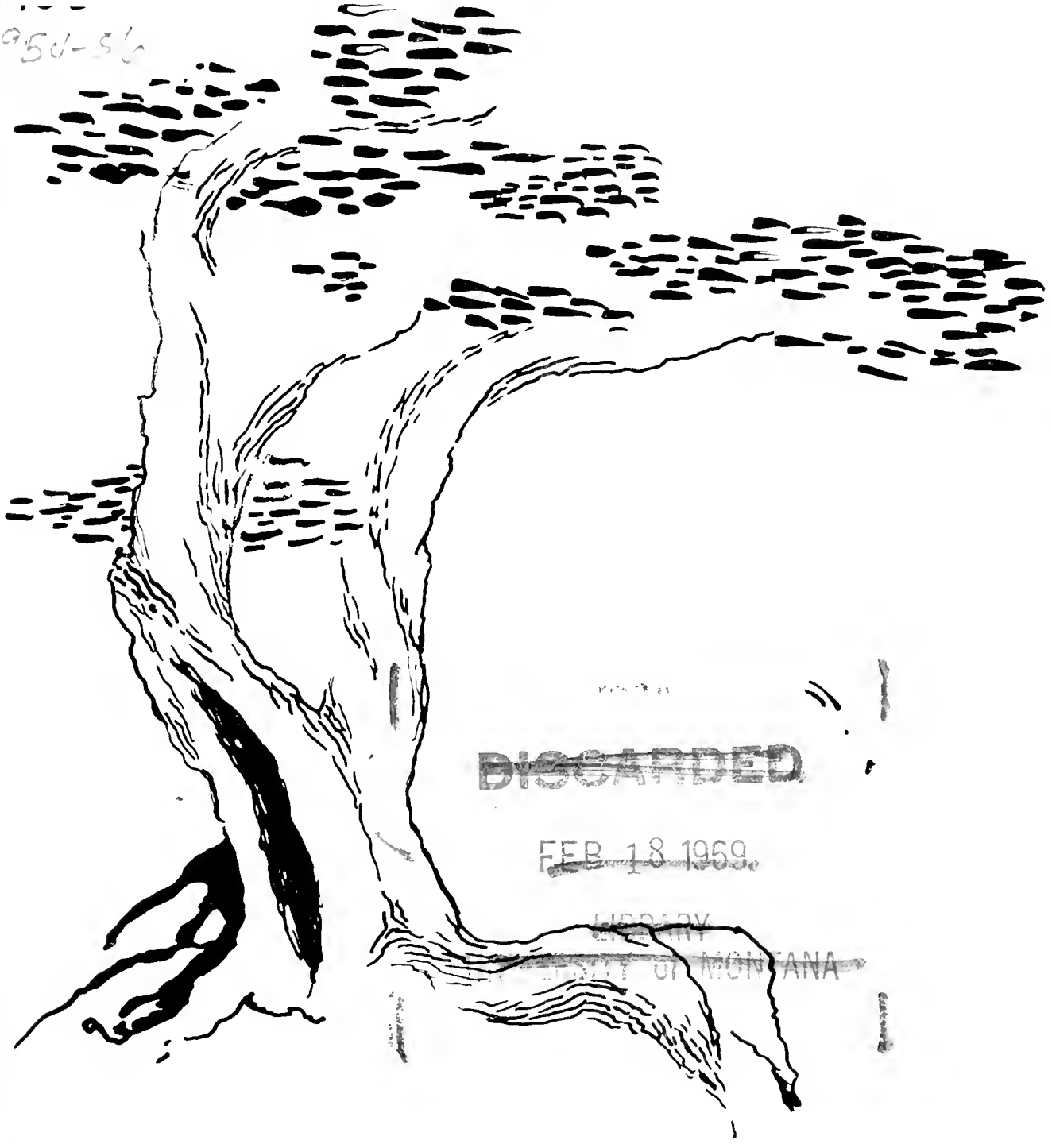
ennial Report



May 1,1954

April 30,1956

Montana Fish and Game Commission

STATE OF MONTANA

BIENNIAL REPORT

of the

FISH AND GAME COMMISSION

for

MAY 1, 1954 — APRIL 30, 1956

Published By The

MONTANA FISH AND GAME DEPARTMENT

Helena, Montana

McKEE PRINT.

FOREWORD

Management of Montana's wildlife resources developed into a major science and a growing industry during the past decade. This growth has become strikingly evident during the biennium covered by this report. A rapid increase in hunters and fishermen, starting with the first license sale in 1901, reached an all time high with a sale of 365,193 licenses in 1955. Outdoor recreation will continue in popularity and any intelligent plan for the future must recognize the necessity of supplying hunting and fishing to more and more individuals.

As pressures increase on wildlife resources, the management of these resources must be more precise and yet more flexible. Harvesting fish and game is essential to its management, but this must be done in conformance with scientific fact. These requirements indicate the necessity of having a staff of qualified and well trained employees with experience in many fields.

Meeting the technical problems of fish and game management are quite possible, but the more serious problem facing Montana's wildlife is habitat, a place for game and fish to live. Destruction of clear, clean water will result in proportionally fewer fish. No amount of artificial stocking can replace lost waters. Invasion of wilderness areas will automatically result in serious decreases of wilderness species of game. In fact, almost every move made by civilization has detrimental effects on fish and game.

The next ten years will almost certainly be the key to the future of hunting and fishing in Montana. If the environment can be maintained for that length of time, the wildlife resource will take its proper place as one of Montana's leading assets.

This report is a summary of the Montana Fish and Game Department's progress during the past biennium in meeting problems of the present and preparing for those of the future.

MONTANA STATEWIDE ESTIMATES OF BIG GAME HARVESTS
Supplement to the 1955-56 Biennial Report

INTRODUCTION: This summary has been prepared to answer inquiries as to the amount of big game harvested each year by Montana hunters. It is presented as a supplement to the biennial report since that report was in press prior to the preparation of this summary.

It is important that the reader recognize that these figures on a statewide basis are only rough estimates. These have been based on information volunteered by Montana hunters since the department does not have the authority, which is seriously needed, to establish checking stations at which all hunters would be required to stop.

In certain regions, kill figures are reasonably accurate; in other areas only very general estimates are possible.

Species	Estimated Legal Kill 1954-1955	1955-1956
Elk	12,989	14,402
Mule Deer)		
Whitetailed Deer)	81,989	100,000
Antelope	20,000	32,495
Mountain Goat	51	135
Moose	139	267
Mountain Sheep	39	26

STATE OF MONTANA

DEPARTMENT OF

FISH AND GAME

To the Honorable J. Hugo Aronson
Governor of Montana

Dear Governor Aronson:

In accordance with Montana law, we herewith submit the Biennial Report of the Montana Fish and Game Commission for the period May 1, 1954 through April 30, 1956.

Included in this report is a summary of the activities and progress made during the past two years, as well as a complete financial report covering this same period. You will note a cash surplus has been accumulated.

This reserve is essential as an operations fund in order to take full advantage of Federal aid money for fish and wildlife development. The department must completely underwrite such expenditures until project completion at which time reimbursement is received to the extent of 75% of the project cost.

The Commission also considers it good business practice to maintain a financial reserve for unforeseen contingencies.

It is hoped that this report will be of value to you in keeping abreast of the operation of the Fish and Game Department. It is also intended that this report may be useful to legislators, sportsmen, and other Montana citizens, all of whom have a very real and personal interest in this state's wildlife resource.

Respectfully submitted,

Ralph D. Shipley
RALPH D. SHIPLEY, Chairman, Miles City

H. W. Black
H. W. BLACK, Vice Chairman, Polson

Wm. T. Sweet
W. T. SWEET, Member, Butte

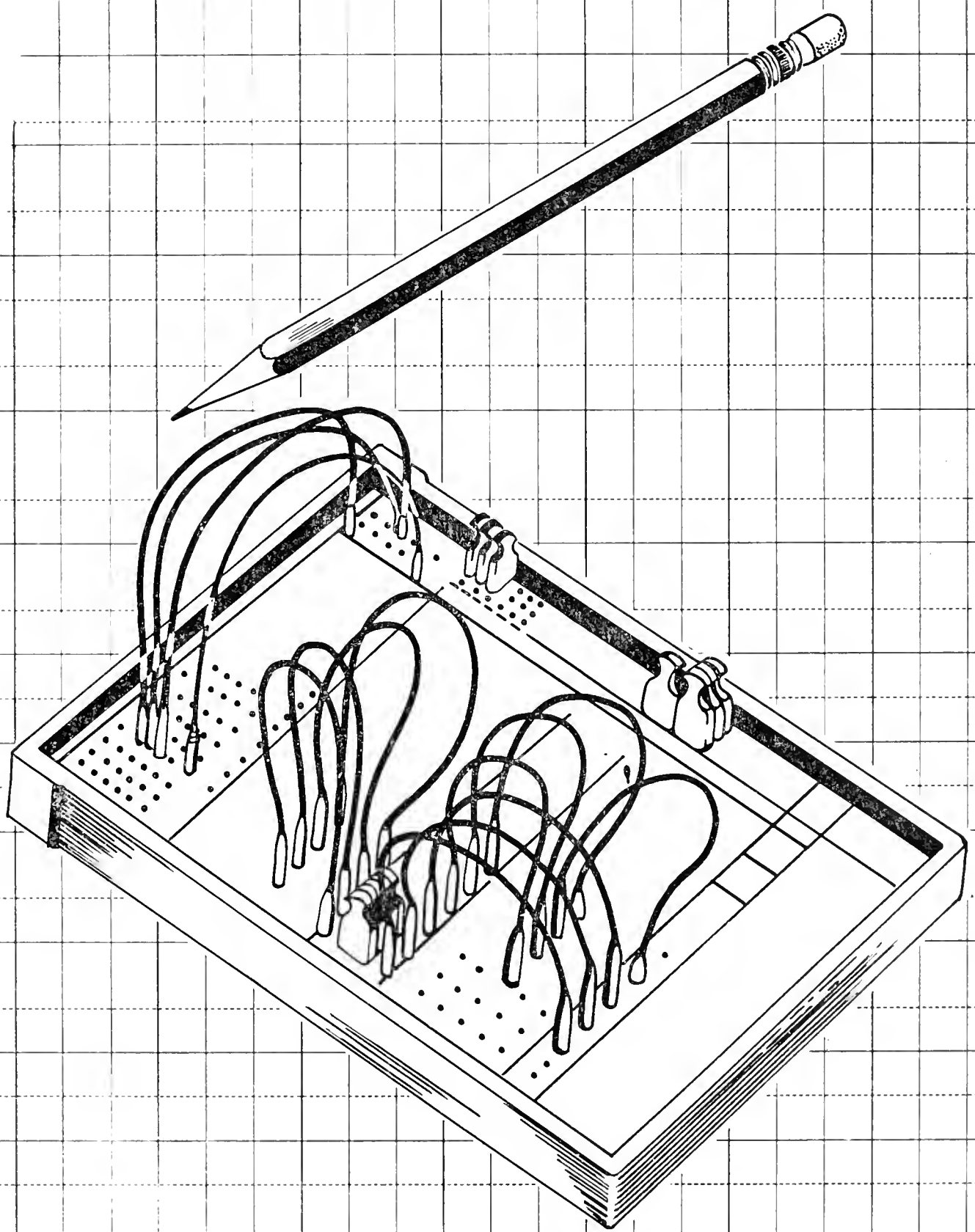
E. J. Skibby
E. J. SKIBBY, Member, Lewistown

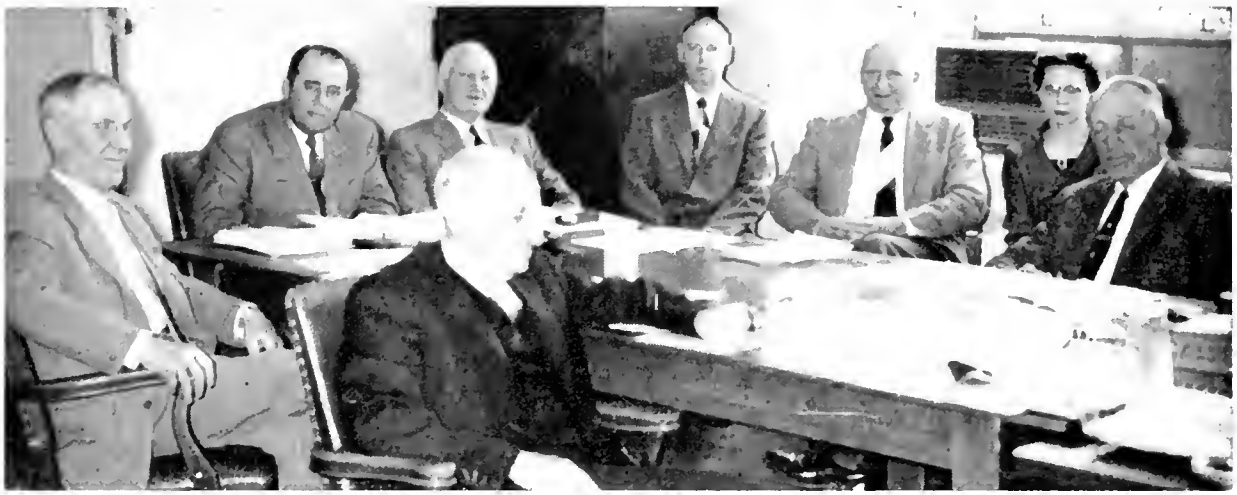
John T. Hanson Sr
JOHN T. HANSON, SR., Member, Malta

A. A. O'Claire
A. A. O'CLAIRE, Secretary

TABLE OF CONTENTS

ADMINISTRATION





The Montana Fish and Game Commission in session. Members and department seated (around table clockwise): William T. Sweet—Butte; John T. Hanson Sr., Malta; Commission chairman Ralph D. Shipley, Miles City; Vice-chairman H. W. Black, Polson; Deputy Director W. J. Everin; Director A. A. O'Claire; recording secretary Mrs. Effie Cutler; E. S. Skibby, Lewistown.

ADMINISTRATION

Managing the Fish and Game Department operations is a big business, and one that is continually growing with the increased demands of a growing population in the state. The number of people who buy hunting and fishing licenses has conformed to a ratio of one person out of every 3¼ to 3½ of the total estimated population for the past several years. This indicates the vast number of people who are directly interested in wildlife resource management.

The Fish and Game Commission is the agency responsible for a management program. Such programs adopted by the Commission are flexible and are ever adjusting to changing needs and conditions.

Big game animals such as deer, antelope and elk have responded to management measures and have increased in numbers even though there has been an increase in sale of hunting licenses. Seasons on these big game animals have been liberal with the intent to control populations in many areas.

In comparison with big game, the fisheries resources of the state have not fared so well. Increased fishing pressure has not been countered with an increase in fishing water habitat. Increasing demands on water for irrigation, hydro-electric and other uses have actually reduced the amount of water suitable for fish propagation.

As more and more knowledge is gained from wildlife research and actual experience, the application of this know-how results in sounder wildlife management programs.

The State Fish and Game Director is in charge of the day-to-day operation of the Game Department. He maintains a staff of personnel who assist with management and administrative functions in all fields of operation in the department. Many of the administrative details are accomplished at the district level by the seven district organizations which are geographically established to cover the entire state.

Administrative functions can be assigned to these categories: administration composed of fiscal controls, accounting and managing, law enforcement, production and distribution of fish, production of game birds, wildlife restoration management and development projects, fisheries management and research projects, and information and education.

Income

Funds for operating the department come from sale of hunting, fishing, trapping and other miscellaneous licenses. The trend in license sales has been a gradual increase year after year reflecting the growth in population of the state. The Resident Bird and Fishing License continues to be the greatest single source of income to the department. The increase of one dollar to the big game license making the license fee $3.00, which was approved by the legislature in 1955, has more than made up any loss of revenue because of discarding the $5.00 antelope permit fee.

BIG GAME LICENSE SALE—1954

Resident Big Game Licenses	121,712	@ $2.00 =	$243,424.00
Antelope Permits	20,886	@ $5.00 =	104,430.00
			$347,854.00

BIG GAME LICENSE SALE—1955

Resident Big Game Licenses	120,945	@ $3.00 =	$362,835.00

Sale of licenses to non-resident hunters and fishermen furnishes a substantial amount of revenue for operation of the department. The money spent by non-residents within the state in pursuit of hunting and fishing activities is important to our economy. Non-residents have aided management objectives by furnishing hunting pressure to help control both deer and antelope in sections of eastern Montana. A total of 2,623 special non-resident $20.00 deer permits were sold in 1955. During the same period non-residents bought 3,495 special $20.00 antelope permits. The sale of these licenses, in addition to the benefits derived from the other miscellaneous expenditures of non-residents and

their help towards control of game populations, has brought to attention the importance of non-resident hunting activity in sections of eastern Montana.

It is interesting to note that of the total hunting and fishing license holders, non-residents represent 20% and contribute 34% of the income from licenses to the department.

Federal Aid in Wildlife Restoration and Federal Aid to fisheries management and development projects continues to furnish funds for important segments of our work. These funds are used for fact-finding projects that are vitally necessary to obtain factual information for management. Fish rehabilitation projects, land acquisition for game range, waterfowl refuge and public access to hunting and fishing areas are some of the important activities financed by the Federal Aid programs. During the past two years $862,767.03 was reimbursed to the department for Federal Aid in Wildlife Restoration projects, and $137,043.12 was reimbursed for Federal Aid in fisheries projects.

Specialized equipment has been purchased to aid in the job of maintaining and improving Montana's wildlife resources. This earth moving machinery is used in developing waterfowl habitat and fishing areas.

Property Accounting

Throughout its fifty-five year history, the Fish and Game Department has accumulated land, buildings, machinery and equipment, all of which have been used in the operation of the department for fish hatcheries, rearing ponds, game farms, game ranges, waterfowl refuges, public access for hunting and fishing and for administrative purposes.

An annual property inventory is made to record the exact location, condition and type of equipment owned by the department. A value is placed upon the equipment and buildings for insurance purposes. A property accounting system has been in operation to show the day-to-day property status and transfers between units and employees.

The value of all property on the department's inventory for last year is estimated at $2,259,798.02.

Administrative Comments

Increased hunting and fishing activity has taxed the Fish and Game Department to keep up with demands of hunters and fishermen. Expanded programs in some fields of activity have been necessary.

Increased activity in the field has resulted in greater demands upon administrative functions in the Fish and Game office. Adequate space has not been available to the department in the State office building. This has resulted in crowding personnel and equipment into the allotted space but not without some loss of efficiency of operation.

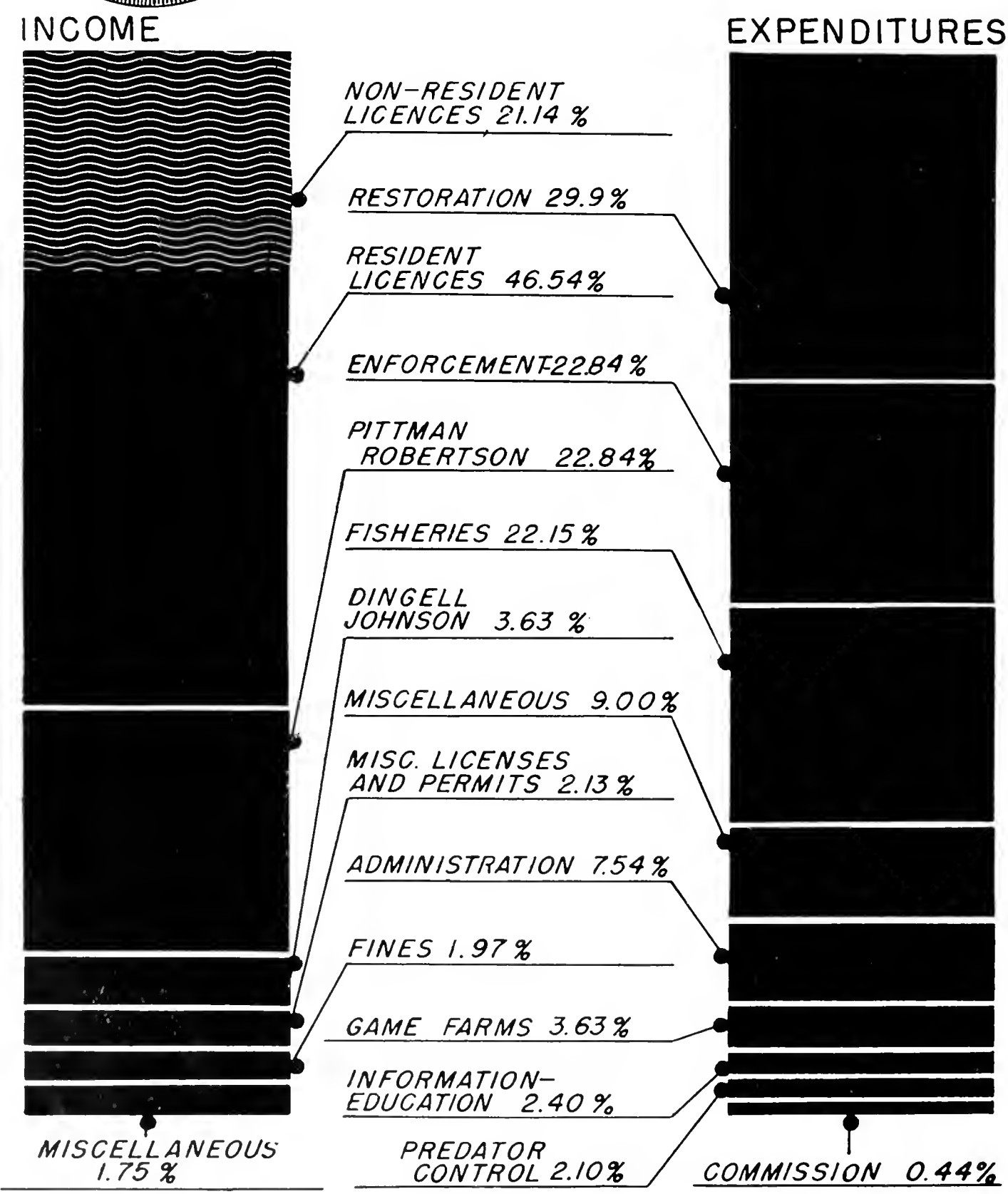
During the biennium, the department installed several electric computing business machines. Much of the department's accounting is done on these machines as well as selecting and addressing a sample of the holders of licenses for questionnaire purposes. The selection of applicants for special permits on moose, mountain sheep, mountain goat and antelope is accomplished by their use.

Of all the problems which arise in fish and game administration, one which has caused great amounts of correspondence, discussions and explanations is the processing of applications for license agent appointments. Because there is a great demand by business concerns to sell hunting and fishing licenses as a trade stimulator, it has been necessary to limit such appointments to a sufficient number in each area to sell the licenses required by the public. Increasing the number of agents beyond this number does not increase the sale of hunting and fishing licenses to individuals, but does increase administrative costs. The department is operated on income from license sales, and it is an obligation to the sportsmen of the state to use as much of this money as possible for management, protection and propagation of wildlife.

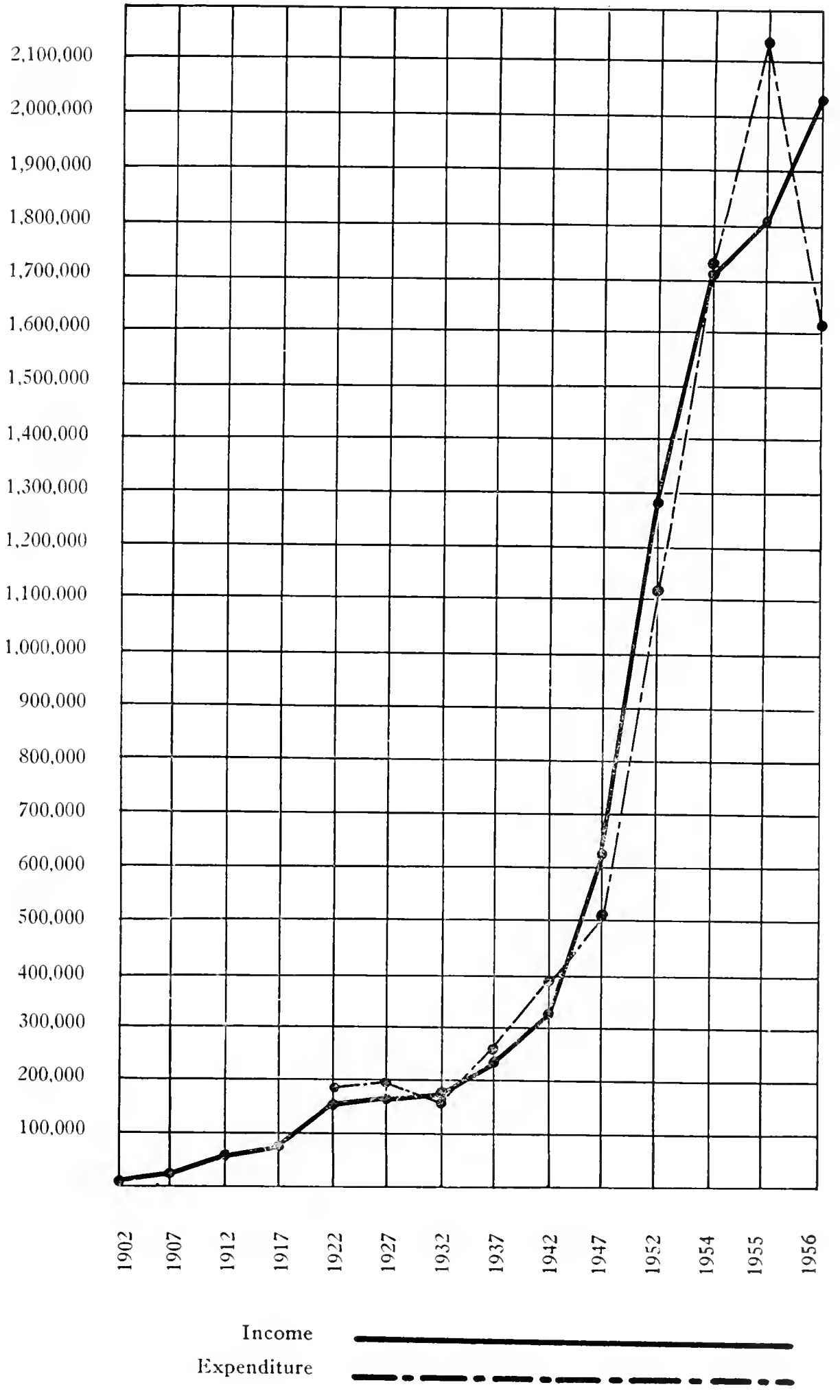
Another management problem, which takes time to adjust, involves the abandoning of some of the game preserves which have served their usefulness. If private lands are included in the area of a preserve, attempts to abandon the closure are often met with resistance from those land owners. Yet excessive game populations resulting from these game preserves cause agitation by adjacent land owners to control game numbers. Good game management predicates that many preserves should be abandoned to reduce game populations when too large numbers of game animals are endangering their habitat, and are focal points of game damage to surrounding private property.

INCOME & EXPENDITURES

May 1, 1954 — April 30, 1956

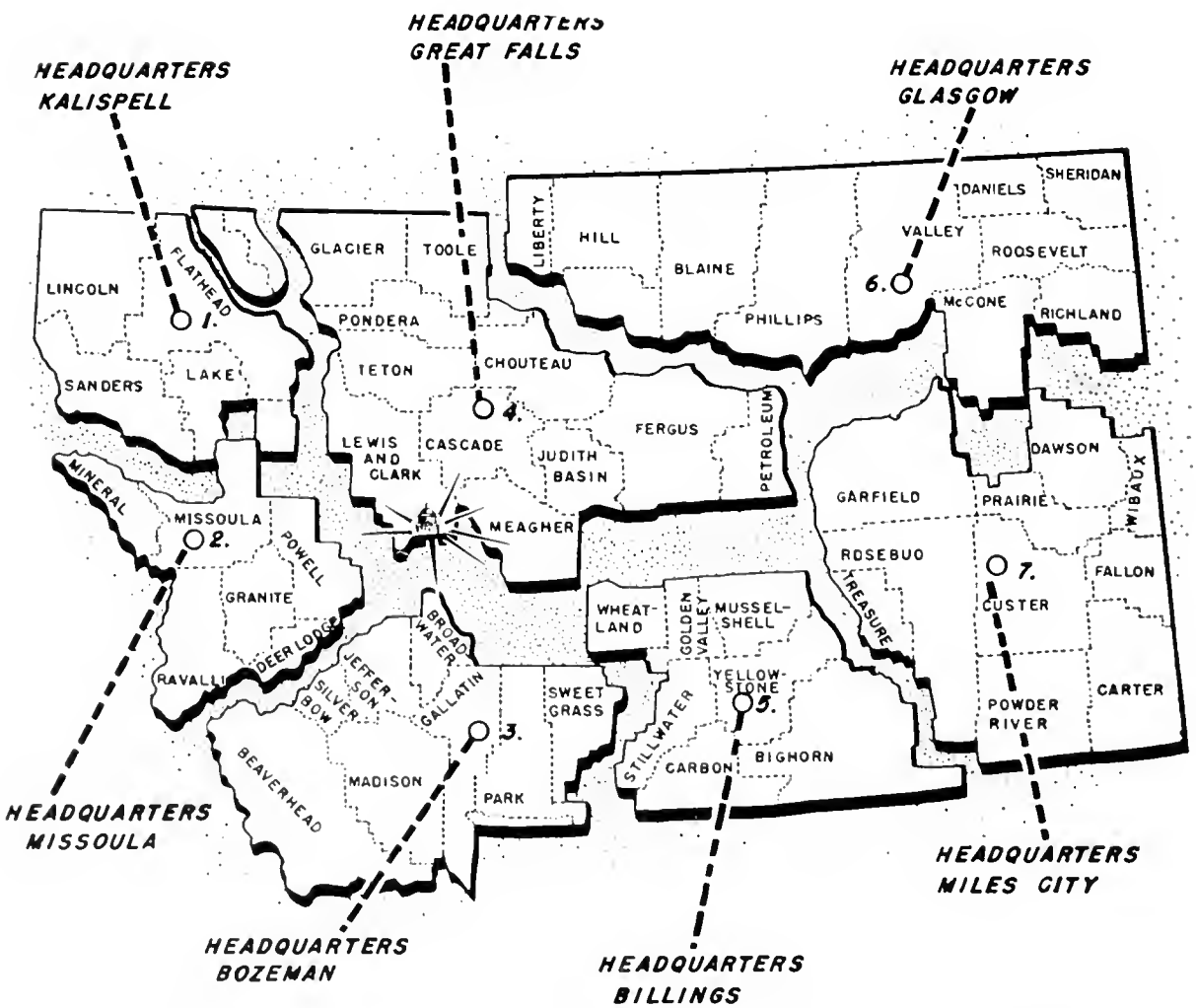


COMPARISON OF INCOME AND DISBURSEMENT
(1902 Through April 30, 1956)



DEPARTMENT REORGANIZATION

Complete reorganization in the field structure of Montana's Fish and Game Department was completed during the biennium. This plan, which started in 1946, is one of the major administrative advancements made by the department in its fifty-five years of operation. Changes were found necessary because of increased complexity of departmental functions and the difficulty of administering an area the size of Montana from one central office. Under this new plan, the state has been divided into seven districts with headquarters at Miles City, Glasgow, Billings, Great Falls, Bozeman, Missoula, and Kalispell. Many administration and operational functions are now handled on a district basis, which formerly were accomplished from the state office. All activities are, of course, under the over-all supervision of the department's Helena offices. De-centralization has resulted in more rapid and effective handling of fish and game business. Problems can be acted on quickly by men familiar with local conditions, and fish and game management can be correspondingly more effective.



Expanded map of Montana showing Fish and Game District boundaries and headquarters locations.

District Headquarter buildings are the center of district activity. Equipment storage as well as office and meeting space are provided in these efficiently designed structures.

A three-man team supervises the activities of each district with such additional personnel as is needed to carry out departmental projects. These three men represent the three major activities of the dpartment—game management, enforcement, and fisheries management. Each man has a separate area of direct responsibility, but all programs are coordinated. One of the primary objectives of the district organization is to initiate closer teamwork between all department divisions. This automatically results in an increase in effective fish and game management.

Headquarters buildings provide the nucleus for district activities. Offices and a meeting room are maintained for supervisory personnel, while space is provided for receiving the public and providing citizens with necessary information and literature.

In the buildings, which are "quonset" type construction, space is provided for storage of specialized and seasonal equipment, such as jeeps, boats, fish nets, electric shockers, snowshoes, as well as replacement items, like tires and office material. This factor alone has been an effective means of increasing efficiency and economy.

Use of pooled vehicles and exchange of man power are other factors making the district organization effective.

Buildings have been constructed at Kalispell, Missoula, Bozeman, Great Falls, Glasgow and Miles City. At Billings, the state game farm buildings are being utilized for headquarters.

District handling of fish and game business is proving an effective means of managing Montana's two-million-dollar wildlife business. As future demands for outdoor recreations increase, this new system will become increasingly important in managing the valuable fish and game resource.

RECOMMENDATIONS FOR LEGISLATION

1 SPECIAL NON-RESIDENT DEER AND ANTELOPE LICENSES.

The Fish and Game Commission was given authority by the Thirty-Fourth Legislative Assembly to issue special $20.00 non-resident deer and antelope permits for a period of two years. This authority expires on December 31, 1956.

During the 1955 hunting season, the numbers of non-resident special $20.00 licenses issued were:

Kind of License	No. Sold	Amt. Received
Non-Resident Deer	2623	$52,460.00
Non-Resident Antelope	3495	69,900.00
Total Received		$122,360.00

It is expected that the department will issue more special non-resident antelope and deer permits during the 1956 hunting season than were issued during 1955.

The additional hunting pressure and resulting harvest of surplus deer and antelope by non-residents has helped toward control of the population in southeastern Montana, but department field surveys indicate a need for continuing this program and enlarging the areas where such licenses can be issued. Therefore, it is recommended that the legislature enact legislation granting authority to the Commission to issue special non-resident $20.00 deer and antelope permits for as long a period of time as it is deemed necessary to keep these big game populations in balance with their range.

2. REPEAL SEC. 26-1114. CREATING BLACKLEAF GAME AND BIRD PRESERVE.

In May of 1955, a petition to abandon the Blackleaf Game Preserve in Teton County was received by the Fish and Game Department. The petitioners were landowners residing within the exterior boundaries of the preserve and who represented ownership of more than fifty percent of the land.

A hearing was held at Choteau, Montana, on July 16, 1955, on the petition. Several landowners who resided within the area testified that game animals including elk and deer had caused damage to agricultural crops on their property, and that game numbers had increased in the area and should be reduced. Several landowners in the area did not want the preserve abandoned, and some gave the reason for their stand that they did not want hunting on their property.

The Fish and Game Commission took action on the petition on July 18, 1955, and abandoned the preserve effective immediately as provided for in Sec. 26-127. The area was opened to deer hunting during the 1955 season.

This preserve was created in 1921 by an act of the legislature, therefore, the act creating the preserve should be repealed to remove the enactment from the statutes to conform with the action of the Fish and Game Commission.

3. REPEAL SEC. 26-1106. CREATING POWDER RIVER GAME PRESERVE.

The Powder River Game Preserve was created by the legislature in 1917. Since 1945, the Fish and Game Commission has recommended that this enactment be repealed for the reason that the preserve has served its usefulness and is no longer needed.

The Commission has abandoned the preserve as far as hunting regulations are concerned, but the statute still remains in the codes. This preserve contains over one-third of the total area of Powder River County, and antelope and deer have increased to the extent that game damage to private property has occurred for many years. It is recommended that the legislature repeal Sec. 26-1106 to remove this legislation from the statute.

4. HUNTER CHECK IN AND OUT STATIONS.

For many years there has been a definite need of legislation requiring hunters to stop at game checking stations which have been established by the Game Department to gather information for game management. Under existing checking station authorization, hunters stop and report on a voluntary basis. The Department has discontinued the placing of checking stations in some areas because the information gathered was not complete due to the number of hunters who failed to cooperate.

In managing big game in some areas, such as two-deer or two-antelope areas, accurate information which could be gathered from compulsory checking stations is necessary for immediate use during the current open season.

It is recommended that consideration be given to providing authority to the State Fish and Game Commission designed to allow the establishment of specific game checking stations. All hunters entering a general or a special area would be required to register in and out and give information needed for wildlife management, protection, together with record of wildlife taken.

LAW ENFORCEMENT

LAW ENFORCEMENT

Fish and game law enforcement is the oldest, and at present one of the better known phases of wildlife management, with prevention of violations as the main objective.

The game warden of yesteryear was a game warden and nothing more, with arrests his main objective. Today, he is a public relations man in a position to explain the department's objectives, work and services. He stands ready at all times to aid the sportsman by interpreting game laws and regulations, and by preventing the unscrupulous person from taking more than his share of the state's wildlife resources. As a public relations man, he is in the number one position to pass on to license holders progressive phases of game management and to further the interests of the Department.

Regulations and laws are imposed to keep pace with modern management. Some regulations offer protection to the more vulnerable species of fish and game. Other regulations are for the express purpose of effecting an adequate harvest. This phase of the management program is enforced by warden personnel. Every Department activity touches or affects the warden and his work.

The warden is very active in both adult and youth conservation education through the media of schools, Scouts, 4-H groups, sportsmen clubs, civic organizations, and radio and television programs.

Aircraft and radio communications have modernized the enforcement divisions, field force with an increase in effectiveness and efficiency.

WARDEN RECRUITING

With the ever increasing and diversification of tasks performed by wardens, it is important that great care be taken in the selection of Montana's game wardens. The day of pinning a badge on a recruit and turning him loose on the hunting and fishing public without benefit of any training, is passed. Today, much emphasis is being placed on schooling and initial training of prospective wardens.

The work of a conservation officer has a definite appeal to most young men. Consequently, applications for warden employment have increased. Warden aspirants must pass written and oral examinations. After appointment as a warden, a probationary period of one year is required, under the direction of a district warden supervisor. Upon the successful completion of this training period, the warden is then assigned the powers and duties of a district warden.

In Service Schooling in the technical aspects of Fish and Game Management is a part of the modern game wardens training.

EQUIPMENT

The first essential of any modern business is up-to-date equipment. The working potential of any organization is greater when proper tools are available.

During the biennium, each warden was issued a state-owned vehicle equipped with a two-way radio. Each of the seven district headquarters have either been assigned a radio-equipped airplane, or one has been made available for use in the district. These planes are used to a great extent for enforcement work. In addition to warden travel cars, four-wheel drive units are available for use in the rougher areas of the state.

The use of modern equipment and techniques has been of noticeable importance in the prevention of fish and game violations.

DISTRICTS

The state has been divided into seven administrative districts for a number of years, but actual organization became a reality at the beginning of the biennium. The purpose of this plan is to better serve the general public in the immediate area by decentralizing administrative detail. Also, a more efficient law enforcement program was effected through correlation of warden activities in the district.

District installations have been centrally located, taking into consideration the area and population served by the Department. These buildings furnish office space for supervisory personnel as well as storage for special equipment assigned to each district.

FISH AND GAME VIOLATIONS
By Warden Supervisor District

	May 1, 1954 thru April 30, 1955	May 1, 1955 thru April 30, 1956
District No. 1	163	152
District No. 2	155	185
District No. 3	209	296
District No. 4	138	263
District No. 5	136	137
District No. 6	52	63
District No. 7	33	56
TOTALS	886	1152

FISH AND GAME VIOLATIONS
Classified as Follows

	May 1, 1954 thru April 30, 1955	May 1, 1955 thru April 30, 1956
Fishing Violations (All Types)	377	364
Big Game Hunting (All Types)	247	479
Trapping	13	48
Improper Licenses	155	164
Game Bird (All Types)	94	97
TOTALS	886	1152

I. & E. DIVISION

Report on Montana Fish, Game License Sales Shows Increases

A report by the Montana Fish and Game Department showing Montana's 1955-56 hunting and fishing license sales indicates the ever-growing popularity of these sports.

Total license sales for the past year were 365,193 while the 1954 season total was [illegible]. The report shows sales [illegible] license categories over last year. The decrease in total [illegible] of the antelope permits to the resident and non-resident big game license without extra fees.

The report shows the five counties with highest total license sales were: Cascade, 31,016; Yellowstone, 30,273; Gallatin, 26,335; Flathead, 24,743 and Missoula, 21,752.

Montana residents purchased 189,449 bird and fish licenses in 1955, an increase of approximately 3,000 over 1954. Non-residents were issued 36,671 6-day fishing licenses, about 3,000 more than last year, and 4,134 non-resident seasonal fishing licenses, about 100 more than in 1954. Cascade county led in the sale of non-resident fishing licenses in the state, where [illegible] latin county led in resident fishing [illegible] were Cascade, 31,016; Yellowstone, 30,273; Gallatin, 26,335; Flathead, 24,743 and Missoula, 21,752.

Montana residents purchased 189,449 bird and fish licenses in 1955, an increase of approximately 3,000 over 1954. Non-residents were issued 36,671 6-day fishing licenses, about 3,000 more than last year, and 4,134 non-resident seasonal fishing licenses, about 100 more than in 1954.

Cascade county was first in fish license sales in the state, where 18,551 were sold. Gallatin led in the sale of non-resident fishing licenses, with 1,050 6-day and 1,047 season licenses sold.

Game Licenses

Montana's game license sales showed an increase of approximately 1,000 over last year. Residents purchased 2,180 $1 licenses, about 600 more than last year. Yellowstone county led in the sale of resident hunting licenses, and the highest resident licenses sold in Clark county.

[illegible] permits for the fall hunting season. Major increases in puddle duck populations were found, which include the species common to Montana, mallards, pintails and teals. Numbers of snow and Canada geese also increased over previous years, according to the reports. The January, 1956, waterfowl survey in the central flyway was taken in 10 states and Mexico, and covered all important wintering areas. Of the 474 observers air and ground crews [illegible] 14 state and [illegible] 300 hours and [illegible] 30,000 [illegible]

[illegible] reports emphasized that fowl production during the summer months will determine the [illegible] 30 per cent increase indicated by waterfowl, wintering in the central flyway. [illegible] reports were made in meeting in Scotts Bluff, [illegible]

Fishing Season Opens Sunday

Montana's 1956 fishing season will officially open on Sunday, May 27 at 5:00 o'clock a. m. standard time this year. The regular season will be open from May 27 to November 30, both dates inclusive in all waters unless otherwise specified in the fishing regulations.

This year fishermen will find waters in county streams particularly high and muddy, due to

INFORMATION AND EDUCATION

One of the major problems in working with wildlife resources is the development of effective means of bringing before the public facts and needs of these resources. Unfortunately, there is a considerable lack of down-to-earth reasoning about the management of fish and game. Generally this is a result of misinformation, lack of information, or in some cases, plain selfish interest.

Wildlife management is handicapped largely by the fact that so many people fail to realize the complexity of this new, but up-and-coming, science. Too few realize that fish and game are products of the land just as much as wheat, cattle and forests. Not many persons who purchase a hunting or fishing license stop to consider that a given amount of land or water will maintain only a certain amount of game or fish. People generally must come to realize that wildlife require proper habitat. Fish need clear, unpolluted water, game need plenty of food, water and cover. Without these, no amount of artificial re-stocking can supply future hunting and fishing demands. These and a great many other problems complicate the effectiveness of getting the greatest use of the wildlife resource.

Since 1901 when the first fishing license was sold, there has been a rapid increase in the sports of hunting and fishing. Upward trends in population and more leisure time indicate clearly that these activities will receive ever greater popularity in the future. This resource can be maintained at a highly productive level only by following a flexible management program based on scientific fact. Such a program will succeed only if it has the support of a citizenry that understands the problem.

Bringing accurate information to the public is part of the job of every employee and it is the specific duty of the Information and Education Division.

The program of the Information and Education Division is divided into five major activities—adult and youth education, information, publicity, and general services.

Department personnel assisted the State Highway Advertising Division at travel and Sport Shows in an effort to attract hunters to harvest surplus deer.

PUBLICITY and activities that might be considered promotional in nature have automatically increased in this division as a result of interest in Montana's out-of-doors. Approximately 30,000 inquiries on Montana's hunting and fishing are handled each year by this division. These requests for information come from every state and many foreign countries, and are increasing in number each year. Hunting and fishing regulations, maps, and other literature are included in these mailings.

In an effort to encourage non-residents to hunt in Montana and help harvest surplus deer and antelope, the Department has sent representatives to Sport Shows in Dallas, Minneapolis, Des Moines and Spokane. This has been a cooperative project with the State Highway Advertising Division. Cooperation has also been extended to the Montana Chamber of Commerce in conducting Outdoor Writers' Tours. At the suggestion of the I & E Division, a meeting was held by the groups interested in promotion of Montana's hunting and fishing to coordinate all such activity.

INFORMATION SERVICES include the use of the various media which provide the public with current news of department activities, regulations and facts of interest to sportsmen generally. Daily releases are made to wire services as newsworthy items occur and each week all of the news of that week is summarized and mailed to 300 weekly newspapers, radio stations, columnists and others needing such information.

The Department's free quarterly publication, "Montana Wildlife," has greatly increased in circulation during the biennium and now goes to 8,000 families and is read by an estimated 36,000. It is placed in all Montana schools and is sent to any person making written request. Features in the magazine discuss in detail the activities and program of the Department.

Written articles and information are supplied various state and national publications upon request. This division also assists in editing technical reports of the Department.

Approximately 120 radio programs and two television shows were given by the Division during the biennium. Future plans include expansion in TV programs.

YOUTH EDUCATION includes classroom instruction, conservation camp programs, junior sportsmen's clubs and work with teachers at workshops. This activity has been restricted by personnel

Instruction in firearm safety as well as courses in conservation education are presented by Fish and Game personnel to young Montanans so they will understand and appreciate the sports of hunting and fishing.

limitations, but expansion is believed essential if the sportsmen of tomorrow are to have a full insight into wildlife management. One of the objectives of the youth program is to bring appreciation of the out-of-doors to Montana's young people. This, together with an understanding of the needs of natural resources, will do much to assure the future of the state's valuable outdoor assets.

Instruction consists of a basic approach to all conservation with emphasis on the fact that good land produces good wildlife crops, and poor land produces poor wildlife crops. Classroom instruction is based on a three-hour lecture course with suitable materials and visual aids.

ADULT EDUCATION is varied and includes work with sportsmen and civic clubs and all interested groups or individuals. One valuable facet of this effort is the forum program conducted as an extension service by Montana State University and Montana State College with finances supplied by the Montana Fish and Game Department. This is reported as a separate section.

The Department has adopted the philosophy that citizens provided with a basic background and accurate information will be the strongest supporters of a good management program.

GENERAL SERVICES include the many activities that cannot be classified, but which contribute to the overall wildlife information and education effort.

The Department's live wildlife exhibit grows in popularity each year. A regular schedule of fourteen state and county fairs is followed each year, and about 150,000 persons view the collection of native Montana fish and game. Conflicting fair dates restrict the extent to which this feature can be expanded since equipment and the number of animals limit the exhibit to one major unit. Appreciation of Montana's wildlife is stimulated at each showing.

An In-Service Training School for law enforcement personnel was developed through the cooperation of Montana State College. This annual school is held to keep field men informed on new and changing game management methods and is essential in keeping a staff operating at maximum efficiency.

A technical library is maintained by the Division in which current writings and reports are available as references to all employees. An inter-department news letter is prepared to keep employees posted on the activities of various sections of the organization.

Special emphasis has been directed toward making outdoor sports as safe as possible. Pamphlets, moving pictures, and special instruction is offered on firearm safety. Care of wild game has also been given extra attention, as well as how to get along in the out-of-doors.

Photography in the preparation of moving pictures, colored slides and illustrative black and white pictures is handled by the I & E Division. Also a lending library of outdoor moving pictures is available to sportsmen's clubs, schools and civic groups.

Expansion of the Department's Education and Information work is expected in the future as the public demand for this service has increased in all parts of the state. The Department has a definite obligation in contributing to the state-wide effort to promote interest and education on all conservation matters. This will be met by all fish and game employees and the I & E Division.

No citizen can overlook the fact that the prosperity of the state and nation is tied directly to our natural resources, and basic education is an essential in creating the knowledge necessary to support and maintain this resource.

WILDLIFE EDUCATION EXTENSION PROGRAM

In an effort to expand educational efforts in the field of wildlife conservation, the Montana Fish and Game Department entered into a cooperative program of Adult Education during the past biennium. Under the terms of an agreement between the department and Montana State University and Montana State College, the educational institutions conduct forum type lectures on basic wildlife subjects with financial aid from the game department. The major purpose of this program is "to develop a better understanding of advanced management of the natural resources base to the end, that a more favorable environment for wildlife species may be attained and maintained."

The Adult Education program was developed at Montana State University in 1949 and adopted by the Montana Wildlife Federation in 1952. Since the goal of this series is to further the objectives of good wildlife management, the Fish and Game Commission agreed to underwrite the costs of conducting the work. Under the existing memorandum of understanding, $7,500.00 is deposited with the treasurer of each school. This fund is drawn upon to pay salaries and travel expenses of the wildlife extensionists at each institution.

The ten-lecture course is designed to provide Montana citizens with a fundamental understanding of natural resource management. It includes discussions of all matters basic to the understanding of wildlife needs, including soil, water, vegetation, and ecology. Sportsmen who have taken advantage of the forum courses obtain a background needed to understand and support the technical approach to modern fish and game management.

Since the program has been financed from Fish and Game funds, the forum has been given at Libby, Kalispell, Big Fork, Polson, Darby, Whitefish, Columbia Falls, Thompson Falls, Anaconda, Butte, Deer Lodge, Billings, Hysham, Miles City, Sidney, and Glasgow.

In addition to the regularly scheduled forum series many lectures and special talks are given by the extension personnel at civic meetings, schools, sportsmen's clubs, and on radio and television.

The impact of this series is being felt not only in Montana, but has also gained national recognition. Qualified personnel with the backing and facilities of the State University and State College have added materially to the knowledge of persons interested in the management of Montana's wildlife resources. The extension program of Conservation Education is considered a very far-sighted effort of the Fish and Game Department.

RESTORATION

WILDLIFE RESTORATION PROGRAM

With the end of this biennium, the Montana Fish and Game Commission has taken advantage of the Wildlife Restoration program for sixteen years.

This Division was formed following legislative assent to the Wildlife Restoration Act (Pittman-Robertson) in 1941. The monies allotted to the various states for wildlife purposes under this Act are obtained through an excise tax (11%) on sporting arms and ammunition. The amount that each state receives is based upon the number of licenses sold and the area of the state. In developing the program, the Montana Fish and Game Commission pays one-fourth of the cost, the remaining three-fourths is paid from the funds derived from the excise tax.

The activities are originated by the State and carried on by State personnel. All land or equipment obtained becomes the property of the State. That the projects undertaken are substantial in character and will directly benefit wildlife is the chief interest of the administering agency, the U. S. Fish and Wildlife Service.

The activities that can be carried out under this program include habitat development and maintenance, fact finding or wildlife research, and acquisition, which consists principally of obtaining big game winter range areas and waterfowl marsh land. Following an amendment to the Act, passed during the summer of 1955, various aspects of game management may also be included under the program.

Since this division has become part of the Montana Fish and Game Department's organizational structure, a great many important wildlife activities have been undertaken which would have been impossible on the State budget alone. With the recent organization of the State into management and administrative districts, Wildlife Restoration funds have become increasingly important in furnishing the districts with a biologist staff to aid in necessary fact finding and management.

Winter game ranges obtained under the program several years ago have shown increasing values in the maintenance of important big game herds. Winter use is being concentrated on these areas set aside for game. Previous heavy use of adjoining private lands has been overcome or materially lessened.

The trapping and transplanting of various species of big game, game birds and furbearers has represented a major aspect of the program through the years. In this way, a more uniform distribution of desirable game has been obtained on a statewide basis.

Big Game

It has been interesting to observe the steady upward trend indicated by several of the important big game species in the State. The following tabulation gives the estimated statewide population for 1945 and 10 years later in 1955:

Ten Year Comparison in Numbers of Montana's More Abundant Big Game Species

Big Game Species	Estimated Population Statewide* 1945	1955
Elk	29,100	51,700
White-Tailed Deer	34,200	69,200
Mule Deer	88,000	197,900
Antelope	25,200	59,300

*Figures have been rounded off to nearest hundred.

Other species including moose, mountain goat, mountain sheep and grizzly bear have indicated a more stabilized population during this period. The rapid increase, particularly among deer and antelope, has necessitated several important changes in big game regulations throughout this period. Those that have been of particular interest during the biennium have consisted of an almost statewide application of either-sex deer hunting. More than one deer to the hunter has been authorized in areas indicating the most serious winter range depletion. An Act passed by the last Legislature has made it possible to issue $20 licenses to out-of-state hunters in areas where the increase of deer was not being harvested by local residents. This legislation has also made it possible to more adequately harvest the more-rapidly increasing antelope herds, particularly in the southeastern section of the State. These regulations have increased the take by hunters and have thus aided in balancing deer and antelope numbers with available forage.

Serious problems of use by game animals of private lands have also been improved during this period. Elk hunting regulations, although differing in no important respect from those of former years, have been carefully arranged to overcome local problems of heavy range use.

The hunting under special permit of the less abundant big game species represented an important aspect of the management program during the biennium. During the past year, 338 permits were issued for moose, 225 for goats and 58 for mountain sheep. The grizzly bear has been hunted during the period under the same regulations that have been in effect for several years. The chief protection of this rare and important big game species has chiefly consisted of the remote wilderness type habitat in which they are found. The dis-allowance of a spring season for grizzly bear a number of years ago is felt to be one of the more important forward steps in the management of this animal, along with the retention of an important share of his wilderness-type habitat.

Game Ranges

Experience gained through the biennium has added further information regarding the importance of the several big game winter ranges in the management program of the State. The Sun River Game Range,

Elk on the Sun River Game Range are provided winter range necessary to the survival of this important herd.

lying in the foothills northwest of Augusta, has wintered up to 3,000 head of elk during the period. Adequate forage and a lack of snow in this important area has represented an important factor in the maintenance of this large and important elk herd. This was very clearly demonstrated during the past winter when unusually heavy and severely-crusted snows in the back country made wintering conditions for big game extremely difficult at higher elevations.

The Game Ranges in the Blackfoot-Clearwater area, as well as on the Upper Judith River drainage in the Little Belt Mountains and in the Gallatin Canyon represented vitally important segments of winter range for other major elk herds.

A purchase of winter range in the Bear Creek area of the Madison Valley will greatly aid in the management of elk from the Madison and Gallatin drainages—use of private lands in the Bear Creek area by elk and deer will be materially relieved.

Trapping and Transplanting

The trapping and transplanting of big game in Montana during the past two years has been confined to Rocky Mountain Goats and Big Horn Sheep. There were eight mountain sheep trapped on Wild-horse Island in Flathead Lake and moved to the Bull Mountain Range in Jefferson County. This Range has an interesting history of Bighorn

Rocky Mountain Big Horn Sheep captured in regions of abundance are transplanted to new areas in an effort to increase the range and numbers of this fine big game species.

Sheep. The last, however, was apparently killed out of the area near the turn of the century. A plant of 16 mountain sheep was made in the Sixteen Mile drainage in northern Gallatin County during the biennium, and 13 mountain sheep were placed in the Kootenai Falls Area in Lincoln County.

Two areas for further mountain sheep introductions were selected, the Stickney Creek, Sheep Creek area, south and east of Cascade in Cascade County and the Blue Mountains in Custer County, east of Miles City.

Mountain goats were traded to the State of Wyoming for a plant of Merriams Wild Turkeys. In addition, 12 mountain goats were introduced into the Tobacco Root Range, northeast of Sheridan in northern Madison County. These animals were taken from a trapping site in the Pioneer Mountains, west of Melrose in Beaverhead County.

Upland Game Birds

The upland game birds in Montana fall into two types—the native birds including several species of grouse, and the introduced or exotic species, including the Ring-necked Pheasant, Chukar Partridge, Hungarian Partridge and Merriams Turkey.

Native grouse populations in the State have been noted to fluctuate considerably from year to year. These increases and decreases in numbers seem to be somewhat independent of hunting pressure. A moderate population of native grouse during the reported biennium has allowed hunting of Blue, Ruffed and Franklin grouse, or "Fool Hens," throughout most of the mountainous section of the State. The Prairie Grouse, consisting of the Sharp-tailed and Sage Grouse, have been hunted during the same period on the majority of their range in Central and Eastern Montana. Management of these native grouse at the present time consists chiefly of the manipulation of seasons and bag limits.

Of the exotic species, the Ring-necked Pheasant has apparently reached a moderate high in numbers throughout much of its range in Montana and has presented reasonably good hunting during the past two years.

The Hungarian Partridge, although introduced into Montana a number of years ago, has not as yet taken a place as a major game bird in this State. Hunting seasons, however, have been possible throughout most of its range.

The Chukar Partridge has been introduced from Southern Asia during the more recent years. Up to the present time, approximately 20 major plants have been made. Field observations have indicated a fair degree of nesting success. It is difficult as yet, however, to determine the degree of establishment of this desirable game bird in Montana. From the present planting program it has been determined that the birds tends to thrive in the more arid rocky sections of the State. If successful establishment is obtained, it will fill an important niche in the game bird habitat in Montana.

Transplanting wild Merriams turkeys in Montana may provide hunting of a new game bird. Initial results are promising.

Two plants of Merriams Wild Turkeys were made in Montana during the biennium. This represents the first major effort to establish this western strain of wild turkeys in Montana. One plant of 18 birds, secured from the State of Wyoming, was made in the Long Pine Hills in the northeastern corner of Carter County, east of Ekalaka on January 27, 1955. Twelve turkeys, obtained from the State of Colorado were introduced into the Judith Mountains, northeast of Lewistown on November 13, 1954. Both plants have been watched closely since their introduction. To date, the plant in the Long Pine Hills is showing excellent progress. The Judith Mountain plant has indicated a slower rate of increase. An area in the Fort Peck Game Range, along the Missouri River Breaks in northern Garfield County has been tentatively selected for a third planting site for this important game bird species.

Waterfowl

The waterfowl program in the State has assumed two basic aspects. The gathering of sound information, through surveys and investigations, on which we can base our management is primary. The second is the development of areas for waterfowl production and public hunting.

Regulations governing the harvest of waterfowl are based on the most up-to-date and accurate information available. Montana is situated in the Central Flyway for waterfowl management. Montana, as well as the other states in the Central Flyway, have organized into a Flyway Committee for the purpose of pooling information. This procedure is a cooperative effort by states to supply the best possible

information on the status of the waterfowl in the flyway. Data are gathered by each state on such things as breeding ground populations, production, hunter kill and winter populations. The effectiveness of supplying sound data on waterfowl throughout the flyway has been apparent in the recent relaxation of regulations governing the length of the season. It is proposed that the Fish and Game Department continue gathering reliable data on the status of the waterfowl population and work with the Central Flyway Committee in order to secure the best seasons possible for Montana waterfowl hunters, in keeping with good management.

The problem of the general public finding a place to hunt has not become a major consideration in Montana. However, the problem is developing. In order to insure the public the opportunity to hunt, at least on a limited scale, the Department has purchased some lands for game bird development. These lands are being developed to provide habitat for both game birds and waterfowl. The public use of these areas has indicated that they have tremendous potential value in providing hunting and aesthetic recreation.

FREEZEOUT LAKE (GREENFIELDS)

Freezeout Lake, in Teton County, is the largest waterfowl management area being developed by the State Fish and Game Department. The project area includes approximately 10,000 acres.

Freezeout is potentially one of the finest waterfowl areas in the nation—comparing it to areas of similar size throughout the west.

Development of this combined waterfowl management and public hunting area was begun in 1953. Steady progress is being made toward its completion.

During the 1955-56 biennium, major dike construction was begun on the project. As a result of this construction, shallow water areas will be impounded behind several low, earth dikes. These ponds will lie adjacent to the main lake and will provide marshland essential to both waterfowl and hunting.

Freezeout is also known as Greenfields Lak because of its association with the irrigation project. The lake has long been an important resting stop for ducks and snow geese—during both the spring and fall migrations. Native waterfowl have been produced here in limited numbers and there has been considerable hunting on the area in past years.

During the 1940's, Freezout Lake became a problem. It had no outlet and as a result became an expanding sump for waste water from the Greenfields Irrigation project and local runoff. The elevation and surface area of Freezout was gradually increasing. In 1952 and again in 1953, excessive natural runoff water greatly increased the surface area of the lake—it flooded adjacent private lands, a branch line of the C. M. St. P. & P. Railroad and U. S. Highway No 89.

At this point the Montana Fish and Game department entered into a cooperative agreement with the Greenfields Irrigation District. The objectives of the agreement were to develop the lake as a waterfowl management area and at the same time alleviate the flood condition

Freezeout Lake showing drainage ditch constructed in this largest waterfowl habitat development project yet undertaken by the Fish and Game Department.

The development of the combination waterfowl management and public hunting area at Freezeout Lake, includes five major steps.

1. Acquisition or control of lands necessary to the project.
2. Assurance of an adequate source of water.
3. Construction of the outlet channel.
4. Dike and pond construction for marsh development.
5. Management of the land, water, vegetation, waterfowl and public hunting.

1. Acquisition

The Montana Fish and Game Department acquired control of lands essential to the project prior to development. About two-thirds of the area were public lands set aside for sump use. These lands were placed under State administration by agreement with the Greenfields Irrigation District and the Bureau of Reclamation. Most of the remaining lands were purchased by the Fish and Game Department. This included waste land, grazing land and some crop land.

2. Source of Water

The major source of water for the diked impoundment at Freezeout Lake will be waste water and drainage water from the Greenfields Irrigation Project. This is supplemented by a considerable flow of natural runoff water which enters the lake from the surrounding heavy soil basin.

These waters, under management, will now be put to beneficial use where previously they were causing material damage.

3. Outlet Channel

Construction of an outlet channel was the third step in the development program. The channel was needed to drain off excess water and to control the main lake at an operating elevation approximately seven feet lower than the flood elevation. This was a major undertaking.

The construction of this outlet channel at Freezeout Lake was practically completed by the end of this biennium. Actual earth excavation was begun at the Teton River end of the channel, on August 6, 1953. On July 1, 1955, the flow of water was started from the main lake. The channel now extends eight miles north from Freezout Lake to the Teton River. The Freezout end of the channel has been repeatedly extended into the lake, as the lake is lowered. Progress toward final completion of the channel has been governed by the rate the main lake drains.

4. Dikes and Ponds

Approximately eight miles of low, earth dikes have been constructed at Freezeout Lake. Nearly half of this was accomplished by utilizing the spoil banks of the outlet channel. The eight miles of dikes represents considerably more than one-half of the total to be constructed on the area. Most of the dikes will have a 5:1 side slope on the pond side and are being furnished with control structures to facilitate water level management in each pond. Water depth at the dikes averages about two feet.

A number of islands are being constructed while the pond areas are dry. These will provide ideal nesting areas and are especially needed for Canada Goose nesting.

Freezeout Lake is an important key as a nesting and resting area for thousands of snow geese and other waterfowl

5. Management

The objective of management at Freezeout is to obtain maximum wildlife use from each project area. This necessitates development designed to provide the best in food, nesting cover and brooding areas. This in turn will provide good hunting cover.

Freezeout Lake was limited in value in its undeveloped state because little marsh vegetation could establish itself in the expanding, uncontrolled, wind-swept waters. Nesting cover on the land surrounding the lake had been reduced by over-grazing and was a limiting factor in waterfowl production. These conditions will be overcome through

managed grazing, and by management of the ponds established on the area. The great need has been to create shallow ponds and to provide for control over all water areas. This open water and marsh will total approximately 6,000 acres.

In Freezeout's previously unmanaged condition, losses among ducks occurred from botulism during certain years. Botulism is a waterfowl disease which occurs under conditions that sometimes develop on stagnant, alkaline waters. An effective way to combat this condition is through water manipulation. This will be a part of the management program.

Freezeout is located on an important flight lane in the Central Flyway. The project fills a long-standing gap in the original plan of needed, key refuges, set up for the country in 1935.

The decline of the waterfowl population in North America was brought about because much of the original waterfowl habitat had been destroyed—in addition to the adverse climatic conditions of the 1930's. The future of waterfowl on the continent depends much upon the success of habitat restoration and new marsh development to replace destroyed habitat. Freezeout Lake is important in this program

As a wildlife management area, this project is very similar to a Federal Waterfowl Refuge. The main difference is that more emphasis will be placed on public hunting and the administration of the project is by the State. A portion of the project area will be closed to hunting to provide necessary resting sanctuary for migrating waterfowl.

This project will provide a permanent public hunting area for the increasing population of hunters in Montana. Fortunately, the area is very accessible for public use. It is traversed by U. S. Highway 89 and lies mid-way between Fairfield and Choteau. It is located within a reasonable traveling distance of population centers—40 miles west of Great Falls, 90 miles north of Helena and 150 odd miles from Butte, Missoula or Havre.

In excess of 12,000 snow geese at a time rest on Freezeout in the fall and several times this number stop here during the peak of spring migration. This is little indication of the total number of snow geese which use Freezeout during migration. The peak fall population of mallards has been approximately 50,000. In the spring of 1956, a population in excess of 6 000 Whistling Swan were observed on the lake

at one time. On opening day of the 1955 hunting season, the area was used by approximately 400 hunters. When the development of the area has been completed and it is being managed for hunting, a far greater number of hunters can be accommodated.

Management of the area includes small grain production on project crop lands for use as food by the waterfowl, during migration and as a means of preventing depredation on private lands. Some shelter-belt plantings are being established to provide emergency winter food and cover for pheasants.

There have been no resident geese on Freezeout Lake. A captive flock of Canada Geese are now being reared at the lake to establish a breeding population. This will be a valuable addition to the wildl fe on the area.

Freezeout Lake has inherent features which have provided an exceptional potential for management. The waters of the lake are highly productive. Sago pond weed, one of the best natural waterfowl foods, grows profusely here. The topography of the basin surrounding the lake is relatively flat and lends itself well to the development of shallow water areas. The presence of a good water supply and the means to ideally distribute it throughout the project is a very valuable asset.

Excellent cooperation has been received from the Greenfields Irrigation District, under its agreement with the Department. Financing of the project has been the responsibility of the Fish and Game Department, with the assistance of Federal Aid under the Wildlife Restoration Act. However, the engineering assistance and the construction equipment furnished by the Greenfields Irrigation District has made it poss ble for the Department to undertake the project. The potential value of Freezeout Lake as a waterfowl area should become apparent during the next biennium. The true merit of the project will be evident, in future years.

THE NINEPIPE PABLO DEVELOPMENT AREA

The Ninepipe-Pablo Development Area during the past two years has justified the foresight of the instigators of the project. Hunter usage has increased to the point where their management in the future of the area may become more critical than that of the waterfowl.

Studies on the area have revealed that 38.7% of all waterfowl hunters hunting the border (approximately 6 miles) on the Ninepipe Migratory Bird Refuge hunted on the three-fourths mile of border owned by the State Fish and Game Department. These same hunters accounted for 18.2% of all geese killed in the vicinity of the refuge. The kill on this Department-owned land was one and one-half times that of any other single piece of property of comparable size. Approximately the same relationship held true during the 1955 hunting season.

The practice of leaving grain standing in the fields for use by waterfowl has resulted in improved waterfowl hunting. This has been brought about by more birds being held in the area and by an increase in the number of flights to and from the Refuge area proper. This practice may become exceedingly important in future management of the local Canada goose population. Intensive investigations in the

area have indicated that food is one of the major factors in determining the total annual kill from the local goose population. This project should become one of the outstanding waterfowl areas of the Northwest.

MILK RIVER DEVELOPMENT

Several small tracts of land have been leased from the Bureau of Reclamation along the highline. These will be developed to provide nesting and rearing areas for waterfowl as well as for winter cover for pheasants. When development has been completed, they will add new public hunting areas to this region.

This area is very important in the production of ducks and geese. Consequently, it is also an important hunting area. Intensive studies on the duck and goose populations are being carried out. Both the studies and the development are aimed toward obtaining a better harvest, through sound management, for the public hunter.

FOX LAKE DEVELOPMENT

Fox Lake, one of the few natural bulrush lakes in Montana, is being acquired and will be developed for waterfowl production and public hunting. This area is located in Richland County west of Sidney.

This area has had a history of botulism which through manipulation of water can be virtually eliminated. This is one of the potential goals of development. As soon as final acquisition is made, development can start

Fur Animal Research and Management

Fur animals constitute a renewable resource worth millions of dollars to the people of Montana. It is the moral and legal obligation of the State Fish and Game Department to insure that this resource is properly utilized. Accordingly, activities of the Fur Resources Section are aimed at producing factual information about Montana's fur resoruce as the foundation for economically and biologically sound management. Findings of Section studies provide a basis for evaluation of current management, for recommendations for future improvements and for restoration of depleted areas. New techniques and facts are constantly added to the existing fund of information.

The various activities conducted by the Fur Resources Section are briefly summarized as follows:

ECONOMIC SURVEY

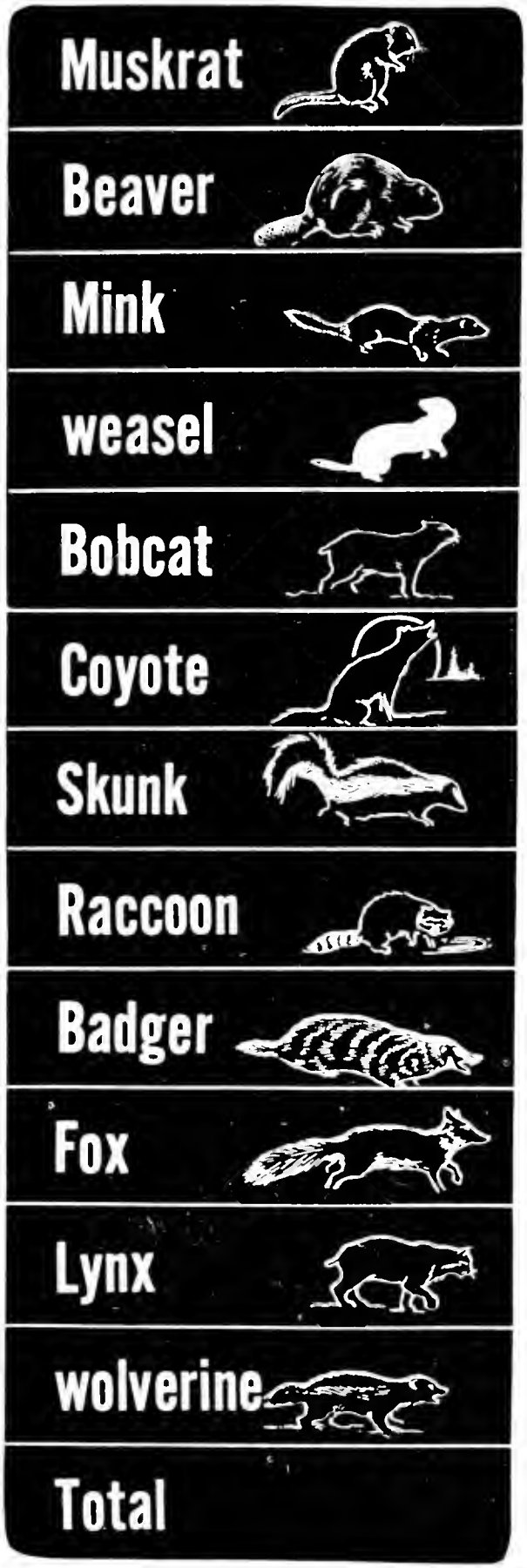
Fur animals are unique as a wildlife resource in that they provide a direct cash crop. This crop is harvested with relatively little investment on the part of the trapper and frequently is taken by seasonal workers at a time of year when other types of employment are scarce.

The fur take for the 1955-56 season is not yet available. Instead, the catch for 1954-55 is compared with that of 1953-54. During these two seasons a total of 2,903 trapper's licenses were issued. Listed on the following page are the furs taken by these trappers. Income to trappers from sale of these pelts also is shown

Furs taken during these two seasons totaled approximately 155,000 pelts, worth more than three-quarter million dollars. Three species—beaver, mink and muskrat—produced nearly 90 per cent of the pelts and almost all the income, reflecting current market trends. About 60 per cent of these furs were produced in the western half of the State where two-thirds of the trappers operated.

Prices for the more important fur animals rose during the biennium. These price advances, coupled with improved beaver management, resulted in an increase in the average income to the individual trapper from $245 in the 1953-54 season to $350 in the 1954-55 season.

Size and Value of Fur Take



	1953-54 No. Pelts Value	1954-55 No Pelts Value
Muskrat	39,382	41,805
	$ 23,045	$ 33,276
Beaver	16,123	25,309
	$154,796	$304,140
Mink	9,378	10,217
	$119,349	$177,093
weasel	3,282	1,109
	$ 2,265	$ 965
Bobcat	1,097	1,320
	$ 1,196	$ 2,970
Coyote	104	139
	$ 90	$ 193
Skunk	1,664	2,465
	$ 1,431	$ 1,824
Raccoon	412	763
	$ 486	$ 954
Badger	148	248
	$ 99	$ 349
Fox	14	86
	$ 14	$ 152
Lynx	21	16
	$ 63	$ 80
wolverine	4	4
	$ 80	$ 80
Total	71,629	83,481
	$302,914	$522,076

BEAVER

Beaver investigations conducted during the biennium were primarily directed toward determining the status of populations. Knowledge of population levels is essential to management for sustained yield production. These population studies included analysis of age ratios, aerial colony counts and harvest analysis.

The age-ratio of a beaver population changes in response to varying intensities of trapping. A method of determining age-ratio figures through pelt-measurement analysis was developed earlier by Section personnel and is now in use on a statewide basis.

Aerial beaver colony counts were continued in the fall of 1954 on a statewide basis and in eastern Montana only in 1955. These counts constitute an index to population density and permit year to year comparisons to show population trends.

Comprehensive harvest analysis is conducted at the end of every season. This gives the number of beaver trapped, dates of capture, trapper success and ratio of private land to public land utilized for every beaver trapping area.

A study of beaver-waterfowl relations in a mountainous habitat was completed in 1954 on three streams in Beaverhead County. Eight segments of the flood plains of one-half mile or more in length were selected as study areas. Data were obtained by observations on waterfowl and live trapping, steel trapping and observations of beaver. Findings of the study indicated that beaver ponds receiving the greatest use had two features in common; comparatively greater size and shallower water containing growths of sedge. In addition, evidence was obtained to show that beaver, through their impoundments, created a habitat more suitable for waterfowl on the areas studied on two of the creeks. A positive correlation between the presence of beaver and waterfowl usage was not found for the third creek.

MINK

Mink are second in importance among Montana's fur animals. Analysis of catch records has shown that mink have been subject to heavy trapping pressure for a number of years. Since the size of the mink take is influenced by market and weather conditions as well as by population numbers, information based on biological indicators has been needed to supplement annual catch records as a measure of population condition. Accordingly, a study of age and sex ratios of the annual mink harvest has been in progress since July, 1953.

Before determining age ratios of female minks it was necessary to establish valid criteria for separating juveniles and adults. These aging criteria, determined from a large collection of known-aged ranch minks, appear to be adequate for management purposes.

Harvest samples have been obtained from cooperating mink trappers throughout the state. Catches are examined for age and sex ratios and compared with other areas. Each year's data are evaluated for trends in fluctuating age and sex proportions.

Approximately 1600 mink carcasses, or 16 per cent of the estimated 1954-55 mink harvest, was examined for age and sex ratio data. The reduced sample, approximately 1000 specimens, collected in 1955-56 reflects the reduced harvest due to early and prolonged winter conditions.

Age and sex ratios from harvest samples combined with the findings from population studies of wild mink will provide factual information to guide the establishment of trapping seasons in accordance with the status of mink populations.

MARTEN

Proper management of Montana's marten populations presents an excellent opportunity for increased production of furs. It is felt that the yield of marten pelts under careful management may be several times that of past years. In addition, areas of suitable habitat which now support very few or no marten provide opportunities for restoration through restocking.

Analysis of results of earlier marten seasons guided formation of improved management plans which will allow annual cropping of marten populations. Former seasons were at irregular intervals. The open season set in the fall of 1955 was the first of a sustained yield program.

The long-range investigation of marten living requirements undertaken in cooperation with the Montana Cooperative Wildlife Research Unit was continued during the biennium. This study is based on live trapping and is producing an understanding of population fluctuations through long-term observation of marked marten.

Progress toward restocking of vacant habitats was made during the summer of 1955 with release of live trapped marten in several areas of northwestern Montana. It is expected that this activity will continue in 1956.

Marten are equally at home on the ground or in trees. In pursuit of squirrels, they often leap from tree to tree as pictured above.

OBJECTIVES

The Fur Resources Section of the Fish and Game Department has as its management objective the wise use of the fur resource through seasons and regulations based on factual information gathered through careful study. Reliance upon facts, without reference to sentiment or prejudice will insure that the people of the state will continue to reap the benefits to be derived from the fur resource of Montana.

PUBLICATIONS

Technical publications produced during the biennium by Fur Resources Section personnel are:

"Montana beaver management." Proceedings, annual Conference of Western Association of State Game and Fish Commissioners, Vol. 35, pp. 269-278. J. E. Townsend and F. E. Newby.

"A study of beaver-waterfowl relations in the mountainous area of Beaverhead County, Montana" (In press). L. G. Casagranda.

"Aging Criteria found in known age ranch minks" (In press). K. R. Greer.

"Marten home ranges and population fluctuations" (In press). V. D. Hawley and F. E. Newby.

Wolverine in Montana appear to be increasing.

MONTANA COOPERATIVE WILDLIFE RESEARCH UNIT

The Montana Cooperative Wildlife Research Unit was formally established February 8, 1950, with a signed Memorandum of Understanding describing the Unit objectives as follows:

1. To provide technical and professional training on various levels in wildlife management, teaching, research, demonstration and administration.
2. To investigate and correlate the production, utilization, management and restoration of desirable populations of wildlife compatable with good land use.
3. To demonstrate research findings through extension and practical management of game and fur-bearing animals and of other desirable species of wildlife, and encourage wildlife restoration through programs with schools, youth clubs and adult groups.
4. To make available to land-owners and operators, sportsmen, conservation officials, extension workers, teachers and others the facts, methods and new findings discovered through research, and through literature suited to local and State conditions.
5. To disseminate research findings through the publications of reports, bulletins, circulars, and journal and magazine articles. These to include scientific, semi-popular and popular materials at all levels.

The operation of the Unit is coordinated jointly through a Coordinating Committee consisting of J. W. Severy, Montana State University, Missoula; A. A. O'Claire, State Fish and Game Director, Helena; John J. Craighead, Unit Leader, U. S. Fish and Wildlife Service, Missoula. Cooperators in this important program are the Montana Fish and Game Commission which budgeted $8,000 and $7,200 annually during the biennial period; Montana State University which makes its facilities available to the Unit, the U. S. Fish and Wildlife Service which provide the Unit Leader and other facilities, and the Wildlife Management Institute which gives an annual grant to the Unit. Dr. John Craighead administers the Unit program. The location of this Unit at Montana State University makes available facilities and services of scientists in many specialized fields related to wildlife research problems. Dr. Philip Wright and Professor Melvin Morris act as Assistant Unit Leaders and supervise specific research projects in their fields of specialization. Robert Cooney, Pittman-Robertson Coordinator, holds a similar title.

All projects handled by the Research Unit have been of immediate interest and use to the Montana Fish and Game Commission. Findings have represented an important aid to the betterment of wildlife management in the State.

A major objective of the Cooperative Unit is to prepare students for professional wildlife positions. In addition to the graduates that have received instruction, direction and supervision from the Unit

staff, a number of undergraduates have also received specialized field training outside of classroom work. Some of the more promising graduates have been hired by the Department and now hold responsible positions with the Fish and Game Department.

The third major objective has been to promote wildlife education. In this regard the Unit Leader has cooperated and participated in the Montana Wildlife Forum, a series of conservation lectures delivered throughout the State. He frequently speaks before sportsmen's organizations and civic groups on wildlife and conservation topics. Other staff members participate in the Unit's educational program.

Kodachrome motion picture films have been developed by the Unit Leader. These illustrate many aspects of present day wildlife research and management. It is expected also that these films will be developed for television showing, for sportsmen and adult education groups throughout the State.

Films produced to date are:

1. Canada Geese in the Flathead Valley (1600 ft.)
2. Big Game in Winter (2000 ft.)
3. Eagles and Owls in Jackson's Hole, Wyoming (400 ft.)
4. Trout Fishing in the Tetons (400 ft.)
5. Rafting Hell's Canyon (400 ft.)

It has been the policy of the Unit to work closely with the Pittman-Robertson Division of the State Fish and Game Department. This arrangement has enabled the Unit to direct additional funds and manpower on wildlife problems, with the objective of carrying out long-term research on big game nutrition, and waterfowl and upland game bird populations. It is felt that such studies will offer a maximum return to all contributing agencies and be particularly valuable to the State Fish and Game Department in the future management of the State's wildlife resources.

Examples of several of the more important projects included in the Unit program during the past biennial period are as follows:

Feed Requirements of Elk: The purpose of the study is to obtain information on the nutritional value of important selected forage species of Montana.

Reproduction in Elk: To study the physiology of reproduction in elk.

Reproduction in Mule Deer: To determine factors of reproduction for application to the management of the species.

Magpie Populations and Their Productivity: To determine the importance of this species as a predatory bird and to learn life history factors that might aid in control efforts if proven desirable.

Biology of Canada Geese in the Flathead Valley: To make a long term study of the population levels and productivity of Canada Geese with the objective of improving management practices.

GAME BIRD FARMS

RING-NECKED PHEASANTS

During the past two-year period, the Department operated pheasant farms at Billings, Fort Peck, and Warm Springs. Continued emphasis was placed on the quality of the birds released and on improved distribution methods. All birds were retained as long as possible at the farms before being released in order to provide a more mature bird with a better chance for survival in the wild. A large portion of the roosters were held for release just prior to the opening of the hunting season in order to insure the greatest possible return to the hunter's bag. These birds were released to provide hunting in areas with heavy hunting pressure and low pheasant populations.

The Department continued its program of providing pheasant eggs for 4-H Club programs and other individuals interested in raising pheasants for release in the wild. Approximately 6,000 eggs were distributed for this program.

At the end of the 1954 season, the total production of pheasants by the Fish and Game Department passed the one-half million mark. Over 500,000 birds have been produced and released in the various counties in Montana during the past 24 years of game farm operation.

CHUKAR PARTRIDGE

The State Game Farm at Moiese was operated during the past biennium solely for the production of chukar partridge. Initial plants were made in 20 areas in the State in an effort to establish a huntable population of this new game bird.

GAME FARM PRODUCTION

	Ring-necked Pheasant	Chukar Partridge
1954-1955	36,533	942
1955-1956	37,014	1,274
	73,547	2,216

PREDATOR CONTROL

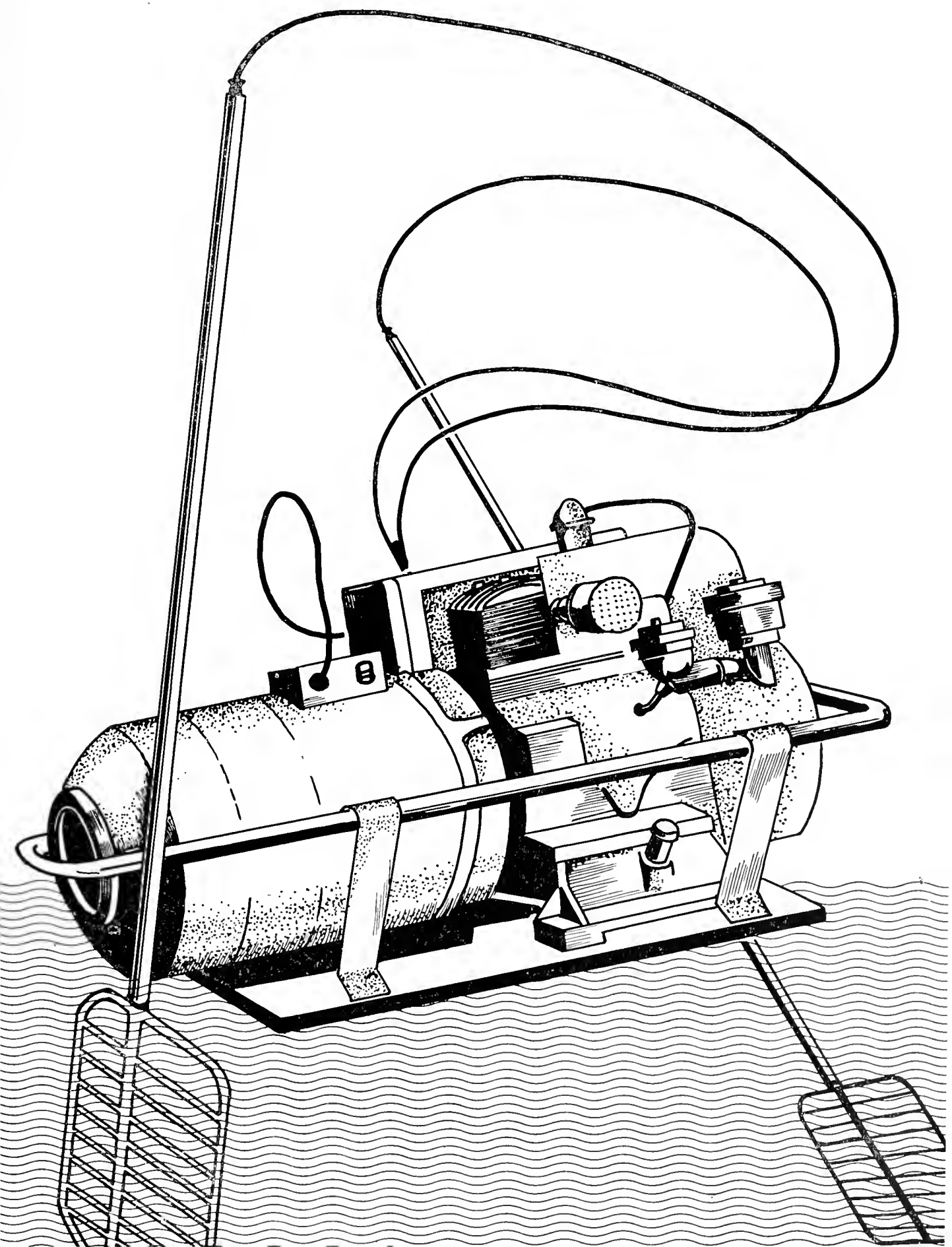
Predator control is a tool that can be used in game management. However, before using predator control measures careful studies must be made to determine all of the limiting factors which influence game populations. If predation on game is found to be an important cause of mortality in keeping a game population below the carrying capacity of its habitat, then predator control expenditures may be justified.

The Fish and Game Department has conducted only limited predator control programs for game management purposes. It contributes funds toward the predator control program conducted by the Fish and Wildlife Service in cooperation with the State Livestock Commission and the Game Department. The State Fish and Game Director is a member of the Advisory Committee which makes recommendations to the State Livestock Commission for the predator control program in the State.

The present control program does not reach into many of the game areas of the State. Before control measures are used on some of the public lands, the managing agency requires that game populations must be under the rated carrying capacity of the habitat and utilization of game by hunters must be sufficient keep populations in balance with the range.

The Commission has continued to pay bounties on mountain lions and bobcats. In an effort to help promote projects for sportsmen's clubs, the Commission reimburses sportsmen's clubs for one-half the bounty paid on crows and magpies but not to exceed 10c per bird.

FISHERIES



FISHERIES PROGRAM

The Montana trout fishery is one of the most important natural trout fisheries left in the United States. Montana, with its high mountains, snowy peaks on three major water drainages—the Columbia, Missouri and Hudson Bay—has streams and brooks of clean, clear water that is necessary for trout habitat. Ponds in the eastern portion of Montana and some western lakes have spiny-rayed fishes, and the lower Missouri and the Yellowstone have excellent populations of catfish. One can readily see that from the warmwater fish and slow-moving water with catfish to the purest of mountain streams is a complete range of fish habitat in one state.

Our discourse of fishery management and investigations is designed to point up some of the work that is being done and the problems that Montana must cope with now and in the future. The resume on the hatchery program is to acquaint the sportsmen with the developments and a portion of the thinking that is now guiding modern fish culturists.

Fisheries Management and Investigation

The operations of the Fisheries Management and Investigation Section of the Fisheries Division are financed largely through the Federal Aid in Fisheries Restoration Program, commonly known as the Dingell-Johnson Program.

During the 1954-55 fiscal year, thirteen Federal Aid projects were authorized and twelve of these were actually executed. Fourteen were authorized and thirteen executed during the 1955-56 fiscal year.

A few of the highlights of the work accomplished by the section are briefly reviewed on the following pages.

Fish Restoration Districts

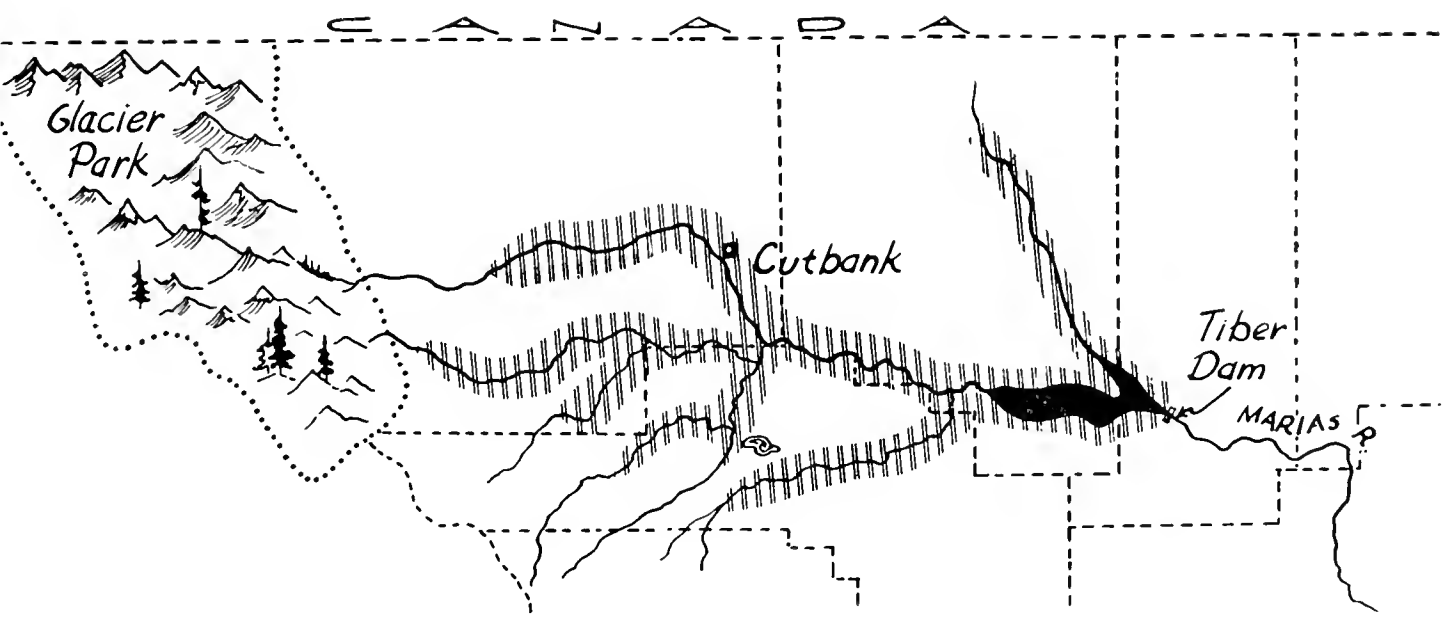
Five fish restoration districts were operative during the period covered by this report. These were the Northwestern, West Central, Southeastern, Central, and Eastern Montana districts with headquarters at Kalispell, Missoula, Bozeman, Great Falls and Glasgow, respectively. The areas are delineated on a map published in the Biennial Report for 1953-54.

These districts fit into the decentralization plan of the Fish and Game Department whereby every portion of the State may have its individual fishery problems given needed attention most effectively. The district fisheries biologist in each area is responsible for the management of the fishery resources within his district. These men outline and execute sound and substantial restoration measures such as lake and stream rehabilitation, habitat improvement, creation of new fishing waters, and acquisition and development of fishing areas for public use; they outline planting programs in conjunction with the hatchery foremen; and they work with enforcement and hatchery personnel to formulate adequate and needed regulations. A few of the noteworthy examples of activities of the district fisheries biologists follow:

SURVEYS

Lake and stream surveys are a continuing part of each district's activities. The basic purpose of the surveys is to catalogue each body of water in the State according to its physical and biological characteristics. Management recommendations are made as waters are surveyed, and when approved, these are executed by the district fisheries biologists. The Fish and Game Commission again acknowledges gratefully the help given the Department in this and the other fisheries programs by the Zoology and Entomology Department, Montana State College. The provision they have made for Department office and laboratory space, for loan of specialized equipment, for consultation with staff members, and for use of library facilities has been of tremendous value.

MARIAS RIVER DRAINAGE SURVEY AND REHABILITATION



Marias River Drainage, showing area treated with toxicant and rehabilitated for trout.

As the population of Montana continues to increase, and as people gain more and more leisure time, an ever greater demand will be pressed upon the recreational fisheries of the state. Means must be adopted by the Fish and Game Department to develop available high quality fishing in proportion to the demand. It is commonly assumed among sportsmen that this end can be accomplished in trout areas solely through planting of catchable-size trout. A casual examination of the table appearing on page 69 of this report will reveal that only a very limited fishery can be maintained in this manner with present

fish production methods. Because of the cost of rearing catchable-size trout artifically, an angler would not be able to take many more than one limit of fish in a year before he would have exhausted the value of his three dollar fishing license.

Further examination of the table noted above will show that where an increase in available fish must come about by artificial means, methods must be developed whereby small trout may be planted and whereby a large percentage of these will survive to the creel.

During the summer of 1953 the Department executed an experimental rehabilitation project on 16 miles of Otter Creek near Raynesford (see Biennial Report, 1953-1954, pp. 76-77). This demonstrated that stream rehabilitation was a highly useful tool to fisheries management and that the vacuum created thereby at a relatively low cost allowed a high survival of fingerling fish plants. Herein is found a means of producing low cost fishing.

Plans for construction of Tiber Dam on the Marias River in Liberty County were begun a number of years ago by the U. S. Department of the Interior, Bureau of Reclamation. During the planning stages it was not envisioned that the fishery could be benefited greatly by the dam or harmed by it. As time went on, however, the fisheries men of the Department realized that population pressures from rough fish in Tiber Reservoir would force these rough fish to migrate upstream and ruin presently existing trout fisheries in the headwater streams and in Lake Francis.

This is exactly what happened after Fort Peck Reservoir was created. Goldeye moved upstream from the reservoir into such tributary drainages as the Judith River, Spring Creek and the Marias. It seemed very obvious that with another reservoir such as Tiber located well in the headwaters of the Marias drainage, fish such as carp and goldeye would be forced even farther upstream and adversely affect remaining productive trout fisheries. Favorable results on Otter Creek, therefore, prompted the Commission to authorize a survey of the Marias River drainage in 1954 to determine the feasibility of removing the carp and goldeye from the drainages above Tiber Dam. Were these fish removed, Tiber Dam would be a barrier to upstream fish movement and would prevent reinfestation of these waters from downstream.

This three-month survey conducted by two men disclosed that while the rehabilitation project would be a large one, nevertheless the project would be well worth the time and money which would be invested in it. In the decision which was made to proceed with the project it was realized fully that rehabilitation is always a gamble, even in small lakes which are more easily controlled than a large drainage basin of lakes, ponds, sloughs, and streams. If a complete kill of carp and goldeye could be realized, there would be no doubt about the value of the project. If a complete kill were not made, it was determined that excellent fishing would be provided in Tiber Reservoir and its tributary streams for a long enough period of time to justify the project.

As a result of deliberations by the Commission and fisheries personnel, the project was authorized. During 1954 Kipp Lake and most of Willow Creek near Browning were rehabilitated. Kipp Lake, 350 acres in size, was heavily infested with carp. This lake was poisoned by the use of a Ford tri-motor airplane. During the summer and fall of 1955 the balance of the project was executed and completed.

By map measure it was determined that 416 miles of stream would have to be covered. This figure did not include numerous small tributaries. Those who are familiar with the extensive stream meandering that is found in the Marias drainage realize that the stream mileage covered was nearer 1,000 miles. From the starting point on Two Medicine River to Tiber Dam there are about 100 airline miles. The starting points for rehabilitation on the major tributary streams were as follows:

Cut Bank Creek—Browning-to-Babb road bridge.
Two Medicine River—Highway 49 bridge crossing.
Badger Creek—Fourhorn Diversion Dam.
Birch Creek—Lake Francis Diversion Dam.
Dupuyer Creek—Lake Francis Diversion Dam.
Dry Fork—Highway 99.
Willow Creek—Just below Browning.
Willow Creek near Galata—Very near the headwaters.

In addition to these major streams, there were a great number of smaller tributaries, sloughs and farm ponds which had to be cleaned of carp and goldeye.

A commercial product, "Fish-Tox," was used as the toxicant. In streams this was applied in "slugs." The desired amount of toxicant was mixed quickly into the water. As the current carried the "Fish-Tox" downstream, it killed fish until it was diluted below the toxic level. Upstream from this point another "slug" was then added. In addition to "slugging," every stream was covered on foot, and backwaters and small isolated pools were located and sprayed with hand pumps. The large slough areas and farm ponds were poisoned by the use of a "Cub" airplane equipped with a duster unit. Willow Creek near Galata and the Dry Fork were slow-moving streams. These were largely poisoned by airplane.

Each time the toxicant was started on a major tributary, trout and whitefish were the main fish killed. Within a very short distance these fish were no longer found and rough fish predominated. For example, carp were found in a predominantly trout and whitefish population at the Boarding School on Cut Bank Creek. Practically no trout were found, however, below the Merriweather Crossing. Below the South Fork rough fish predominated in the Two Medicine River. In the Marias River itself the main fish killed were carp, buffalo, suckers, goldeye, carp suckers, redhorse, sturgeon and catfish. An occasional sauger and whitefish were found. None of the men observed a trout, although reports were received of an occasional trout being found by observers.

Rehabilitation is only one part of the project. Now there is the major job of restocking the waters with trout. The rehabilitation was

(Right) A fisheries biologist holds a sturgeon killed by toxicant. (Below) Representative of the species found in the waters of the Marias drainage before the all-out warfare on carp and goldeye, starting at the top, are a sturgeon, carp, sucker, goldeye and red horse sucker.

accomplished in one summer. Three years will be required to restock the drainage. One and one-half million fish were stocked in 1955. The main stocking effort will begin in 1956 with 6,000,000 fish being liberated in that year and in succeeding years. It should be borne in mind that this stocking must be done over and above regular hatchery commitments; therefore the number of rehabilitation projects that can be undertaken must be carefully balanced, not only against production facilities, but even more important, against available egg supplies.

Two main applications of stream rehabilitation are evident from the Marias and Otter Creek projects: (1) To remove undesirable fish permanently above a natural or artificial barrier and (2) "summer fallowing." By "summer fallowing" is meant the removal of weed fish from an area into which they will again move and populate so that a crop of desirable fish may be produced and harvested. After rough fish have been removed, game fish will be stocked. These will provide fishing for a period of time until the rough fish again predominate. At this time weed fish may again be removed by toxicant application. This type of management will be cheaper than fish planting alone where catchable-size fish costing twenty-five to thirty-five cents each must be planted. After "summer fallowing," inexpensive fingerling fish may be planted.

It was the opinion of the Commission that the Bureau of Reclamation should have included rehabilitation costs as a part of the project cost because of the liability of the impoundment to upstream fisheries. The Bureau of Reclamation would not recognize this liability; therefore the Department had to stand the cost through its Federal Aid in Fisheries Restoration program. This problem should be given careful consideration in the future so that the cost of alleviating such liabilities will be borne by water development agencies creating the liabilities.

Since drainage rehabilitation is new, a number of questions were determined which need to be answered through research in order that an adequate and economical rehabilitation may be done. These are:

1. Through laboratory research, practical field chemical techniques must be developed for measuring quickly the concentrations of toxicants in flowing water.
2. Hydraulic studies must be made both in laboratories and in streams to show the pattern of toxicant dispersion and dilution as applied toxicant travels down a stream course.
3. Laboratory studies must be made to establish concentrations of toxicant and duration of exposure to these concentrations necessary to kill the various species of fish under various conditions of water quality and temperature.
4. Field tests must be made to determine concentrations of applied toxicants as well as optimum frequency of application and method of application.
5. Studies of the effects of various toxicants upon fish food organisms in streams must be conducted to determine the time which must be allowed after toxicant application before fish may be reintroduced.

Fisheries crew introduces the sacks of toxicant used to clean out the fish population in the Marias drainage. Nearly 1,000 miles of streams were treated in this manner to reclaim trout waters.

FISHING PRESSURE ON NILAN RESERVOIR

To manage a fishery properly, the Department must have information concerning fisherman-use and harvest. Economical methods of determining this must be developed. Such a method was tested at 600-acre Nilan Reservoir in the Augusta area in 1954. Not only is the adaptability of this method of interest, but the results obtained are of even more interest. The heavy fisherman-use made of this reservoir demonstrates the importance of recreational fishing to the economy of Montana and to the social well-being of its people.

Two controlled impulse automobile counters were used to determine the travel to and past the lake. A record of weekend use and weekday use was kept. During 128 days from May 15 to September 20, 1954—6,615 fisherman automobiles were driven to Nilan Reservoir. For the period covered, this use would average slightly less than 52 cars per day. On the first weekend of the fishing season, 524 cars drove to the lake. Fishermen continued to use Nilan Reservoir after September 20, but the counters were removed since accurate figures on fisherman-use could not be obtained after the opening of the bird and big game seasons.

CUTTHROAT AND DOLLY VARDEN TROUT STUDY

In 1954 the first phase of a study of cutthroat and dolly varden trout was completed on the North Fork of the Flathead River and Flathead Lake. The Commission gratefully acknowledges the assistance given in this study by the Department of Zoology, Montana State University. Results of this study are being arranged for publication by the University student who was primarily concerned with the field work and subsequent analysis. These will, therefore, be available for distribution at a later date.

As a result of this and associated work and observations it is evident that the cutthroat and dolly varden trout of Flathead Lake and its associated drainages are migratory in nature. A number of hydroelectric dams are planned for these drainages, which will block these migrations as Hungry Horse Dam has done. With present knowledge these installations are entirely incompatible with the trout fisheries. Should means be provided whereby a concentrated research program could be conducted on these fisheries prior to construction of these dams, avenue of compatability might very well be found. If such a research program is not done or if it is delayed until the late date funds are made available for such work after project authorization, it appears that this valuable recreational fishery will cease to exist. Faith for maintaining these fisheries should not be placed in hatchery planting with present knowledge available. Such efforts made in this area in the past failed completely. More knowledge is needed from research before reliance can be placed on hatchery plants of cutthroat and dolly varden trout or any other management measure in these drainages.

NOXON RAPIDS STUDY

A survey-type study was made in the Clark Fork River area below Thompson Falls in relation to Noxon Dam which has been authorized for construction. The purpose of the study was to determine the effects of this dam upon the fishery and to recommend fisheries management measures which might be undertaken in relation to the dam and impoundment. Results of this study will be available at a later date. The Commission expresses its gratitude to the Washington Water Power Company which is constructing the dam for financing this project, and for the close cooperation the Commission has experienced with this company during the planning phases of this hydroelectric project.

SPENCER AND SKYLES LAKE REHABILITATION

Spencer and Skyles Lakes are located about three miles west of Whitefish on Highway No. 93. Many years ago these lakes provided excellent trout fishing. Following the introduction of pumpkinseed sunfish, yellow perch, and black bullheads the value of these lakes for recreational fishing dropped to near zero. During 1954 these lakes were mapped and surveyed for rehabilitation. Public access is available on about two-thirds of the shoreline of Spencer Lake through land held in ownership by the State of Montana. Since Skyles Lake was surrounded entirely by private land, the Whitefish Rod and Gun Club purchased an access strip to the lake and deeded it to the Fish and Game Department for public recreational use.

On September 27, 1955, these two lakes were rehabilitated. Skyles Lake was treated with 1,220 pounds of toxicant and Spencer Lake with 1,040 pounds. These lakes will be stocked with cutthroat trout when they are no longer toxic.

Aerial applicant of toxicant is used where practical in streams and lake rehabilitation.

SURVEY OF CANYON FERRY RESERVOIR

Canyon Ferry Reservoir, created by impoundment of the Missouri River near Helena, was filled with water for the first time in 1955. Closure of the impoundment was made in 1953. Approximately 750,000 fry and fingerling rainbow trout were stocked in the reservoir each year since 1953. Rainbow trout supplied the principal fishery, and through the spring of 1955 this impoundment gained an enviable reputation for tremendously high quality trout fishing.

During 1955 a survey was made of the reservoir to give indication of what could be expected for the future of the fishery and to gather information concerning trends of fish populations in this newly created impoundment. Thirty-four overnight gill net sets took 6,341 rough fish (93.8 percent of the fish caught), 287 trout and whitefish (3.3 percent) and 250 perch (2.9 percent). By weight rough fish comprised about 85 percent of the catch, trout and whitefish 13 percent, and pan fish 2 percent. Note should be made that rainbow trout alone were planted in the reservoir, and yet 103 brown trout were taken in the gill nets as compared with the catch of 63 rainbow trout. For a comparable period of time 476 rainbow trout and 73 brown trout were checked in creel census samples which were taken.

Considering the tremendous build-up of rough fish, it is unlikely that high-quality trout fishing will continue very long. When fish populations become more stable, the present reservoir will resemble Lake Sewell in all respects except size. Lake Sewell was known as a rough fish lake. It is unfortunate that, at the time Canyon Ferry Dam was closed, there was no awareness of the feasibility of removing rough fish by toxicant application from the waters to be flooded by this impoundment. Had this been done, Canyon Ferry Reservoir would not have had the rapid build-up of rough fish it is now experiencing.

ELK SPRINGS DRAINAGE REHABILITATION

As a part of the program undertaken to keep the Montana grayling from passing into extinction (see Biennial Report for 1953-54, pp. 72-73) the Elk Springs Creek drainage was rehabilitated in 1955. This is largely within the Red Rock National Migratory Waterfowl Refuge in Beaverhead County which the Fish and Game Commission designated as a grayling sanctuary. This sanctuary is defined as the Red Rock River drainage above Lima Dam. Within this area it is the Commission's desire that steps be taken to preserve the Montana grayling. The Fish and Wildlife Service constructed a new dam on Elk Springs Creek to impound the warm spring water for use by Trumpeter Swan. This dam isolated this drainage from the waters below, and Elk Springs Creek had been isolated previously from Elk Lake by a coarse earth fill. Now that this small drainage has been cleaned of other fishes, grayling will be restocked.

REHABILITATION OF YELLOW WATER RESERVOIR

In past years Yellow Water Reservoir near Winnett furnished excellent recreational fishing. Carp became established in the reservoir through introduction by minnow fishermen. In the fall of 1955, the lake was drawn down to an exceptionally low level, making rehabilitation of the reservoir very economical. Therefore during the fall of 1955, 560 pounds of toxicant were applied by the use of the Department's "Cub" airplane equipped with a duster unit. "Fish-Tox" was the toxicant used. The lake will be restocked in 1956 providing the reservoir has filled sufficiently to dilute the "Fish-Tox" below the toxic level.

JOHNSON DAM PROJECT

Johnson Dam, located in Dawson County, was constructed by the W. P. A. as an irrigation reservoir. It has never been used for this purpose, and it is now used extensively for wildlife purposes, principally hunting and fishing. The upstream face of the dam was eroding badly, and steps had to be taken to prevent the dam from washing out. During 1955 repair work was done on this dam. A back fill was made by placement of 445 cubic yards of dirt, and the face of the dam was riprapped with 253 cubic yards of rock.

BEAVER CREEK IMPOUNDMENT SURVEY

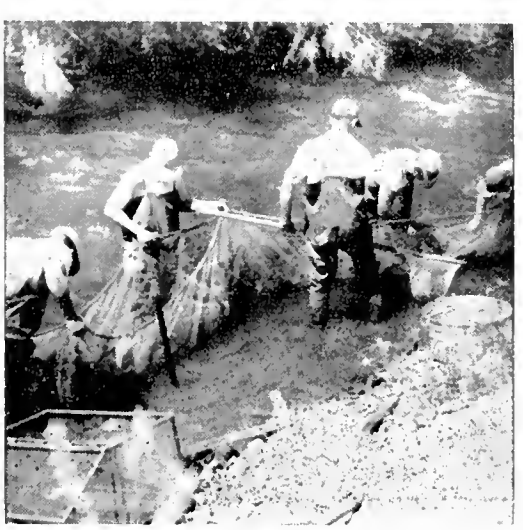
While Montana is rich in aquatic resources, these water areas are not evenly distributed over the state. It is the Commisison's desire to furnish fishing water in those areas where it is either not available or where it is not available in sufficient quantity or in suitable quality. In the course of a survey of the waters of Hill County, the District Fisheries Biologist located a desirable dam site on Beaver Creek south of Havre within the boundaries of the Beaver Creek Park.

Since the Commission does not have on its staff men experienced in dam construction and planning, they asked the State Water Conservation Board to determine the feasibility of a project on Beaver Creek and to plan the dam if it were found feasible. The State Water Conservation Board did this during 1954, and the Commission reimbursed them for costs of the survey and planning.

Plans have been developed for an earth and rock fill dam with appurtenant concrete outlet and spillway structures. The dam would be a compacted embankment 55 feet high and 20 feet wide on top. The reservoir at normal water surface, eight feet below the top of the dam, would average about 380 feet wide and 4,000 feet long, have a surface area of 37 acres and a capacity of 540 acre feet.

TONGUE RIVER REHABILITATION

During the course of a routine fisheries survey it was noted that the Tongue River below Tongue River Dam in Big Horn and Rosebud Counties was heavily infested with rough and stunted pan fish. Plants of brown trout had been made in the area, and while a few did survive, nevertheless, no fishable population developed. In years past this area of the river had provided desirable sauger fishing.



Electrical shockers are a part of the fisheries biologists research tools. These are used to temporarily stun fish in study areas to allow brief but careful examination, ageing, and marking.

During the summer of 1955 the water users and State Water Conservation Board cooperated with the Department to cut the flows in Tongue River below the dam for a short period of time. During the cut in water flow, 680 pounds of "Fish-Tox" were applied to the river in "slugs." There was a large population of fish in the section of the river worked. In order of abundance by numbers, the fish present were as follows: bullhead, black crappie, sucker, yellow perch, redhorse, carp, brown trout, golden shiner, longnose dace, rock bass, and walleye pike. One walleye pike and forty brown trout were observed.

Following toxicant application in 1955, 500,000 walleye pike fry were liberated in the rehabilitated area from the U. S. Fish and Wildlife Service Fish Cultural Station, Miles City.

Because of the extensiveness of the Tongue River drainage and the large area of rough fish infection, no effort could be made at completely removing rough fish. It is hoped that the walleye might become firmly established through reducing competition. If this is not succesful, new efforts will be considered to provide fishing in this area through "summer fallowing" discussed under the Marias River project.

TEST STREAM STUDY

During this biennium a research project was begun on Flint Creek in Granite County to work on the problems of survival, growth and condition of catchable-size planted hatchery rainbow trout. A large part of the Fisheries Division's funds each year are expended to rear and plant catchable-size trout. There is a great number of indications and a great deal of information which points out that a large percentage of catchable-size hatchery trout do not reach the creel or otherwise contribute to fishing success. It is the purpose of this project to evaluate these matters under controlled stream conditions. Catchable-size hatchery fish are costly to produce. Any increase in survival to the creel which can be made will have the same effect as increased hatchery production without added expenditures for this increased production.

Three fish-tight weirs have been installed at either end and in the middle of a one mile stretch of Flint Creek a short distance below Georgetown Lake, providing two half-mile test sections. These weirs must be kept in place continuously so that no fish may move in or out of the sections. This becomes a considerable task during the rigorous winter conditions to which the stream is subjected.

To date fish have been planted from two hatcheries, Anaconda and Hamilton. The survival of fish liberated from the Anaconda Station has been excellent, but mortalities have been heavy on rainbow trout reared at Hamilton. Forty percent of the Hamilton fish and three to five percent of the Anaconda fish died during the six-week period following planting. Over-winter survival of the Hamilton fish is expected to be near zero, while it should be between 40 and 50 percent for Anaconda.

Regulations

One of the tasks of the Fisheries Management and Investigations Section is the design of fishing regulations for submission to the Fish and Game Commission. A new form of regulations was adopted during the winter of 1955-56 for the regulations to be used during the 1956-57 fishing season. In the past regulation has been effected by counties. Thus, in reality, there have been 56 management areas for regulative purposes. The newly adopted regulations are written by eight drainage areas. Considerable simplification resulted in this change, and the regulations were thereby shortened drastically. It is estimated that condensing of the regulations will reduce the annual cost of printing by about $10,000.

Analysis of the Cost of Production of the Montana Hatcheries System for the Biennium 1954-1955

On the basis of fish planted, the Montana Hatchery System showed an increase of 40 percent by number (79 percent by weight) during the biennium January 1, 1954-December 31, 1955 as compared to the biennum May 1, 1952-April 30, 1954. Total expenditures during the period

January 1, 1954-December 31, 1955, on the other hand, did not increase (reference is made here to the Biennial Report of the Montana Fish and Game Commission for 1952-1953 and Tables 1 and 2 of this report). Part of this increase in production and decrease in costs can be explained by the overlap of four months in the two bienniums but, since very little planting is done during January through April, most of the difference is a result of more efficient methods being adopted at the various stations.

A different approach to a cost and production analysis of the Montana Hatchery System for the biennium 1954-1955 was adopted since no consideration had been given in the past to fish on hand at the hatcheries at the beginning and end of the year. A common fallacy has been to compute the cost of production on a pounds-of-fish-planted basis without consideration of inventory. Along this line, an explanation of Tables 1 and 2 is in order. If production (columns 1 and 2) is compared to fish planted (columns 3 and 4) it appears that more fish were planted than were produced. The method used to calculate the pounds of fish produced is similar to the inventory methods used by many business firms. The formula is: Pounds of fish planted, plus pounds of fish on hand at the end of the year, minus pounds of fish on hand at the beginning of the year, minus pounds of fish received from other stations. If a station had more fish on hand at the beginning of the year(to be used for that year's planting crop) than it inventoried at the end of the year (to be used for the subsequent year's planting), it would show less fish produced than planted and in some cases may actually show a minus figure concerning numbers of fish (Bluewater 1954 and 1955, McNeil 1954).

It is impossible to adapt the above formula to a method of computing the cost of fish produced on a numbers basis, because some hatcheries hatch and start fish for other stations. Both stations cannot be credited with producing the same fish; therefore, the cost per fish was computed on the basis of fish planted. However, the discrepancy resulting from this change in methods amounts to only a few few mills per fish when computed on a total-produced, total-planted basis.

Attention is called to the two different sets of averages concerning the cost of fish produced (Tables 1 and 2). The first set of averages is computed on a statewide basis whereas the second set excludes the expenditures and productions of the McNeil, Ovando, Polson and Somers stations. These hatcheries are not designed to produce catchable size fish. Production at McNeil, Ovando, Polson and Somers is restricted to small fish for lake planting and when the production of these hatcheries is computed on a per-pound basis, the cost appears excessive. In reality it is nominal since a pound of these small fish numbers between 1,431 and 49,325 individuals (Table 3).

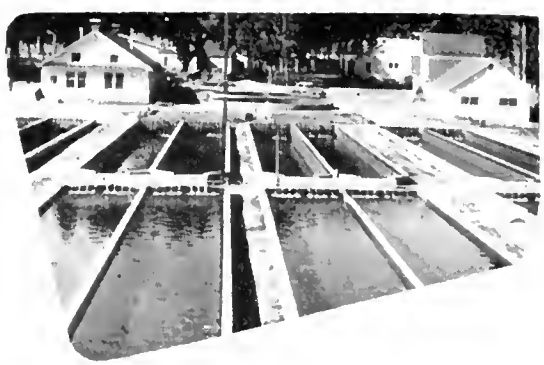
Forty-nine percent more fish were planted in 1955 than in 1954 (Table 3) while the poundage of fish planted decreased eight percent in 1955 and total expenditures of the Hatchery System decreased 23 percent (Tables 1 and 2). The cost of producing fish in the Montana

Hatchery System was, therefore, lower in 1955 than it was in 1954. Computed on a per-fish basis, a reduction of 50 per cent was realized and on a per-pound basis, a reduction of 16 per cent was attained (Tables 1 and 2).

It is difficult to compare costs of production of the Montana Hatchery System with other states and the federal system since at this time, exact breakdowns of production costs similar to those used by other hatchery systems are not available. All costs of operating the Montana stations are included in the analysis. No attempt is made to distinguish or delete certain extraneous costs which may not be directly related to fish culture such as participation in various conservation organizations, management and enforcement duties, landscaping, fish distribution, etc.

The leading question for any discussion of hatchery costs is, "Why does it cost less at one station to raise fish than it does at another?" Some specific examples of the factors that influence production costs are therefore outlined in this discussion. Three hatcheries, Anaconda, Arlee, and Hamilton, maintain a brood stock of rainbow and golden trout from which spawn is taken to supply other stations with eggs. The cost of maintaining this stock is, of course, included in the expenditures listed for these two stations. Anaconda, Somers, and Big Timber maintain and operate spawn-taking stations at Georgetown Lake, Willow Creek Reservoir, South Fork of the Madison River, Lake Mary Ronan, Little Bitterroot Lake, Rogers Lake, Flathead Lake and Ashley Lake. Part of the cost of operating these stations is included in the expenditures of these hatcheries. Three field superintendents, whose duties include administration and coordination of fish culture with fisheries management, are stationed at Anaconda, Big Timber and Great Falls. As a result of location of some stations far from major railheads and shipping points, the cost of freighting fish food and equipment is considerably more than for hatcheries situated in or near the larger cities.

The next question which must be considered is, "Why is the cost of production more at a certain station one year than it is another?" A careful look at Tables 1 and 2 will reveal that a considerable increase in cost occurred at the Bluewater Station in 1954. As a result of expansion at this station in order to use the water supply available to produce legal-size fish, new living quarters were constructed for added personnel. In addition to this, replacement of outlet drains for the raceways was completed in 1954. Large capital expenditures, such as this, were not charged off at a percentage of total cost, based on depreciation rates, since such a breakdown would require services of an accountant and would not add one fish to total production. The cost of producing fish by the pound also increased greatly at Anaconda during 1955 and was high in 1954. In 1954, septic tanks were installed and a new garage was constructed. This cost, of course, increased the "all other expenses" category for this station. The repair and replacement of the water supply pipeline at this station in 1955 explains the increase in production cost in part. Also production at Anaconda was,



Typical of Montana's fish hatchery installations, is the Anaconda Station.

of necessity, interrupted in order that work could progress on the pipeline; all fish had to be planted out before they reached the period of maximum summer growth and the cost per pound greatly increased in 1955 over 1954.

The cost of production at Big Timber also was much higher in 1954 than in 1955 as a result of repairs on hatchery buildings and replacement of pipelines. A similar situation is noted for the Great Falls station and was partly a result of the construction of a water tank in 1954. Also, the cost of production at Polson was slightly higher in 1954 due to construction of a cement retaining wall. Extensive repairs to the pipeline and buildings at Somers in 1954 were reflected in higher cost of production that year.

In general, actual cost of production (expenditures for capital investment and repair excluded) decreased in 1955 and this trend should continue into the future as cheaper and more efficient fish cultural methods are developed and adopted. It does not follow, though, that the production of the system as a whole will increase greatly since

recent research into carrying capacities at different stations reveals a very definite correlation between the amount of water available and the pounds of fish produced. Therefore, it appears that improvement of the hatchery system lies in increasing the survivability of hatchery fish to the creel rather than in overtaxing the carrying capacities of our stations and inviting disaster in the form of disease and parasitism. Toward this end, a program of hatchery integration and an experimental stream project is being conducted. With reference to the former it is at times advantageous to start fish at a warmer station, then transfer them to a colder station, while at other times the opposite is more expedient depending upon the management demands as determined by the District Fisheries Management Biologists. A program of "working together" such as this requires the hatchery foremen to catalog their stations' capabilities and scheduling work plans with an eye to the future in order that the hatchery system can meet the demands of the fishery as a whole.

TABLI

SUMMARY OF THE MONTANA STATE HATCHERY SYSTEM

Hatcheries	Production[1] (No.)	Production[1] (Lb.)	Fish Planted[2] (No.)	Fish Planted[2] (Lb.)	Expenditur Salaries	Expenditur Fish Food
Ana.	666,089	20,554.5	1,000,878	24,111.0	$ 20,852.13	$ 11,703.1
Arlee	1,005,240	11,659.0	1,050,066	13,369.0	13,094.18	7,629.5
B. T.	372,588	6,153.0	579,453	6,255.0	11,824.75	4,495.0
B'water	-64,681	29,179.0	339,063	29,188.0	9,626.22	13,915.9
Emig.	442,995	6,427.0	897,041	4,093.0	9,649.90	3,999.6
Gr. Fls.	542,961	21,504.6	515,732	24,820.6	13,174.97	12,596.7
Hamil.	469,882	3,407.8	456,795	3,796.8	8,538.65	3,096.7
L'town	507,893	33,978.0	749,887	29,157.0	12,484.11	14,523.9
Libby	454,878	4,109.9	659,685	5,279.5	8,979.64	3,125.8
McNeil	-61,216	125.4	186,684	130.4	4,895.51	
Ovando	839,719	231.5	839,719	213.5	1,771.41	
Polson	3,274,472	835.2	2,910,048	835.2	6,680.17	16.7
Somers	4,797,132	1,438.9	4,968,465	1,563.9	12,868.45	500.2
Fish Gen.					2,149.89	84.5
State Total	13,247,951	139,603.8	15,153,516	142,830.9	$136,589.98	$ 75,688.1
Average						
Average[1]						
Federal Hatch.						
Creston					2,180.00	4,764.32
Ennis					480.00	4,418.60
Miles C.					3,303.06	
Fed. Tot.					5,963.06	9,182.92
GR. TOTAL					$142,553.04	$ 84,871.08

[1] Computed on a fish-planted as well as a fish-on-hand at the beginning and the end of the year basis and a fish-received-from-other stations basis.

[2] Computed on a fish-planted basis.

COST AND PRODUCTION FOR THE CALENDAR YEAR 1954

xpenditure All Other Exp.	Tot.	Cost per Lb.[1] Salaries	Fish Food	All Other Exp.	Tot.	Cost per Fish[2] Salaries	Fish Food	All Other Exp.	Tot.
16,297.09	$ 48,852.37	$ 1.01	$ 0.57	$ 0.79	$ 2.37	$ 0.02	$ 0.01	$ 0.02	$ 0.05
8,439.44	29,163.19	1.12	0.65	0.72	2.49	0.01	0.008	0.009	0.03
7,931.00	24,250.78	0.92	0.73	1.29	3.94	0.02	0.008	0.01	0.04
22,561.59	46,103.75	0.33	0.48	0.77	1.58	0.03	0.04	0.06	0.13
4,058.04	17,707.60	1.50	0.62	0.63	2.75	0.007	0.002	0.003	0.01
10,835.64	36,607.34	0.61	0.59	0.50	1.70	0.03	0.03	0.02	0.08
5,652.25	17,287.60	2.50	0.91	1.66	5.07	0.02	0.01	0.01	0.04
9,621.62	36,629.69	0.36	0.42	0.28	1.06	0.01	0.02	0.01	0.04
4,958.84	17,064.37	2.18	0.76	1.21	4.15	0.02	0.006	0.01	0.04
3,414.61	8,310.12	39.03	.....	27.23	66.26	0.03	.....	0.02	0.05
1,090.74	2,862.15	7.65	.....	4.71	12.36	0.002	.....	0.001	0.003
3,624.49	10,321.41	8.00	0.02	4.33	12.35	0.002	.....	0.001	0.003
11,354.95	24,723.68	8.94	0.35	7.89	17.18	0.003	0.0001	0.002	0.005
1,811.44	4,045.83								
111,651.74	$323,929.88								
		$ 0.98	$ 0.54	$ 0.80	$ 2.32	$ 0.009	$ 0.005	$ 0.008	$ 0.02
		0.81	0.55	0.67	2.03	0.02	0.01	0.015	0.045
148.94	7,093.26								
276.42	5,175.02								
552.08	3,855.14								
977.44	16,123.42								
112,629.18	$340,053.30								

[1] Includes fish started for, and transferred to, other stations.
[2] Excluding expenditures of, and pounds of fish produced by McNeil, Ovando, Polson and Somers.

TABLE

SUMMARY OF THE MONTANA STATE HATCHERY SYSTEM

Hatcheries	Production[1] (No.)	Production[1] (Lb.)	Fish Planted[2] (No.)	Fish Planted[2] (Lb.)	Expenditure Salaries	Expenditure Fish Food
Ana.	3,198,377	10,026.4	3,740,097	16,749.9	$ 17,621.77	$ 4,935.70
Arlee	844,748	12,895.0	1,103,246	10,608.0	11,196.86	7,089.64
B. T.	1,661,589	7,102.0	1,784,266	8,210.0	10,933.83	5,264.45
B'water	-62,492	26,514.0	325,924	26,563.0	9,934.42	12,016.95
Emig.	359,037	10,612.0	378,098	5,104.0	10,601.99	6,719.88
Gr. Fls.	1,108,461	16,444.0	1,371,496	17,832.0	13,126.47	6,485.41
Hamil.	222,895	5,441.9	295,221	4,981.4	7,697.19	2,344.54
L'town	781,974	30,905.0	783,078	33,312.0	13,568.90	18,389.51
Libby	1,035,527	5,666.0	980,160	5,807.7	8,267.74	1,401.39
McNeil	2,407,040	48.8	2,407,040	48.8	2,849.35	.....
Ovando	203,820	126.8	208,820	128.5	712.00	24.00
Polson	2,643,812	693.0	3,274,472	835.2	6,143.02	24.00
Somers	5,954,254	1,309.2	5,954,868	1,263.9	9,098.69	.....
Fish Gen.					1,043.80	2,454.43
State Total	20,359,042	127,784.1	22,606,786	$ 131,444.4	$122,796.03	$ 67,149.90
Average						
Average[4]						
Federal Hatch.						
Creston					1,895.00	1,827.89
Ennis					897.42	3,947.61
Miles C.					4,284.17	.....
Fed. Tot.					7,076.59	5,775.50
GR. TOTAL					$129,872.62	$ 72,925.40

[1] Computed on a fish-planted as well as a fish-on-hand at the beginning and the end of the year basis and a fish-received-from-other stations basis.

[2] Computed on a fish-planted basis.

2

COST AND PRODUCTION FOR THE CALENDAR YEAR 1955

Expenditure All Other Exp.	Tot.	Cost per Lb.[1] Salaries	Fish Food	All Other Exp.	Total	Cost per Fish[2] Salaries	Fish Food	All Other Exp.	Total
$ 11,919.03	$ 34,476.50	$1.76	$ 0.49	$ 1.19	$ 3.44	$ 0.008	$ 0.002	$ 0.005	$0.015
4,394.24	22,680.74	0.87	0.54	0.34	1.75	0.008	0.005	0.003	0.02
4,810.46	21,008.74	1.54	0.74	0.68	2.96	0.007	0.003	0.003	0.01
4,685.73	26,637.10	0.37	0.45	0.18	1.00	0.03	0.04	0.02	0.09
2,845.92	20,167.79	0.98	0.62	0.26	1.86	0.01	0.009	0.004	0.02
4,442.93	24,054.81	0.80	0.39	0.27	1.46	0.01	0.005	0.004	0.02
2,583.23	12,624.96	1.41	0.43	0.47	2.31	0.02	0.007	0.008	0.035
10,869.36	42,827.77	0.44	0.59	0.35	1.38	0.02	0.025	0.015	0.06
3,557.97	13,227.10	1.46	0.25	0.63	2.34	0.009	0.001	0.004	0.01
1,248.80	4,098.15	58.39	.....	25.59	83.98	0.001	.....	0.0005	0.0015
298.49	1,034.49	5.62	0.19	2.35	8.16	0.003	0.0001	0.001	0.004
2,231.21	8,398.23	8.86	0.03	3.22	12.11	0.0025	.....	0.0009	0.003
4,413.56	13,512.25	6.95	.....	3.37	10.32	0.001	.....	0.001	0.002
1,792.34	5,290.57								
$ 60,093.27	$250,039.20								
		$ 0.96	$ 0.52	$ 0.47	$ 1.95	$ 0.005	$ 0.003	$ 0.002	$ 0.01
		0.83	0.53	0.41	1.77	0.01	0.006	0.005	0.02
77.81	3,800.70								
67.37	4,912.40								
746.25	5,030.42								
891.43	13,743.52								
$ 60,984.70	$263,782.72								

[2] Includes fish started for, and transferred to, other stations.

[4] Excluding expenditures of, and pounds of fish produced by McNeil, Ovando, Polson and Somers.

TABLE 3

FISH PLANTED BY THE MONTANA HATCHERY SYSTEM

Species	Size	Jan. 1-Dec. 31,1954 (No.)	(Lb.)	Jan. 1.-Dec. 31, 1955 (No.)	(Lb.)
Rainbow	Fry	606,525	179.8	1,310,396	442.6
	1	947,200	562.2	1,015,818	1,788.1
	2	316,823	1,258.0	890,580	3,353.0
	3	284,443	3,873.0	73,194	935.0
	4	133,239	3,703.0	78,820	2,235.0
	5	117,350	6,233.0	221,117	11,352.0
	6	205,732	16,960.0	88,242	7,947.0
	Legal	383,837	87,770.0	442,305	63,498.0
	Adult	42,846	8,660.0	102,075	32,580.0
Cutthroat	Eggs			26,924	3.4
	Fry	2,385,390	643.6	5,087,546	1,749.3
	1	1,493,007	838.1	353,122	285.3
	2	227,141	537.0	80,592	104.5
	3	219,546	2,190.5	109,495	907.5
	4	85,296	2,119.0	6,500	150.0
	5	28,298	560.0		
	Legal	6,255	1,050.0	6,189	1,293.0
Eastern Brook	1	61,600	78.0		
	2	78,283	266.0		
	3	16,000	200.0		
	4	30,400	870.0		
	6	4,500	550.0		
Brown	Fry	81,200	50.0	152,930	41.0
	1	390,016	353.8	196,703	182.0
	2	107,114	182.0	122,520	296.0
	3	22,601	225.0	39,400	380.0
	5	16,320	680.0		
	Adult			670	329.0
Mackinaw	1	139,527	132.6		
	2	2,100	7.0		
	3			7,000	35.0
Golden	1			41,134	8.4
Sockeye Salmon	Fry	4,508,366	1,070.2	3,895,914	907.9
Silver Salmon	2	36,110	97.5	100,560	353.0
	3	73,767	677.0	7,000	35.0
Grayling	Fry	1,916,000	124.2	4,863,000	204.6
Sauger/Walleye	Fry	.....	.....	1,808,915	22.7
	4	2,142	112.0		
Northern Pike	Fry	184,466	6.4	598,125	26.1
	Adult	76	12.0		
Totals		15,153,516	142,830.9	22,606,786	131,444.4

For the past two seasons, an experimental rough fish seining program has been carried on at Fort Peck. Catches were made of carp, buffalo and catfish and taken to markets on the West Coast, Missouri and Chicago. The prices paid for these fish varied greatly and it was established that carp seined in Montana with the cost of transportation added was not a paying proposition as a business enterprise. The seining of fish in an impoundment that fluctuates such as Fort Peck is not necessarily static or constant but is governed by the drawdown of the reservoir for power and flood control purposes. This program will be continued throughout the summer of 1956 and an attempt will be made to draft legislation which will allow effectual commercial fishing with adequate controls.

In projecting the fisheries of tomorrow in Montana there are several points that must be made and considered seriously if we are to maintain a trout fishery such as we know today and wish to have in the future:

(1) The control and curtailment of pollution;

(2) Adequate minimum flows of water in all streams to retain fish life during critical periods of the year;

(3) Public access to fishing waters;

(4) Proper planning and forethought in road building and channel changes for road building, agriculture and flood control;

(5) Establish as a beneficial use Montana's waters for recreational purposes;

(6) Adequate planning and long-range plannnig for watershed protection and management.

If the above six points are stressed and considered by all people, our water supplies and fish habitat will continue to exist for the beneficial use by people for fishing and recreation.

STATISTICS

1955 LICENSE SALES BY COUNTIES

County	Resident Bird & Fish	Resident Big Game	Tourist Fishing	Non-Resident Fishing	Non-Resident Bird	Non-Resident Big Game	Bow and Arrow	Special Permits	TOTALS
Beaverhead	2,961	2,016	3,265	235	1	100	18	.....	8,596
Big Horn	1,770	1,114	161	34	4	5	.....	.....	3,088
Blaine	1,511	952	33	8	....	1	10	.....	2,515
Broadwater	1,268	846	173	16	1	11	5	.....	2,320
Carbon	2,907	1,871	416	84	1	8	2	.....	5,289
Carter	817	804	6	1	....	12	..	..	1,640
Cascade	18,551	11,045	1,070	149	15	83	103	....	31,016
Chouteau	1,766	1,262	44	6	....	5	7	.....	3,090
Custer	3,005	2,425	53	23	9	76	10	....	5,601
Daniels	806	517	5	2	....	1	....	.....	1,331
Dawson	2,905	2,197	45	10	6	13	11	...	5,187
Deer Lodge	4,608	2,544	519	48	....	23	5	.....	7,747
Fallon	1,094	993	24	10	....	49	2	.....	2,172
Fergus	5,473	4,489	347	51	3	46	37	....	10,446
Flathead	13,081	8,409	2,748	330	12	101	62	.....	24,743
Gallatin	8,594	5,757	10,650	1,047	10	241	36	.....	26,335
Garfield	413	378	10	....	....	....	..	..	801
Glacier	2,412	1,097	272	56	4	22	8	.....	3,871
Golden Valley	468	383	19	....	....	1	3	.....	874
Granite	1,152	869	148	9	....	15	....	.....	2,193
Hill	4,040	2,116	107	32	8	19	28	.....	6,350
Jefferson	1,221	865	244	10	..	9	....	.....	2,349
Judith Basin	1,144	901	85	10	....	12	....	.....	2,152
Lake	3,761	1,698	2,672	130	15	23	7	.....	8,306
Lewis & Clark	8,996	5,751	1,105	152	5	582	69	.....	16,660
Liberty	665	358	18	20	.	....	17	.....	1,078
Lincoln	4,806	3,631	1,100	175	2	16	48	.....	9,778
Madison	2,284	1,417	2,293	130	7	40	1	.....	6,172
McCone	584	468	5	....	....	....	4	.....	1,061
Meagher	1,097	889	141	10	....	19	....	.....	2,156
Mineral	1,234	1,022	495	241	10	24	4	.....	3,030
Missoula	11,831	7,643	1,830	226	36	135	51	.....	21,752
Musselshell	1,595	1,260	104	11	....	11	7	.....	2,988

1955 LICENSE SALES BY COUNTIES (Continued)

County	Resident Bird & Fish	Resident Big Game	Tourist Fishing	Non-Resident Fishing	Non-Resident Bird	Non-Resident Big Game	Bow and Arrow	Special Permits	TOTALS
Park	4,897	3,719	1,061	92	2	107	18	.....	9,896
Petroleum	355	311	5	5	....	....	....	.....	676
Phillips	1,713	1,247	37	1	10	7	1	.....	3,016
Pondera	2,459	1,531	125	36	5	7	58	.....	4,221
Powder River	637	590	8	4	....	25	....	.....	1,264
Powell	2,429	1,867	252	22	....	49	....	.....	4,619
Prairie	515	434	4	2	....	2	....	.....	957
Ravalli	4,036	2,685	1,055	98	2	77	7	.....	7,960
Richland	1,974	1,593	16	2	5	2	6	.....	3,598
Roosevelt	2,446	1,652	34	4	6	4	5	.....	4,151
Rosebud	1,263	1,057	15	1	....	4	3	.....	2,343
Sanders	2,680	2,075	758	131	20	33	....	.....	5,697
Sheridan	1,209	875	3	1	8	1	....	.....	2,097
Silver Bow	13,431	6,729	979	102	2	37	19	.....	21,299
Stillwater	2,397	1,592	346	47	....	2	1	.....	4,385
Sweet Grass	1,477	1 133	277	42	....	12	3	.....	2,944
Teton	2,263	1,423	139	28	7	17	32	.....	3,909
Toole	1,920	1,121	65	41	2	6	37	.....	3,192
Treasure	320	261	9	1	....	....	....	.....	591
Valley	3,072	2,118	169	19	7	8	10	.....	5,403
Wheatland	1,358	1,074	125	17	....	14	13	.....	2,601
Wibaux	364	295	3	8	....	....	....	.....	670
Yellowstone	17,414	11,563	979	164	17	63	73	.....	30,273
Moose	.....	.....	.....	....	....	....	....	343	343
Mt. Sheep	.....	.....	.....	....	....	....	....	58	58
Mt. Goat	.....	.....	.....	....	....	....	....	225	225
Non-Res. Deer	.....	.....	.....	....	....	....	....	2,623	2,623
Non-Res. Antelope	.....	.....	.....	....	....	....	....	3,495	3,495
TOTALS	189,449	124,932	36,671	4,134	242	2,180	841	6,744	365,193

MONTANA HUNTING AND FISHING LICENSE SALES

1944 THROUGH 1955

LICENSE	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955
Resident Bird & Fish	101,941	114,285	140,640	140,327	152,581	160,484	159,284	170,449	183,770	181,560	186,395	189,449
Resident Big Game	45,335	52,694	74,316	71,819	77,390	79,329	87,261	100,740	116,566	117,984	121,712	124,932
Resident Sportsmen	298	540	1,712	.....	.....	.....	.....	.....	.....	.....	.....	.....
Non-Res. 6-day Fishing	5,221	7,607	17,490	17,651	20,135	23,423	23,664	24,790	27,940	31,295	33,231	36,671
Non-Resident Fishing	1,882	2,480	4,351	3,567	3,863	3,994	3,741	4,385	5,017	4,080	4,005	4,134
Non-Resident Bird	337	548	292	121	163	184	124	216	262	149	201	242
Non-Resident Big Game	479	1,085	2,907	954	1,074	754	897	1,245	1,615	1,607	1,547	2,180
Alien Bird	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....
Alien Fishing	77	94	95	.....	.....	.....	.....	.....	.....	.....	.....	.....
Alien Big Game	1	2	4	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bow & Arrow	.....	.....	.....	.....	.....	.....	.....	.....	.....	535	715	841
Special Antelope	.....	1,575	2,424	2,854	2,652	3,932	8,345	9,272	18,622	23,677	20,886	.....
Special Moose	.....	90	90	95	80	82	76	105	211	142	192	343
Special Elk	.....	.....	.....	264	270	185	245	357	341	.....	.....	.....
Special Deer	.....	.....	.....	200	93	877	1,513	1,254	4,270	.....	.....	.....
Special Mountain Sheep	.....	.....	.....	.....	.....	.....	.....	.....	.....	30	53	58
Special Mountain Goat	.....	.....	.....	.....	.....	.....	.....	.....	.....	50	100	225
Special Buffalo	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	3	.....
Non-Resident Deer	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,623
Non-Resident Antelope	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,495
TOTALS	155,571	181,000	244,323	237,852	258,301	273,244	285,150	312,813	358,614	361,112	369,040	365,193

MONTANA STATE FISH AND GAME DEPARTMENT
STATEMENT OF INCOME AND EXPENDITURES, TWELVE MONTH PERIOD
MAY 1, 1955 — APRIL 30, 1956

	TOTAL INCOME		COLLECTIONS		P. R. REIMB.		D. J. REIMB.		EXPENDITURES	
	May 1, 1954 Apr. 30, 1955	May 1, 1955 Apr. 30. 1956	May 1, 1954 Apr. 30, 1955	May 1, 1955 Apr. 30. 1956	May 1, 1954 Apr. 30, 1955	May 1, 1955 Apr. 30. 1956	May 1, 1954 Apr. 30, 1955	May 1, 1955 Apr. 30. 1956	May 1, 1954 Apr. 30, 1955	May 1, 1955 Apr. 30. 1956
May	$ 56,171.88	$ 124,181.70	$ 41,467.95	$ 35,268.63	$ 4,703.93	$ 76,298.48	$	$12,614.59	$ 160,503.31	$ 118,876.22
June	247,220.39	279,282.16	200,874.70	204,596.40	39,143.59	69,160.82	7,202.10	5,524.94	409,110.50	273,763.71
July	221,363.57	233,251.69	170,637.51	144,468.35	50,725.96	84,538.85	.....	4,244.49	44,998.44	45,262.93
Aug.	221,581.37	161,533.75	195,407.00	161,308.18	24,211.57	.....	1,962.80	225.57	257,014.90	149,657.77
Sept.	98,060.12	178,622.80	83,701.65	178,622.80	14,358.47	.....	.....	.....	205,941.65	139,465.69
Oct.	134,879.20	225,515.17	134,316.70	168,877.75	562.50	24,000.00	.....	32,637.42	195,566.67	123,703.71
Nov.	389,651.97	291,093.68	256,935.58	281,146.80	114,908.03	1,397.25	17,808.36	8,549.63	190,011.58	183,426.03
Dec.	107,664.64	107,024.19	82,166.89	107,024.19	25,497.75	.....	.....	.....	171,481.61	123,325.72
Jan.	139,309.15	61,833.24	35,893.60	51,685.30	80,485.84	.....	22,929.71	10,147.94	98,331.53	135,693.49
Feb.	68,904.77	147,647.64	33,425.71	44,445.10	35,479.06	103,202.54	.....	.....	144,829.67	133,580.23
March	65,915.57	171,743.36	20,645.77	138,823.54	42,390.34	29,839.30	2,879.46	7,080.52	122,085.59	154,825.23
April	49,347.81	44,419.55	29,424.07	19,244.95	16,688.15	25,174.60	3,235.59	.....	143,052.66	118,379.89
Total	$1,800,070.34	$2,026,148.93	$1,294,897.13	$1,531,511.99	$449,155.19	$413,611.84	$56,018.02	$81,025.10	$2,142,918.11	$1,699,951.62

Balance April 30, 1955	$ 256,954.74
Income May 1, 1955 - April 30, 1956	2,026,148.93
Total	$2,283,103.67
Expenditures May 1, 1955 - April 30, 1956	1,699,951.62
Balance	$ 583,152.05
Bond Investments	$ 400,000.00

NOTE: Actual income for April is $922.92 greater than shown due to a "Correction of Income-Out" adjustment made this month.

MONTANA FISH AND GAME DEPARTMENT
STATEMENT OF INCOME
MAY 1, 1954 — APRIL 30, 1955

Hunting and Fishing Licenses and Permits:

Resident Bird and Fish	186,395	@	$ 3.00	$559,185.00	
Resident Big Game	121,712	@	2.00	243,424.00	
Non-Resident 6 Day Fishing	33,231	@	3.00	99,693.00	
Non-Resident Fishing	4,005	@	10.00	40,050.00	
Non-Resident Bird	201	@	25.00	5,025.00	
Non-Resident Big Game	1,547	@	100.00	154,700.00	
Shipping Permits	5,253	@	.60	3,151.80	
Certificates of Identification	1,667	@	.50	833.50	
Bow and Arrow	715	@	2.00	1,430.00	
Antelope Permits	20,886	@	5.00	104,430.00	
Moose Permits	192	@	25.00	4,800.00	
Mountain Sheep Permits	53	@	15.00	795.00	
Mountain Goat Permits	100	@	5.00	500.00	
Buffalo Permits	3	@	25.00	75.00	
				$ 1,218,092.30	
Less Dealers' Fees				35,108.00	$ 1,182,984.30
1953 Accounts paid during 1954					4,259.60
Total Income from Hunting and Fishing License Sales					$ 1,187,243.90

Miscellaneous Sales:

General Trappers	1,129	@	$ 10.00	$ 11,290.00	
Land Owner Trappers	338	@	1.00	338.00	
Beaver Tags	22,011	@	.50	11,005.50	
Beaver Permits	567			8,904.00	
	(Permit for ten beaver $10.00)				
	(Each additional beaver 1.00)				
Guides and Outfitters' Licenses	191	@	10.00	1,910.00	
Resident Fur Dealers' Licenses	48	@	10.00	480.00	
Taxidermist Licenses	16	@	15.00	240.00	
Fur Dealer Agent Licenses	27	@	10.00	270.00	
Non-Res. Fur Dealers' Licenses	9	@	50.00	450.00	
Minnow Seining Permits	11	@	10.00	110.00	
Rough Fish Seining Permit	1	@	50.00	50.00	
Alien Gun Permit	1	@	25.00	25.00	$ 35,072.50

Miscellaneous Revenue:

Fines	$ 32,360.65	
Sale of Confiscated Fish and Meats	3,286.84	
Other Revenue	20,604.89	
Sale of Confiscated Furs and Hides	1,353.35	
Royalty on Beaver Sold	240.00	
General Season Beaver Royalties	6,770.00	
Additional Beaver Granted	165.00	
Sale of Fish Eggs	7,800.00	72,580.73
		$ 1,294,897.13
Pittman-Robertson Income by Federal Reimbursement		449,155.19
Dingell-Johnson Income by Federal Reimbursement		56,018.02
TOTAL INCOME TO DEPARTMENT FOR PERIOD MAY 1, 1954 - APRIL 30, 1955		$ 1,800,070.34

MONTANA FISH AND GAME DEPARTMENT
STATEMENT OF INCOME
MAY 1, 1955 — APRIL 30, 1956

Hunting and Fishing Licenses:

Resident Bird and Fish	189,449	@	$ 3.00	$568,347.00	
Resident Big Game	124,932	@	3.00	374,796.00	
Non-Resident 6 Day Fishing	36,671	@	3.00	110,013.00	
Non-Resident Fishing	4,134	@	10.00	41,340.00	
Non-Resident Bird	242	@	25.00	6,050.00	
Non-Resident Big Game	2,180	@	100.00	218,000.00	
Shipping Permits	6,214	@	.60	3,728.40	
Certificates of Identification	1,867	@	.50	933.50	
Bow and Arrow	841	@	2.00	1,682.00	
Fur Shipping Permits	25	@	.60	15.00	
Moose Permits	343	@	25.00	8,575.00	
Mountain Sheep Permits	58	@	15.00	870.00	
Mountain Goat Permits	225	@	5.00	1,125.00	
Non-Resident Deer	2,623	@	20.00	52,460.00	
Non-Resident Antelope	3,495	@	20.00	69,900.00	
				$ 1,457,834.90	
Less Dealers' Fees				36,815.50	$ 1,421,019.40
1955 Accounts paid during 1956					5,711.50
Total Income from Hunting and Fishing License Sales					$ 1,426,730.90

Miscellaneous Sales:

General Trappers	1,348	@	$ 10.00	$ 13,480.00	
Land Owner Trappers	348	@	1.00	348.00	
Beaver Tags	18,878	@	.50	9,439.00	
Beaver Permits	650			9,690.00	
	(Permit for ten beaver $10.00)				
	(Each additional beaver 1.00)				
Guides' and Outfitters' Licenses	173	@	10.00	1,730.00	
Resident Fur Dealers	44	@	10.00	440.00	
Taxidermist Licenses	18	@	15.00	270.00	
General Season Beaver Royalties	1,615	@	1.00	1,615.00	
Fur Dealer Agent	28	@	10.00	280.00	
Non-Resident Fur Dealer	6	@	50.00	300.00	
Minnow Seining	3	@	10.00	30.00	
Additional Beaver	157	@	1.00	157.00	$ 37,779.00

Miscellaneous Revenue:

Fines	$ 42,008.84	
Sale of Confiscated Fish and Meats	4,771.59	
Other Revenue	16,811.38	
Royalty on Beaver Sold	7.00	
Beaver Royalties	441.00	
Additional Beaver	138.00	
Sale of Fish Eggs	3,747.20	67,925.01
		$ 1,532,434.91
Less Income Re-directed as Refunds to Expenditures		922.92
		$ 1,531,511.99
Pittman-Robertson Income by Federal Reimbursement		413,611.84
Dingell-Johnson Income by Federal Reimbursement		81,025.10
TOTAL INCOME TO DEPARTMENT FOR PERIOD MAY 1, 1955 - APRIL 30, 1956		$ 2,026,148.93

DETAIL OF EXPENDITURES

For Fiscal Years Ending April 30, 1955, and April 30, 1956

	APRIL 1955	APRIL 1956
COMMISSIONERS		
Per Diem	$ 2,407.00	$ 3,225.00
Operation	5,434.78	5,892.21
TOTAL	$ 7,841.78	$ 9,117.21
ADMINISTRATION		
Salaries	$ 77,948.16	$ 97,582.78
Operation	64,342.05	39,874.74
Capital Expenditure	8,523.04	1,156.33
Repair and Replacement	2,599.35	1,435.90
Bond Investment Interest	.....	3,348.77*
TOTAL	$ 153,412.60	$ 136,700.98
MISCELLANEOUS ACCOUNTS		
Game Damage	$ 3,956.53	$ 8,940.85
Warehouse Stores Account	2,047.12	11,028.87*
Printing Licenses—Maps	27,522.17	29,022.49
Refunds	628.00	553.95
Appropriation to Purchasing Department	6,287.08	6,666 44
Other Field Projects	1,858.56	1,172.92
Elk Transplanting	570.10	657.06
Antelope Transplanting	775.71	94.91
Checking Stations	2,066.62	769.26
TOTAL	$ 45,711.89	$ 36,849.01
STATE TRAPPER		
Salaries	$ 3,178.65	.....
Operation	1,773.32	.....
Capital Expenditure	7.65	.....
Repair and Replacement	59.95	.....
TOTAL	$ 5,019.57	.....
INFORMATION AND EDUCATION		
Salaries	$ 28,085.67	$ 34,719.92
Operation	14,766.03	10,602.22
Capital Expenditure	3,067.22	1,189.02
Repair and Replacement	701.85	4,41.35*
TOTAL	$ 46,620.77	$ 46,069.81
PREDATOR CONTROL		
Salaries	$ 20,041.94	$ 26,845.81
Operation	6,045.12	9,362.96
Mountain Lion, Bounties	5,306.00	3,250.00
Bobcat, Bounties	3,998.00	4,384.00
Magpies and Crows, Bounties	737.75	956.17
Capital Expenditure	.....	.....
Repair and Replacement	.....	.....
TOTAL	$ 36,128.81	$ 44,798.94
UNIVERSITY RESEARCH UNIT		
Salaries	$ 3,993.50	$ 3,712.86
Operation	1,717.91	1,858.64
Capital Expenditure	166.93	728.12
Repair and Replacement	159.07	264.25
TOTAL	$ 6,037.41	$ 6,563.87
GAME LAW COMMITTEE		
Operation	$ 8,271.08	.....
TOTAL	$ 8,271.08	$ .....

*Credit.

DETAIL OF EXPENDITURES (Continued)

	APRIL 1955	APRIL 1956
AIRPLANE ACCOUNT		
Operation	$ 930.45	$ 3,487.26
Capital Expenditure	13,427.02	3,493.21
Repair and Replacement	383.75	2,592.41
Credit for Airplane Rental		11,441.05*
TOTAL	$ 14,741.22	$ 1,868.17*
AUTOMOTIVE EQUIPMENT ACCOUNT		
Salaries	$	$
Operation		58,828.84
Capital Expenditure		153,706.16
Repair and Replacement		29,047.49
Credit for Vehicle Rental		73,545.58*
TOTAL		$ 168,036.91
ENFORCEMENT—GENERAL		
Salaries	$ 984.01	$ 9.91
Operation	14,830.82	6,690.26
Capital Expenditure	11,933.04	224.50*
Repair and Replacement	2,600.11	5,061.86*
TOTAL	$ 30,347.98	$ 1,413.81
ENFORCEMENT—District No. 1		
Salaries	$ 33,067.94	$ 33,269.47
Operation	14,008.92	14,517.32
Capital Expenditure	6,570.74	9,317.93
Repair and Replacement	1,068.30	6,295.17*
TOTAL	$ 54,715.90	$ 50,809.55
ENFORCEMENT—District No. 2		
Salaries	$ 35,361.46	$ 33,001.81
Operation	17,371.99	17,751.04
Capital Expenditure	25,241.05	10,245.83
Repair and Replacement	1,319.86	4,373.75*
TOTAL	$ 79,294.36	$ 56,624.93
ENFORCEMENT—District No. 3		
Salaries	$ 42,382.62	$ 50,522.91
Operation	22,316.90	24,430.81
Capital Expenditure	38,597.48	727.52
Repair and Replacement	3,191.64	8,364.25*
TOTAL	$ 106,488.64	$ 67,316.99
ENFORCEMENT—District No. 4		
Salaries	$ 41,923.02	$ 41,076.31
Operation	16,564.38	17,968.73
Capital Expenditure	8,153.76	31,728.10
Repair and Replacement	979.25	4,294.48*
TOTAL	$ 67,625.41	$ 86,478.66
ENFORCEMENT—District No. 5		
Salaries	$ 28,488.85	$ 29,978.19
Operation	12,119.08	12,133.44
Capital Expenditure	5,106.93	240.65
Repair and Replacement	269.41	3,161.01*
TOTAL	$ 45,984.27	$ 39,196.27

*Credit.

DETAIL OF EXPENDITURES (Continued)

	APRIL 1955	APRIL 1956
ENFORCEMENT—District No. 6		
Salaries	$ 26,349.49	$ 25,586.57
Operation	13,561.09	11,671.78
Capital Expenditure	4,732.74	27,765.39
Repair and Replacement	247.41	194.29*
TOTAL	$ 44,890.73	$ 64,829.45
ENFORCEMENT—District No. 7		
Salaries	$ 27,284.45	$ 25,581.90
Operation	14,031.06	10,399.89
Capital Expenditure	3,551.64	1,560.84
Repair and Replacement	1,255.04	959.79*
TOTAL	$ 46,122.19	$ 36,582.84
TOTAL ENFORCEMENT	$ 475,469.48	$ 403,252.50
FISHERIES DIVISION		
HATCHERIES		
ANACONDA		
Salaries	$ 20,638.10	$ 17,743.34
Operation	18,390.96	11,310.16
Capital Expenditure	5,537.37	59.53
Repair and Replacement	6,442.10	3,611.67
TOTAL	$ 51,008.53	$ 32,724.70
ARLEE		
Salaries	$ 13,283.36	$ 11,312.82
Operation	9,534.22	10,320.37
Capital Expenditure	585.88	232.56
Repair and Replacement	2,955.49	178.52
TOTAL	$ 26,358.95	$ 22,094.27
BLUEWATER		
Salaries	$ 10,030.36	$ 10,755.98
Operation	17,030.59	13,577.65
Capital Expenditure	15,185.50	182.06
Repair and Replacement	3,522.30	403.78
TOTAL	$ 45,768.75	$ 24,919.47
BIG TIMBER		
Salaries	$ 11,954.75	$ 10,063.82
Operation	7,962.28	7,729.89
Capital Expenditure	109.38	153.71
Repair and Replacement	2,909.42	30.05
TOTAL	$ 22,935.83	$ 17,977.47
EMIGRANT		
Salaries	$ 10,861.90	$ 10,656.41
Operation	7,483.54	8,051.07
Capital Expenditure	231.48	77.98
Repair and Replacement	851.04	65.49
TOTAL	$ 19,427.96	$ 18,851.95
GREAT FALLS		
Salaries	$ 14,333.95	$ 12,193.72
Operation	13,636.72	8,630.53
Capital Expenditure	727.47	277.67
Repair and Replacement	2,484.77	347.14
TOTAL	$ 31,182.91	$ 21,499.06

*Credit

DETAIL OF EXPENDITURES (Continued)

	APRIL 1955	APRIL 1956
HAMILTON		
Salaries	$ 8,472.21	$ 7,908.16
Operation	5,216.86	6,045.39
Capital Expenditure	1,013.91	128.80
Repair and Replacement	2,941.73	1,841.43*
TOTAL	$ 17,644.71	$ 12,240.92
LEWISTOWN		
Salaries	$ 13,402.54	$ 14,138.95
Operation	20,273.51	22,412.47
Capital Expenditure	682.69	514.88
Repair and Replacement	4,842.58	81.36
TOTAL	$ 39,201.32	$ 37,147.66
LIBBY		
Salaries	$ 9,219.64	$ 8,346.13
Operation	6,189.55	3,081.67
Capital Expenditure	240.86	23.35
Repair and Replacement	1,838.02	740.79
TOTAL	$ 17,488.07	$ 12,191.94
McNEIL		
Salaries	$ 4,780.02	$ 1,776.13
Operation	1,326.41	829.04
Capital Expenditure	393.02	53.00
Repair and Replacement	1,178.00	685.76*
TOTAL	$ 7,677.45	$ 1,972.41
OVANDO		
Salaries	$ 378.19	$ 748.13
Operation	349.10	275.98
Capital Expenditure	5.07	3.70
Repair and Replacement	50.05	41.54
TOTAL	$ 782.41	$ 1,069.35
POLSON		
Salaries	$ 6,937.61	$ 5,132.46
Operation	2,175.46	2,022.09
Capital Expenditure	92.06	42.77
Repair and Relacement	1,128.31	129.74*
TOTAL	$ 10,333.44	$ 7,067.58
SOMERS		
Salaries	$ 12,768.91	$ 9,326.39
Operation	3,864.90	3,601.62
Capital Expenditure	1,369.06	74.42
Repair and Replacement	6,029.60	729.67
TOTAL	$ 24,032.47	$ 13,732.10
FISHERIES GENERAL		
Salaries	$ 2,882.57	$ 460.44
Operation	7,373.03	11,366.58
Capital Expenditure	16,364.56	72.89
Repair and Replacement	3,009.81	75.54
Credit for Equipment Hire and Sale of Vehicles	13,004.46*	13,601.39*
TOTAL	$ 16,625.51	$ 1,625.94*
SPAWNING STATIONS		
Salaries	$ 7,553.22	$ 9,713.27
Operation	2,016.97	4,028.34
Capital Expenditure	366.40	48.97
Repair and Replacement	468.59	1,111.71
TOTAL	$ 10,405.18	$ 14,902.29

*Credit.

DETAIL OF EXPENDITURES (Continued)

	APRIL 1955	APRIL 1956
OTHER FIELD PROJECTS		
Salaries	$ 8,692.41	$ 14,715.97
Operation	5,206.59	8,201.75
Capital Expenditure	48.47	46.47
Repair and Replacement	1,439.88	208.39
TOTAL	$ 15,387.35	$ 23,172.58
DINGELL-JOHNSON PROJECTS		
Salaries	$ 55,368.93	$ 56,803.93
Operation	33,979.80	52,388.64
Capital Expenditure	7,353.12	4,237.20
Repair and Replacement	5,525.58*	2,684.20
TOTAL	$ 91,176.27	$ 116,113.97
FEDERAL HATCHERIES—CRESTON, ENNIS, MILES CITY		
Salaries	$ 5,633.06	$ 7,584.09
Operation	8,350.90	6,774.79
Capital Expenditure	.....	31.84
Repair and Replacement	165.60	38.41
TOTAL	$ 14,149.56	$ 14,429.13
TOTAL FISHERIES DIVISION	$ 461,586.67	$ 390,480.91
GAME FARM DIVISION		
BILLINGS		
Salaries	$ 13,142.46	$ 10,264.44
Operation	3,137.05	5,663.03
Capital Expenditure	539.19	909.24
Repair and Replacement	1,220.36	1,846.20
Credit for Hail Insurance	.....	6,112.90*
TOTAL	$ 18,039.06	$ 12,570.01
FORT PECK		
Salaries	$ 11,665.00	$ 9,947.53
Operation	7,847.88	8,049.37
Capital Expenditure	10,131.88	284.33
Repair and Replacement	3,483.05	170.98
Credit for Sale of Building and Equipment	.....	3,295.00*
TOTAL	$ 33,127.81	$ 15,157.21
WARM SPRINGS		
Salaries	$ 12,293.18	$ 10,277.86
Operation	8,961.53	7,864.63
Capital Expenditure	8,341.15	43.30
Repair and Replacement	1,927.86	336.78*
TOTAL	$ 31,523.72	$ 17,849.01
MOIESE		
Salaries	$ 3,069.87	$ 2,746.45
Operation	1,958.37	1,406.33
Capital Expenditure	494.88	134.64
Repair and Replacement	1,611.39	115.99
TOTAL	$ 7,134.51	$ 4,403.41
TOTAL GAME FARMS	$ 89,825.10	$ 49,979.64
WAREHOUSE AND SHOP		
Salaries	$ 22,746.56	$ 18,659.14
Operation	2,726.70	3,498.49
Capital Expenditure	280.60	2,063.99
Repair and Replacement	2,162.13	267.03
TOTAL	$ 27,915.99	$ 24,488 65

*Credit

DETAIL OF EXPENDITURES (Continued)

	APRIL 1955	APRIL 1956
WILDLIFE RESTORATION, FEDERAL AID		
Salaries	$ 218,652.17	$ 170,656.84
Operation	111,875.74	106,978.91
Capital Expenditure	420,100.86	105,130.33
Repair and Replacement	36,753.48	21,363.78
	$ 787,382.25	$ 404,129.86
Credit	23,046.51	18,648.50
TOTAL	$ 764,335.74	$ 385,481.36
GRAND TOTAL OF EXPENDITURES	$ 2,142,918.11	$ 1,699,951.62

NOTE: Repair and replacement may show credit due to transfer of vehicles to automotive equipment account.

TOTAL SALARIES	$ 870,262.73	$ 837,045.84
TOTAL OPERATION	554,656.31	475,079.92
TOTAL CAPITAL EXPENDITURE	611,795.61	356,512.23
TOTAL REPAIR AND REPLACEMENT	106,203.46	31,313.63
GRAND TOTAL OF EXPENDITURES	$ 2,142,918.11	$ 1,699,951.62

RECAPITULATION OF FUNDS
May 1, 1954 to April 30, 1955
and
May 1, 1955 to April 30, 1956

Balance Forward April 30, 1954		$ 599,802.51
Income May 1, 1954—April 30, 1955		1,800,070.34
Funds Available During Period 1954-55	$ 2,399,872.85	
Disbursements During Period 1954-55	2,142,918.11	
Balance April 30, 1955		$ 256,954.74
Income May 1, 1955—April 30, 1956		2,026,148.93
Funds Available During Period 1955-56	$ 2,283,103.67	
Disbursements During Period 1955-56	1,699,951.62	
Balance with State Treasurer April 30, 1956		$ 583,152.05
Bond Investments		400,000.00
Total Funds April 30, 1956		$ 983,152.05