributaries of the Red River". In 1973, legislation added that money granted by the Commissioner to be apportioned according to severity of the maintenance problem up to an amount not to exceed 75 percent of the total work, with the participating county supplying, from its general revenue, funds to match the grants-in-aid authorized.

(3) Special appropriations for lake studies may be considered a "state experimental project" because special legislative appropriations are needed. It is probable that such funding will be made available in the future, and the activity will not be phased out.

The activities are directed and administered by state personnel in cooperation with local governmental units. The critical demands include development of rules and regulations and procedural guidelines for the administration of the dam repair and reconstruction for the grants-in-aid program.

During the biennium, the staff received requests for grants-in-aid for dam repair and for stream maintenance. Contracts were let for grants-in-aid for one dam and ten stream maintenance projects. Six requests were also received for grants-in-aid for lake studies, but no contracts were negotiated for that purpose.

9. Surface Water Data Analysis

One of the major responsibilities assigned by state water law is the collection and dissemination of data on the physical and chemical characteristics of lakes, streams, and wetlands in the state and on their formation and distribution, in order to identify and analyze existing or potential problems; and to provide local governments, citizens' groups, and the general public with water resources information and alternative solutions to hydrologic problems which continuously arise with climatic conditions, proposed projects, and increased lakeshore developments.

Surface water data analysis and management of the state's abundant surface water resources (including approximately 15,000 lakes of 10 acres or more and 25,000 miles of streams) is an ongoing activity of many years duration. Its importance, however, was accentuated by the 1973 Legislature, which established the State Water Information System, in addition to enacting a number of other laws affecting water resources management in Minnesota--all of which require improvements in the resource data base for effective implementation.

The law requires that by November 15, 1975, the Commissioner of Natural Resources must prepare a statewide framework and assessment water and related land resources plan for presentation to the Legislature. Before this plan can be formulated, considerable information on the surface water resources of the state must be input to the State Water Information System established by the 1973 Legislature.

Another demand on this activity of increasing importance, especially with the emphasis on wild rice culture and irrigation in certain portions of the state, is the determination of the sustained water yields of streams which can be relied upon for development. The answer to this question must, according to law, be reached within the 20-day period provided for review of permit applications after receipt of all required information from the applicant. Because of the lack of specific stream gaging data in the immediate project vicinity and the press of other work on the available staff, this type of determination has taken one or more years to make. As demands on our available water supplies increase, even more studies of this nature will be required.

Lake level problems, when they arise, are invariably emergency situations affecting a number of irate citizens' groups whose properties are either threatened by high water, or adversely affected by low water. Even the 20-day period allowed for review of permit application is considered unduly long in many cases--yet a thorough study must be made for a proper solution and insure that it is in the public interest. The study may require: review of hydrological records; evaluation of geologic setting and local wells; airphoto interpretation; field survey; engineering design and cost estimates; public meetings and possibly a public hearing.

The following table lists the tasks which were required under the Surface Water Data Analysis Activity during the biennium:

	FY 1973	FY 1974
Stream gage measurements	24,000	24,000
Inventory of Dams & Appraisal of Condition	50	150
Evaluation of Tax Forfeit Land for Public Waters		1,300
Tax Forfeited Lands with Public Waters Exempted from Sale		100
Reviews of Requisitions for Water Level Controls or Repair	390	400
Information Requests Answered	5,000	6,000
DNR Hydrologic Reports	15	20
Review of Lake Improvement Projects	7	10
High Flow Gaging Stations Operated & Reports Published	15	18
Low Flow Gaging Stations Operated & Reports Published	5	10
Petitions Received for Altering Water Levels	12	14
Complaints on Water Level Problems Received & Acted Upon	400	450
Complaints on Water Level Problems Received & Not Acted Upon	140	180
Meetings Requested by Concerned Citizens	60	70
Meetings Requested and Unable to Attend	12	17
Evaluation of Problem Lakes	2	3
Field Investigations	40	50

10. Ground Water Data Analysis

This activity provides a continuing program of collecting data, and dispensing professional advice and services to local and regional governmental agencies, state agencies, industries, agriculturists, and the general public, regarding the availability, quality, distribution, and use of the ground water resources of the state.

The Department of Natural Resources maintains a file of approximately 20,000 well logs. About 1,500 logs are received each year, of an estimated 7,000 wells drilled per year. In addition, about 3,000 water use records are currently received from ground water appropriators each year. Other sources of information include about 190 ground water observation wells continuously maintained, specialized hydrological investigations conducted by the DNR or by the USGS under DNR direction, subsurface exploration performed by the Highway Department and DNR's Division of Fish and Wildlife.

The 1973 legislation affecting this activity included establishment of the State Water Information System, which requires the groundwater data analysis activity personnel "...to gather, process, and disseminate information on the availability, distribution, quality, and use..." of the groundwaters of the state. In order to effectively do this, substantial time commitments will be necessary to evaluate and process neglected information already available, and to acquire new information which presently cannot be obtained due to personnel limitations. Tasks that must be accomplished before DNR can adequately respond to requests for assistance currently not being answered include:

a. Processing of pumping records from groundwater appropritors, and the acquisition of delinquent pumping reports so that the amount of groundwater being withdrawn from aquifer systems in various parts of the state can be determined. Groundwater appropriation records for the years 1966-69 and 1971-73 are currently available but unprocessed due to personnel restraints.

b. Acquisition and analysis of a greater number of well logs. Presently about 1,500 well logs are received annually out of an estimated 7,000 wells drilled, but only about 300 are able to be analyzed due to staff limitations. With adequate staff, it is anticipated that about 1,000 well logs can be analyzed and incorporated into the groundwater data information system each year. The DNR currently maintains a fill of about 20,000 well logs as the major repository in state government for hydrogeological information.

c. Installation and monitoring of observation wells adjacent to problem lakes subject to severe water level fluctuations, in order to provide hydrologically sound management recommendations.

Implementation of the law and regulations of the Environmental Quality Council will affect the amount of information the groundwater data analysis activity is requested to supply to state agencies preparing Environmental Impact Statements; and to local government, developers, and consultants preparing environmental assessments.

	FY 1973	FY 1974
Ground Water Irrigation Studies completed -	1	0
Water Level & Water Quality Stations - monitored for completed irrigation studies-	85	85
Wells monitored in groundwater network -	190	190
Information and assistance requests answered	2,050	2,200
Technical requests for information unanswered or answered inadequately because of incomplete information -	140	150
Well recommendations made -	50	50
Environmental evaluations made (sanitary, landfills, pipelines, settling ponds, sanitary systems, tailing basins) -	4	8
Specialized hydro-geologic mapping projects -	7	10
Field investigations of hydrologic problem areas	25	27
Samples collected and analyzed for hazardous gas in groundwater -	257	280
Pumping reports received from groundwater appropriators -	2,000	2,500
Groundwater pumping reports analyzed and processed -	300	300
Well logs reviewed and added to well log information system -	1,500	1,500
Specialized hydro-geologic reports completed -	23	25
Meetings discussing groundwater problems -	70	75
Groundwater use conflicts investigated -	22	24

11. Climatological Data Analysis

Climatological management activities include: collection, storage, and compilation of climatological data; provision of climatic information to state and local governments and the general public; conduct of scientific studies based on analyses of climatic facts; and consultation and coordination of state data collection and analysis with university researchers and with federal, state and local agencies. The activity is conducted under the overall direction of the Commissioner of Natural Resources and the office of State Climatology, which is located in Room 127, Crops Research Building, University of Minnesota, St. Paul, Minnesota.

State Climatology management activity was a federally funded and staffed program that was deleted by a federal budget cut in May, 1973,

and subsequently dropped as a federally sponsored state activity. The program was assumed by the Division of Waters, Soils and Minerals of the Department of Natural Resources on November 14, 1973, and a position of State Climatologist was established with the State Civil Service system. The climatology management activity, funded by a federal grant (except for the State Climatologist who is paid by the state) continues to operate basically the same as under the federal program except that there is greater emphasis on state developed climatic data collection, analysis and information programs, and increased services to state and local agencies.

A brief description of tasks and accomplishments is as follows:

(1) Collection of data. The monitoring of the atmosphere is done principally through five programs using groups of volunteer weather observers. The State Climatology Office supervises four groups that study precipitation observations at various locations in the state. The groups are: Future Farmers of America, 1,200 to 1,500 observers; Back Yard Rain Gage Observers, 200 observers; DNR State Foresters, 80 observers; and Mosquito Control District, 30 observers. These state monitoring stations are maintained to supplement and complement the 210 federal stations in Minnesota. All of the above groups send their daily observations to the State Climatology Office as monthly reports.

(2) Storage of Data. The data files in the State Climatology Office contain all of Minnesota's climatological data known to exist. Data for Minnesota prior to 1890 are microfilm copies of original records, and from 1890 to date, original records or duplicates. The Climatology Office also has many special technical weather studies and reports, and more than 15 years of weather data for all bordering states and Canada. There also are weather summaries and information for all of the United States and the different countries of the world. In addition, the State Climatology Office has access to all weather information, reports and studies available at the National Climatic Center, Asheville, North Carolina; and the National Oceanic and Atmospheric Administration Library, Washington, D.C.

(3) Compilation of Data. All precipitation data from the State Climatological network and the federal stations are processed and entered on punch cards. Computer analysis of the data is made for each county and township within the state.

(4) Preparation of Special Weather Studies in Minnesota. Special weather studies of a general nature are prepared for use by members of the general public, and more technical data are prepared for applied use of planners, engineers, hydrologists, researchers and other related fields of interest. Most past and present studies are prepared as a joint effort of the Department of Soils, U of M; and the State Climatology Office. Previously, all studies were printed and published by the U of M, Agricultural Experiment Station.

12. Hydrographic Unit

The Hydrographic Unit activity provides basic fact finding services required for administering, conducting and coordinating research; and technical studies and investigations to provide information for departmental water resources studies, planning and management. The necessary surveys include reconnaissance, property, construction, topographic, hydrologic and related tests along with all graphic support that is required.

The tasks performed by the Unit provide valuable assistance in establishing a scientific basis for water resources management decisions.

One important task includes investigations and professional reports on Natural Ordinary High Water Level (N.O.H.W.) determinations. This determination is vital in determining the limit of public waters subject to the control of the state. Further use of N.O.H.W. investigations assist in determining setbacks required by various rules and regulations involving buildings, sanitary facilities, roads, alteration and preservation of natural landscape, etc. Such studies include surveys, research of available data, meetings and discussions with public agencies and private citizens, public hearings if desired by the Department or demanded by an aggrieved party, along with preparation of findings and conclusions for a Commissioner's Order establishing the N.O.H.W. level, if deemed necessary. Other tasks are investigations, surveys and reports on water permit applications; law violations and restoration orders; establishment, maintenance and data collection on a network of statewide lake gaging stations and groundwater observation wells; investigations and recommendations for stream maintenance programs; examination and repair of dams and reservoirs (M.S. 105.52), as well as dam construction and maintenance (M.S. 105.48). Necessary investigations of watersheds and the preparation of watershed maps are handled by the Hydrographic Unit. Advice to local governmental units and the general public in areas of potential lake and stream problems mandates continuous liaison with various water-related users and managers. Inspection pertaining to special studies and emergencies, e.g., Office of Emergency Preparedness (O.E.P.) and grants-in-aid program. Continued input is required in the statewide mapping program by offering advice and assistance to the State Mapping Advisory Committee in determination of mapping priorities, aerial photography and review and analysis of existing and proposed maps which are of concern in Natural Resources Management.

Minerals Section

The Minerals Section is responsible for the administration of more than five million acres of trust fund mineral rights, and approximately five million acres of tax-forfeited mineral rights, owned by the state.

The Management of the mineral resources is performed through four major activities including: Evaluation of Mineral Resources Potential; Mineral Leases; Mining Operations, Engineering and Inspection; and Planning & Environmental Services.

The increasing need for metallic minerals has resulted in expanded exploration and research on mineral potential in Minnesota, and the combination of economic needs and environmental concerns presents many problems in managing the state's mineral lands.

A new taconite boom began to develop during the biennium, with the announcement and subsequent start of construction of two new taconite facilities, and expansion of three existing taconite plants. This not only means an economic impact of jobs, satellite industry and taxes; but it will provide additional income to the state's trust funds and taxing districts, through royalties collected from mining state-owned taconite.

Previous capacity of the six existing plants was 40.6 million tons of taconite pellets, annually. The two new plants account for a planned production of 8 million tons, and the expansion of the three will provide 12.8 million tons. This new production will thus add 20.8 million tons, to bring capacity of eight Minnesota taconite plants to 61.4 million tons.

Each of the eight operations has, or will have, production from state leases. A significant factor in the ultimate decision to construct the new Hibbing taconite operation hinged on the extension of 27 state taconite leases, covering 2,000 acres. These lease extensions were approved December 14, 1973, by the Executive Council, after completion of a review and study, and recommendations by the Minerals Section.

Thus, Minnesota is assured of maintaining the role of leader in production of iron ore and taconite at a level approximating two-thirds of the domestic supply. It also can boast of the largest taconite facility in the world: the U. S. Steel Minntac Plant, now being expanded to 18 million tons of taconite pellets annually.

Future outlook for the industry is promising, with the expectation of further expansions and new facilities. It also means the state's

role will continue to increase, due to the fact that it controls approximately 18.5 percent of the mineral lands on the Mesabi Range.

In addition to the economic development problems, legislation enacted during the 1973 session has created administrative problems requiring immediate action.

Management Program Problems

Substantial mineralization has been located in the Duluth Gabbro Complex north of Duluth. One company, International Nickel, has progressed to a point of proposing a copper-nickel development. Another company, American Metal Climax Corp., has developed an extensive exploration and environmental monitoring program; and other companies are actively examining their mineral holdings. Thus, we already are confronted with evaluating requests for use of state-owned lands for mineral use; for development and review of regional and site specific pre-operation environmental monitoring systems; review of environmental assessments; and development of the necessary regulatory framework for potential development.

In order to meet the evaluation needs, it is essential to use the best possible technology to provide the fastest, yet most reliable analysis of data concerning land characteristics, uses, and potential conflicts.

In view of this need the Minerals Section developed the MINESITE program, which must be made operational. The MINESITE program is a computer-based program designed to provide an analysis of large amounts of natural resource data to evaluate historical land uses, land use capability, and potential land use conflicts, in the prime copper-nickel mineral potential area. In addition, the program will be used to determine alternative locations for various mining facilities associated with copper-nickel development (plant facilities, mine pits, tailing basins, water supply, stockpiles, etc.); and an evaluation of the potential regional environmental impacts of each of these facilities.

The MINESITE study encompasses approximately 635 square miles in the prime mineral potential area of Northeastern Minnesota. This program will provide to the state the ability to evaluate each individual proposal as to its possible regional land use and environmental effects, and the relationship of various alternative proposals. Lack of such a program could result in the haphazard type of development which has occurred on the Mesabi Iron Range, where inadequate planning has resulted in necessitating relocation of stockpiles and other mining facilities several times to facilitate new mining operations or other land uses, and has even necessitated dislocation of complete communities. Additionally, this program has many side benefits to numerous other resource management programs. The goal is to have this program operational during fiscal year 1975.

In addition to the MINESITE program, there is an urgent need for: a regional environmental monitoring program; a program for review, analysis and approval of individual site pre-operational monitoring by private companies, as a supplement to the regional program; the preparation and review of environmental assessments and environmental impact statements for proposed operations; and continued evaluation and inspection of activities of various companies holding state mineral leases, in order to insure compliance with the provisions of the state leases.

Another major problem is the need for development of a comprehensive state program for reclamation of mined lands. Enactment of the Mineland Reclamation Act in the 1969 Legislative Session, and the substantive amendments in 1973, requires all metallic mining operations in the state to develop and implement a mineland reclamation program. The basic elements of the program are as follows:

(a) The Department of Natural Resources shall develop rules and regulations which establish the standards and criteria for the reclamation program;

(b) All present and future metallic mining operations shall apply for a permit to mine, and shall provide a reclamation plan in conformance with the rules and regulations; and

(c) The Commissioner has the authority to require bonding to assure compliance with the permit to mine, as well as the authority to terminate the permit for violations or non compliance, and to assess fines.

This program is of vital importance at this time because of the substantial expansion presently underway in the taconite industry, and the potential development of our copper-nickel resources. It is important to note that both the original bill in 1969, and the 1973 bill, contained an appropriation section for implementation; but in both instances the appropriation section was removed, with the understanding that the appropriations for implementation would be embodied in the appropriations bill for the department. Unfortunately, the appropriations bill did not provide the necessary funds.

Essential work items which must be accomplished to implement the Mineland Reclamation programs are:

(a) Development and promulgation of the rules and regulations;

(b) Development of guidelines and administrative procedures, forms, etc., necessary for implementation of the reclamation program;

(c) Development of a supply-demand land use evaluation for the Mesabi Iron Range, in order to implement reclamation plans for existing mining operations, under the Mineland Reclamation Law;

(d) Receipt, review, and process of permit applications; as required under the Mineland Reclamation Act.

The adequate development of these programs is of major concern, and there is no way to meet the growing needs for mineral resources management without substantially increasing the present Minerals Section staff.

The present very limited staff for this area of mineral resource management consists of four complement position employees; two employees hired under the Federal Emergency Funding Act; three part-time student trainees; and one employee hired under Emergency Minority Funding and assigned to the various mineral resource planning programs.

An example of the burden placed on the Minerals staff is the situation encountered during the biennium in dealing with the Reserve Mining Co. taconite tailings disposal into Lake Superior.

The majority of the present mineral resource planning staff, as well as numerous other department personnel, have had to commit substantial amounts of their time to the Reserve Mining Company court case, which has further depleted staff time available for other mineral resource planning work. While the Department did not anticipate that a major staff input would be necessary from the DNR, more than 8,000 man-hours of effort were required. This level of effort obviously will continue to be needed in attempting to seek a solution to the on-land tailings disposition of Reserve Mining Company during the 1975-76 Biennium.

Biennial Programs (By Mineral Resources Activity)

1. Mining Operations, Engineering and Inspection Activity

Exploration and development of state-owned minerals can only be conducted under a state exploration permit or mining lease. The state's exploration permits and mining leases require prior approval for use of any surface lands involved; specify weighing and analytical procedures; ore classifications and metallurgical practices; dictate a policy of mineral conservation; contain time constraints for performance; and require compliance with safety and pollution standards. This is a continuing activity designed to service the other activities of Mineral Resource Management. At present, there are 150 state iron ore and taconite mining leases in effect, most of them committed to current operations.

The function of this activity is to provide the inspection, engineering, geological and metallurgical study to insure that the terms of the State's exploration permits and mining leases (and related agreements) are complied with. It also must supply the engineering and records needed by the Mineral Lease Activity, and provide the field support that will be needed for administering permits under the Mineland Reclamation Act.

A number of tasks were accomplished under this activity during the biennium, including: administration of more than 150 iron ore and taconite leases; 1,100 inspections of mines and plants; 240 meetings with industry and fee owners; more than 1,700 analytical tests, and over 500 metallurgical tests; and the classification of more than 26,000 feet of iron ore and taconite drill core, for mineral values.

2. Planning and Environmental Services Activity

The purpose of this activity is to protect the public interest in Minnesota's mineral resources, whether they be in public ownership, or under private control. The 1973 Mineland Reclamation Act established a policy for mineral development, based on sound environmental controls and wise use and development of natural resources. The basic elements of the Mineland Reclamation Program include development of rules and regulations to establish reclamation standards, procedures and guidelines for permits to mine; including development of requirements for reclamation plans which will conform to State rules and regulations and requirements for bonding, to assure compliance with permits to mine, whenever such bonding is considered necessary by the Commissioner.

Other tasks include the development of the MINESITE computer evaluation program, and establishment of necessary regional and site environmental monitoring procedures; including environmental assessments, impact statements and compliance provisions of state mineral leases.

Accomplishments under this activity during the biennium included: 142 mining unit evaluations; and completion of 11 Technical reports and 200 meetings with other agencies (such as EQC, PCA), public interest groups, legislators, and industry.

3. Evaluation of Mineral Resources Potential Activity

Minnesota has probably the largest unexplored potential mineral area in North America. More than 95 percent of the approximately 10 million acres of state-owned mineral rights administered by the Department are located in those northern counties which appear to have the greatest potential. Less than 5 percent of these areas have been adequately explored or evaluated. The evaluation process includes a number of important tasks.

Basic regional geologic mapping is used to determine priorities for making state-owned mineral rights available for exploration. When detailed geologic mapping, geophysical surveys, and exploration drilling

is available, this information is used to make preliminary mineral evaluation; thereby providing a geologic basis for land use classification, surface sales, land exchanges, and lease sales.

Mineral exploration conducted by mining companies on state copper-nickel leases is inspected and controlled by this activity. All drill core resulting from exploration drilling on these leases is examined and classified, and a quarter-portion filed in the Division's drill core library at Hibbing. Geologic, geophysical and geochemical data also is collected from these leases--and from many other sources. Field and laboratory investigations are conducted in areas where such data is not otherwise available, or where additional surveys are justified due to the interesting characteristics of the geology. These field and laboratory investigations include detailed geologic mapping, petrographic and microscopic studies, and geophysical or geochemical surveys.

Field and laboratory studies are also conducted for applied research purposes in order to develop exploration techniques adaptable to state mineral lands.

Metallurgical research applicable to state-owned iron ore, taconite, manganese, base metal, and peat resources are also conducted in the division's laboratory.

The following table lists some of the major evaluations performed during the biennium:

County preliminary mineral resource evaluations --	6
Detailed mineral resource evaluations --	13
County board meetings and presentations --	6
Information meetings with Regional and area DNR Reps.	50
Technical maps and reports completed --	106
Feet of diamond drill core classified --	38,034
Field investigations made --	100
Square miles of detailed geologic mapping --	5
Rock/ore samples collected and microscopically examined --	288
Line feet of geophysical surveys conducted --	36,075
Soil/sediment/rocks and vegetation (geochemical) sites sampled --	1,462
Chemical parameters analyzed --	9,422
Shallow holes drilled and samples evaluated --	24
Information and assistance requests answered --	3,500
Specialized metallurgical investigations --	14
Federal-State-Industry research project meetings attended --	3

4. Mineral Leases Activity

Through this activity, DNR is responsible for the administration of approximately 10,000 acres of state-owned minerals rights--mostly in the northern part of the State. These include Trust Fund, Acquired and Tax Forfeited mineral rights. Statutory direction has been given to

implement (within a framework of strict environment controls) the exploration, evaluation and development of these State-owned mineral resources. State mineral leases issued by DNR, with the approval of the State Executive Council, provide, through rentals and royalties, the basis for much of the past, present, and particularly the future revenue to the State's School and University Trust Funds; and substantial income for the local taxing districts. Exploration and development of State-owned minerals can only be conducted under a State permit or lease, pursuant to Minnesota Statutes, Chapter 93. In addition to providing a basis for substantial revenues, mineral leasing provides a framework for overall evaluation of the State's mineral potential, and develops necessary data for land use planning. Operations under this activity involve three general tasks: Public mineral lease sales, lease negotiations, and supplementary agreements; Mineral law royalty and economic research; and Mineral lease processing and records.

The value to the state of this activity is considerable, and there has been constant effort to increase the returns to the state over the original lease arrangements established through 1941 Legislative policies.

The State has managed to increase the average royalties paid to it for taconite pellets produced under State mining leases, from the approximately 15 cents per ton provided by the 1941 statutes, to an average of 36 cents per ton and higher in recent years. But they are still low when compared to the State taconite royalties which the DNR has negotiated in the past ten years. These negotiated leases now are generally paying royalties to the State of more than $1.00 per ton of taconite pellets produced, and some currently are paying more than $1.25 per ton.

Taconite lease extensions negotiated during this same period provide for royalty escalation and performance that would also yield royalties in the $1.00 per ton of pellet range if effective now, and they will continue to reflect a rising economy and inflation throughout the extended lease period.

It is expected, therefore, that the State will receive at least a tenfold increase in taconite royalty income after 1991, when the original 1941 leases expire. Fortunately, most of the more than 3 billion tons of State-owned magnetic taconite pellet ore reserves will be mined after that date.

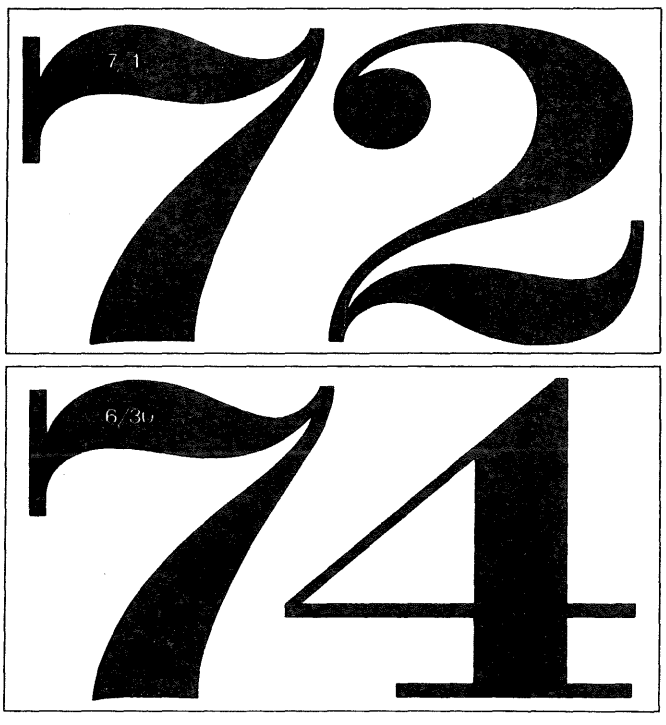
Under its rules and regulations for mining copper-nickel and associated minerals, royalties that will be paid to the State under those leases are based on the value of the refined metal at the time it is mined, and will therefore always reflect a current economy.

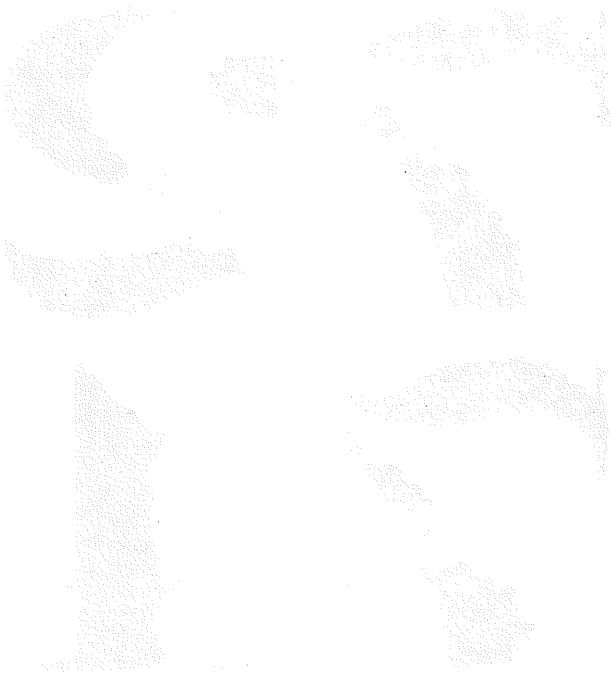
During the biennium, 150 State iron ore and taconite leases were in effect, most of them relatively long-standing, covering some 13,330 acres of the Mesabi iron formation. Although most of these leases are committed to existing mining operations, few of them will be exhausted of their ore reserves during the remaining term of the lease.

During the biennium, the Section conducted one major copper-nickel lease sale; entered into 27 lease negotiations; processed 136 mineral leases; reviewed and processed 135 supplementary lease agreements; and provided answers to several thousand requests for information and assistance on leases.

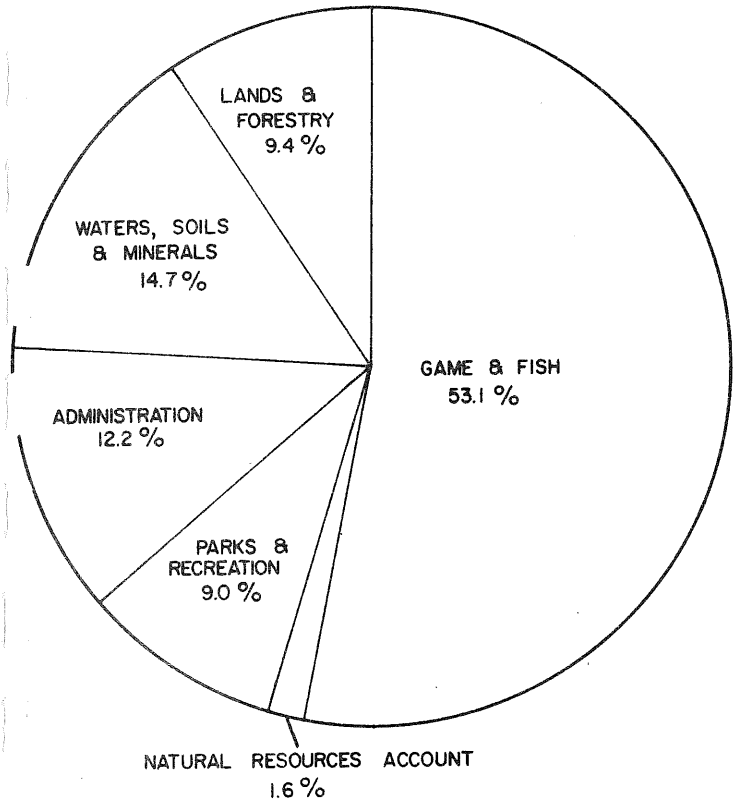
# # #

Administrative Services





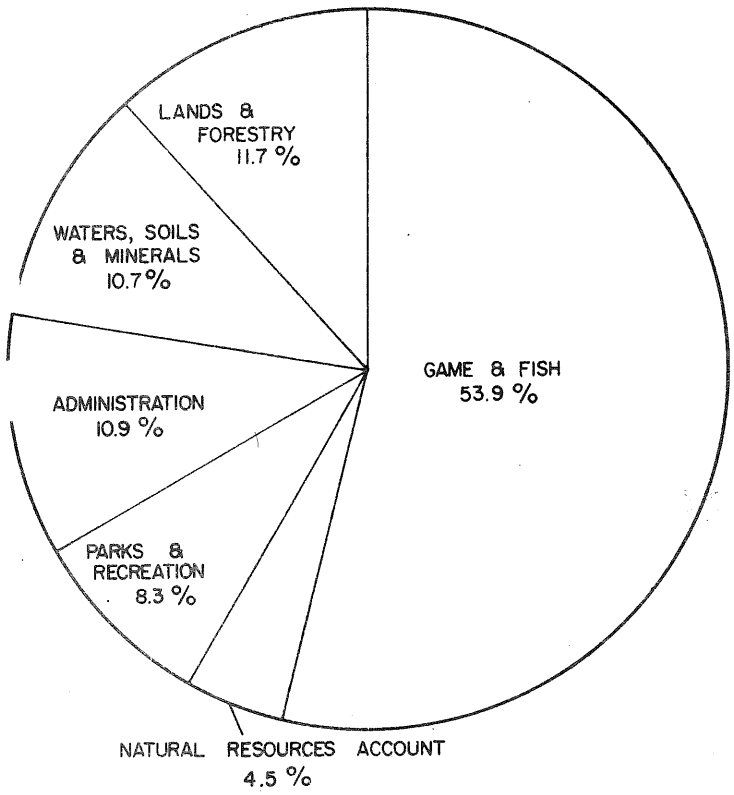
WHERE YOUR NATURAL RESOURCES DOLLAR COMES FROM



RECEIPTS JULY 1, 1971 - JUNE 30, 1972

INCOME BY DIVISION

Administration	$ 2,151,182.63
Waters, Soils & Minerals	2,562,344.12
Lands & Forestry	1,649,451.70
Game & Fish	9,307,301.33
Parks & Recreation	1,574,681.86
Natural Resources Accts.	276,489.44
TOTAL	$17,521,451.08

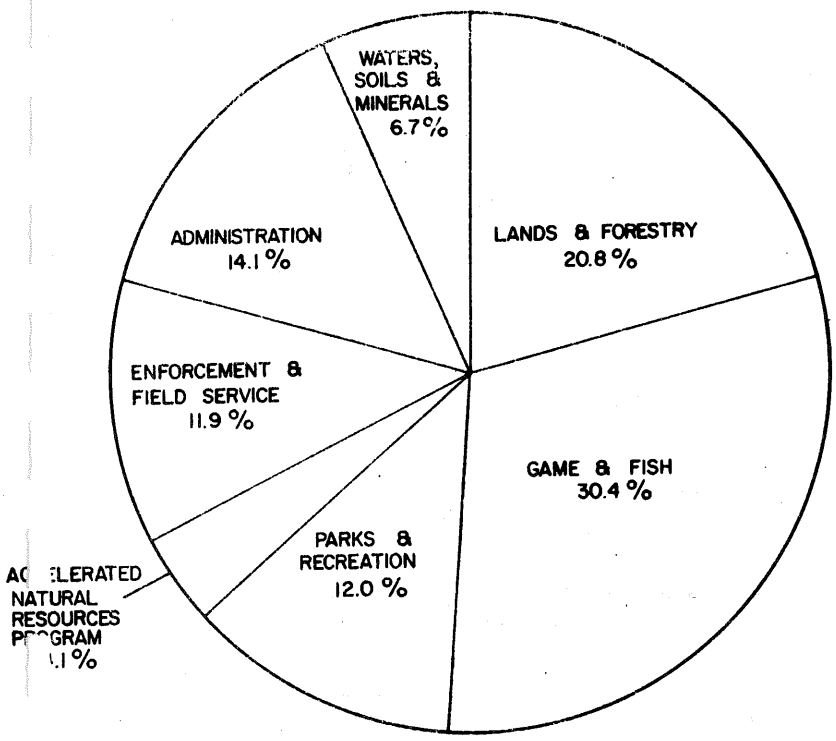


RECEIPTS JULY 1, 1972 - JUNE 30, 1973

INCOME BY DIVISION

Administration	$ 2,156,264.21
Waters, Soils & Minerals	2,110,341.69
Lands & Forestry	2,306,556.08
Game & Fish	10,655,426.95
Parks & Recreation	1,661,037.36
Natural Resources Accts.	885,494.37
TOTAL	$19,775,120.66

WHERE YOUR NATURAL RESOURCES DOLLAR IS SPENT

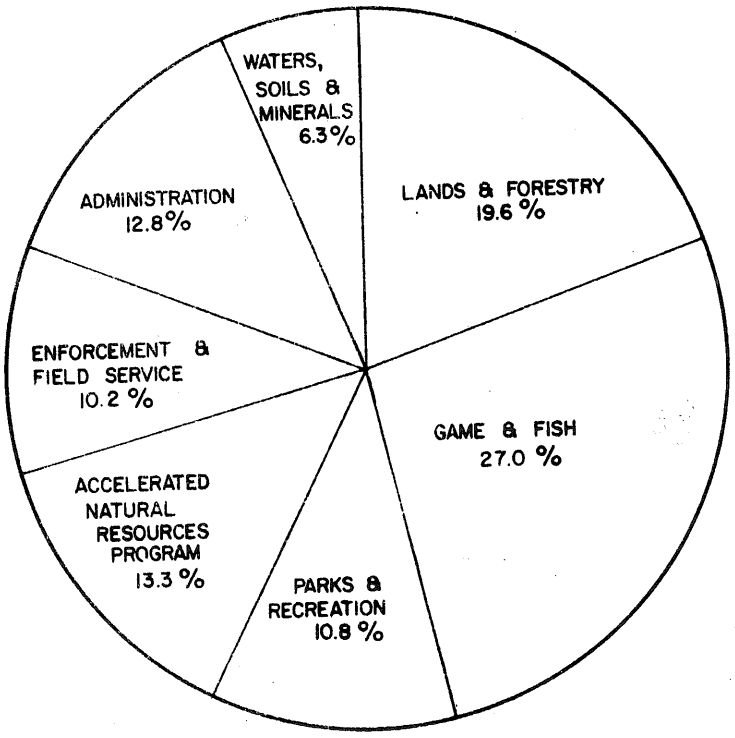


EXPENDITURES JULY 1, 1971 - JUNE 30, 1972

EXPENDITURES BY DIVISION

Administration	$ 3,087,857.65
Waters, Soils & Minerals	1,445,663.62
Lands & Forestry	4,535,277.78
Game & Fish	6,663,166.53
Parks & Recreation	2,589,040.83
Enforcement & Field Service	2,610,008.42
Natural Resources Accts.	989,990.32
	$21,921,005.15

EXPENDITURES JULY 1, 1972 - JUNE 30, 1973



EXPENDITURES JULY 1, 1972 - JUNE 30, 1973

EXPENDITURES BY DIVISION

Administration	$ 3,345,932.07
Waters, Soils & Minerals	1,644,456.78
Lands & Forestry	5,114,579.94
Game & Fish	7,042,671.13
Parks & Recreation	2,802,371.63
Enforcement & Field Service	2,667,132.01
Natural Resources Acct.	3,455,398.07
	$26,072,541.63

FINANCIAL MANAGEMENT

The Financial Management Section is headed by a Controller who is responsible to the Commissioner of Natural Resources for the financial management of Department programs, and to the State Commissioner of Finance for the integrity of a centralized State-Wide Accounting System. The Controller is a new position created by the 1973 Legislature. The Controller has the following units responsible to him: Budgets and Accounting Systems, General Ledger Accounting and Accounts Payable, Revenue Accounting, Payroll Accounting, Internal Auditing, and the yet-to-be activated unit of Federal Aid Accounting, as recommended by the Governor's Loaned Executive Action Program and agreed to by the Department.

Several significant changes occurred in Financial Management during the biennium. On July 1, 1973, DNR began to operate solely on the State-Wide Accounting System. This required a tremendous training program to educate clerical and accounting people (in all regions and in the central staff) on cost accounting methods to use in labeling costs for management reports, and in operating computer terminals.

Also, DNR developed both a program budget and a line-item budget for the 1974 and 1975 biennium. A program budget was developed for the 1976 and 1977 biennium by assigning Activity Managers throughout the organization to develop the budget, with coordination with regional counterparts. This process resulted in the most comprehensive budget in the history of the Department, with 93 activities and over 1,180 pages of support documentation. Each activity is supported by a detailed explanation of objectives and an estimate of performance that can be expected with a given level of available resources. This, then, expresses to the Legislature alternatives; i.e., if you want a given level of performance, this is what it will cost; or, if less money is appropriated, less production should be expected.

Several improvements in the accounting, budgeting and management systems are in progress at the present time and will be accomplished during the next biennium; e.g., a computerized and totally integrated accounts receivable system, a payroll cost accounting system, decentralization of fiscal management to the regions from the central staff, among others.

# # #

ENFORCEMENT

During the biennium, Conservation Officers of the Division of Enforcement effected 14,953 arrests, resulting in fines totaling $198,062.42. Perishable confiscations sold by Conservation Officers totaled $48,098.00 during this period (including a 1,100-item fur sale).

A public auction was held, with 280 items of confiscated hunting and fishing equipment sold, for which the state received $12,660.00.

Public Access

From June 30, 1973, to June 30, 1974, acquisition of 23 public access sites was accomplished. Development and maintenance continues as an important segment of the public access program. The policy is to develop and maintain all sites in the best manner possible, within the limits of the budget.

Conservation officers are constantly on the lookout for new sites that can be purchased. The goal is to acquire a public access site to all lakes where there is a definite need. Listed below is a report on the activities and costs for the year 1973-1974.

54 Contracts for development and improvement awarded

Labor and Equipment	$ 33,516.00
Material	28,196.00
Total	$ 61,712.00

166 Maintenance contracts awarded
272 Lakes maintained by individual contracts
49 Lakes maintained by contracts with 8 counties

Amount spent - private contracts	$ 29,416.00
Amount spent - county contracts	6,545.00
Emergency repairs on State accesses	4,383.89

42 Tracts proposed and approved for acquisition at present time
10 Tracts under option for purchase
12 Tracts purchased - Cost $43,450.00

Public Access Sites

Total Public Access Sites	1,693
Department of Natural Resources	925
a. Enforcement	688
b. Fish and Wildlife	47
c. Lands and Forestry	171
d. Parks and Recreation	19
Other Public Agencies	768
a. Minnesota Highway Department	61
b. U. S. Forestry Service	154
c. U. S. Corps of Engineers	8
d. U. S. Fish and Wildlife Service	20
e. County	295
f. Township	67
g. Municipal	130
h. Other	33

Safety Training

Firearms and snowmobile safety training classes are conducted by a corps of unpaid volunteer instructors. In each program, the corps numbers about 3,000. During the biennium, instructor training was improved by providing three-hour certification courses for prospective members. Refresher workshops also were held for current instructors.

A recognition program was initiated for Firearms Safety instructors, with presentation of a distinctive pin for five years of service as a volunteer. Recognition awards will be made for ten and twenty-year instructors.

In the firearms program, 55,090 students were certified during the biennium. This represents 30 percent of the 12-year-old youths in the state's school system. Since the program started 19 years ago, a total of 385,011 have been certified in firearms safety.

In the Division's snowmobile safety training program, 37,350 students were certified -- or 20 percent of the 12-year-old age group. A total of 113,583 students have been certified since the program was inaugurated five years ago.

Firearms and snowmobile safety were promoted through television and radio appearances, news items and club speaking engagements; through radio spot announcements and five-minute radio programs prepared and aired by DNR's Radio News Service (Bureau of Information & Education); and through exhibits at the State Fair, Hunters' Clinic, and Boy Scout jamborees. Snowmobile safety demonstrations were conducted each year at the annual Explorer Scout Snowmobile Rally in Duluth.

A proposal to include firearms safety training in the schools has been initiated, in cooperation with the Department of Education. Nine pilot schools have been selected.

# # #

Community Liaison Officer

This office was created in February of 1974 with the primary responsibility of maintaining communications with the seven Chippewa and four Sioux reservations in the State. A secondary responsibility was to assist in recruiting minorities for State service.

The bulk of the workload for the past 9-1/2 months has been with the Leech Lake Indian Reservation, which, in March of 1973, won its hunting and fishing rights suit against the State of Minnesota. Some time has also been spent in acquainting DNR personnel with the White Earth Indian Reservation, which also has filed suit against the State for hunting and fishing rights.

In the line of Affirmative Action, 11 minorities of Indian descent were hired for seasonal employment. Numerous Indian groups in the Twin Cities area who have Job Development Specialists have been contacted and acquainted with DNR's Personnel Office. Hopefully, when vacancies occur, personnel may draw from this Indian Job Bank. Nicollet College in Rhinelander, Wisconsin, which has concentrated in training Native Americans in the field of Natural Resources, has been contacted and a working agreement with that institution has been tentatively set for the upcoming school year.

Engineering

The Section of Engineering, created in 1958 as a service bureau to the various divisions, sections, and bureaus of the Department of Natural Resources, continues to serve in that same capacity.

The Section comprises five subsections consisting of engineering, architectural, surveys, maps & plats, and landscape architectural - graphics.

These subsections, either individually or cooperatively, provide any of the related technical services requested by the Department sponsors.

During the period of time covered by this report, the Section of Engineering processed and completed 668 requisitioned projects with the following breakdown:

Engineering - 127
Architectural - 116
Surveys & Plats - 172
Landscape Architecture - Graphics - 253

Of this total number of requisitions, 92 were contract construction projects, with a total value of $2,283,054.

During this same period, the Section of Engineering retained six professional consultants to assist on certain engineering and survey projects, at a cost of $22,831.

Field Services

One of the major changes as a result of reorganization was establishment of a Field Services Section to provide a coordinated approach to "support" activities for the Department.

The Forestry Field Services Supervisor position was utilized and placed under the direction of Assistant Commissioner Administrative Services, to provide Department coordination.

The Field Services Section is responsible for providing supervision and coordination to Department programs of equipment and supply purchase; equipment repair at Service Centers; fabrication of specialized equipment; major repair and remodeling of buildings; equipment and building disposal; Federal Excess property acquisition; disposition of vehicle accident cases; and maintenance of a sign shop function.

The Forestry Service Center at Grand Rapids and the Fisheries Repair Unit in St. Paul became Department Service Centers, thus providing service to all DNR personnel. The Service Centers are utilized to develop specifications; and requisition, receive, inspect and dispense equipment and supplies; thereby reducing the number of personnel involved in researching specifications and other steps relating to equipment and supply requisitioning. They also provide repair facilities for DNR equipment.

It has been determined that eight equipment pools (one to a Region, one at each service center) need be established to increase equipment use time, and reduce inventory. Two such pools have been started. All will be operative in F.Y. 76-77.

A motorized-equipment survey was conducted and has provided the Department with data relative to numbers, age, mileage or hours, location and condition. Regular such data will be provided to assist in pinpointing surplus, maintaining equity between Regions, and as an aid in upgrading and disposal selection.

Fifty-three motor vehicles were switched between disciplines to upgrade equipment from the bottom. All but three of these have gone to the Parks and Recreation discipline, and their poorer vehicles designated as "sale" units.

The Department is emphasizing equipment reduction and has declared a 76-77 biennial objective of ten to fifteen percent reduction, primarily in equipment other than self-propelled.

The Department has also established a 1976-1977 objective of reducing building inventory by five percent.

Disposal of unnecessary buildings has been assigned high priority. Field supervisors have been briefed on the Department's objective. Coordination of disposal has been assigned the Field Services Coordinator.

License Center

DNR's License Center, located at 625 North Robert Street, St. Paul, has been developed into a most efficient and smoothly operating facility.

With the cooperation of 134 Deputy Registrars throughout the state, the License Center furnishes boat and snowmobile owners 30-day permits so that they can operate their boats or snowmobiles as soon as they apply for their licenses or registrations. These applications are then processed at the Center and mailed back to the owner with a copy of the laws and regulations. Turn-around time has been reduced to ten days or less. The Center processes approximately 192,000 boat registrations, and 50,000 snowmobile license applications, annually.

The Center's counter service averages about 200 customers per day; and as high as 600 daily during peak periods.

The License Center also handles fish and wildlife licenses (fishing, hunting, trapping, etc.) These are sold over the counter at the Center, and are also available through the 87 County auditors and their 3,000 agents. DNR's output of fish and wildlife licenses totals about 2 million annually.

The License Center produces about $11 million in annual revenue ($9 million from fish and wildlife licenses; $2 million from snowmobile registrations and boat licenses.

The License Center's records are now on microfilm, making the information readily available to Enforcement. There also are microviewers at the six regional offices; at the Crime Bureau in St. Paul; and at the Hennepin County Water Patrol office. Snowmobile and boat licenses and registrations can be checked at any of these locations on short notice.

The Center is also geared to furnish copies of license applications in five minutes upon demand, and not longer than a day by mail, another aid to law enforcement people.

Personnel

The Department restructuring included the centralization of the personnel function. The Personnel Office accepted its new role with the objective to improve the personnel services to the Department and its employees. Efficiencies in the processing of personnel transactions have been realized with further improvements to be implemented shortly.

The DNR for the first time became actively involved in labor relations on a formal basis. Included were unit determination hearings, collective bargaining, and finally a signed agreement in February, 1974, with the Conservation Officers Association, representing approximately 136 conservation officers. Council 6 of the American Federation of State, County and Municipal Employees is the exclusive representative of more than 1,000 Department employees and currently is engaged in negotiating with the state, along with other bargaining units, for an agreement in a statewide master contract. The Department is represented in this statewide bargaining team.

The DNR Affirmative Action Plan and Policy was adopted on July 1, 1973, reaffirming the Department's established policy of nondiscrimination in employment. An Internal Compliance Committee, composed of representatives from each of the six regions and the central office, was formed to prepare an internal grievance process, act on grievances, review and amend policies of the program, and act on other compliance matters. Positive recruitment efforts were initiated to attract minorities and females into the Department's labor mainstream. Minority resource groups and persons were solicited to assist in DNR recruitment efforts. Definite progress in minority hiring has been evidenced, but more significant advancement toward reaching the Department's established goals and timetables is expected.

Records and Office Services

The activities of this Section are numerous and varied, directed toward providing the essential services and assistance to the various operational units of the Department of Natural Resources, located in the main St. Paul Office and the Field Service Section; and providing informational assistance to the public.

These services include maintaining a perpetual inventory of DNR equipment, involving the licensing and insuring of all vehicles including cars, trucks, snowmobiles, boats and trailers; keeping a record of arrests and confiscations; maintaining the DNR reception desk; operating the mail room; dispatching the Department's motor pool cars; furnishing messenger service; and maintaining liaison with plant management. This is a continual operation performed by the staff of the Section.

Systems

Two projects of great importance to resource management were undertaken by DNR during this biennium. The Water Resource Data System, which was dictated by the last legislature, has had the first step completed. A data inventory of all known water records in State agencies has been prepared, and recommendations for further action have been submitted.

A feasibility study for a Statewide comprehensive Land Record System is currently being organized. Funding for the initial study was obtained from the Great Lakes Regional Commission and further support was requested in the 1976-1977 budget request.

The Statewide Comprehensive Outdoor Recreation Plan (SCORP)has been completed and is in operation. The Data in this file is being used by several government agencies, as well as DNR.

In the Resource management area, Deer Harvest and Deer Survey reports (by area) have been designed and programmed to provide management data.

Some progress has been made in enhancing the waterfowl research programs, but loss of key programming personnel has slowed further development. Additional data is being processed to further the study of grouse research.

The nursery tree sales system was updated to current processing methods, eliminating much of the manual handling. Timber sales processing currently is undergoing a reprogramming effort to produce a better management tool.

Methods and procedures were studied to provide an information base for the potential copper-nickel mining area in northeastern Minnesota. A previously developed system at the University of Minnesota was researched and modified and is now being used by the Minerals Section for Determining mining potential and environment impact for potential mining and as a tool to research current operation affecting our ecology.

Equipment changes by I.S.D. have required modification and handling changes for DNR watercraft and snowmobile licensing function. New forms were designed and procedures are being implemented converting from punched card to O.C.R. (Optical Character Recognition).

A study is also underway on the Game and Fish licensing procedures.

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