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MONTANA

Wildlife

November, 1962—Montana Fish and Game Department Official Publication



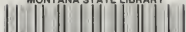
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**BIENNIAL
REPORT**
May 1, 1960—April 30, 1962

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BIENNIAL REPORT
of the
MONTANA FISH
AND GAME COMMISSION

May 1, 1960-April 30, 1962



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MONTANA FISH & GAME DEPARTMENT
Helena, Montana

The Honorable Tim Babcock
Governor of Montana
Helena, Montana

Dear Governor Babcock:

It is our pleasure to submit the biennial report of the Montana Fish and Game Commission for the period of May 1, 1960 to April 30, 1962.

This report lists in detail all department income and expenditures for the past biennium. We have also summarized programs and investigations and, as required by law, have recommended measures to be taken or enacted for the proper management of Montana's fish and game resources.

We are proud to have a part in the great movement toward outdoor recreation that America is experiencing. The challenge is being met with scientific management of fish and wildlife.

Respectfully submitted,

E. G. Leipheimer, Jr., Chairman
Montana Fish & Game Commission

Lyle H. Tauck, Vice Chairman

Walter Staves, Member

E. J. Skibby, Member

John T. Hanson, Member

Walter J. Everin, Secretary

No other period of American history has witnessed as keen an interest in outdoor recreation as we are now experiencing. Outdoor activities are no longer considered as mere luxury; rather, they are gaining acceptance as an integral part of the nation's health and well-being. So keen is the interest that an exhaustive program of national scope has been undertaken in order to assess recreation possibilities and to predict needs until the year 2,000. By that time it is estimated that outdoor recreation will have tripled over what it is today.

There is a great deal of concern for the future among conservation leaders. One of the more serious problems is that of assuring permanent access to recreational areas and, for that matter, assuring permanence of recreational areas themselves. It is known, for example that water is the focal point of outdoor recreation. Still, the amount of good quality water is dwindling every year with little assurance that the loss will not continue. Fish and game departments are understandably concerned over this loss, for nation-wide fishing ranks seventh place in all outdoor recreation. With the loss of quality water that will support game fish, coming generations would be deprived of their rightful heritage.

By the turn of the century three-fourths of our people will be living in urban areas. By 1970 some 215 million Americans will be looking for places to go and for things to do outdoors. The challenge to fish and wildlife agencies is clearcut—they must not only maintain present standards of hunting and fishing but must do all they can to better them in order to accommodate a growing America.

W. J. EVERIN, Director

Montana Fish & Game Department

ADMINISTRATION



E. G. LEIPHEIMER, JR.
Butte
Commission Chairman



LYLE H. TAUCK
Hammond
Commission Vice-Chairman



W. J. EVERIN, HELENA
Director of Montana Fish and Game Department

In order to better fish and game administration, Montana has been divided geographically into seven administrative districts. Each district includes a fish and game headquarters that provides storage and office space. The headquarters are focal points for operations within the respective districts.

Under the district system public service is improved while at the same time field travel is minimized.

Supervisory personnel within the districts are directly responsible to their division chiefs in Helena. The supervisory personnel also operate as a staff on the district basis. This staff reports to the fish and game director through an appointed chairman.

The department operates on license sales and other monies taken in directly from its resources, not from the general tax fund. Federal aid to the state is financed by excise taxes on sports firearms and ammunition, and on sports fishing equipment. Consequently, operation of the fish and game department is financed only by persons who benefit directly from fish and wildlife.

Federal aid is apportioned according to the size of the state and to license sales. This money is earmarked for specific use. Should it become necessary to be budgeted through the general state fund, Montana Fish and Game would no longer be eligible to receive federal funds.



JOHN T. HANSON, SR.
Malta
Commission Member

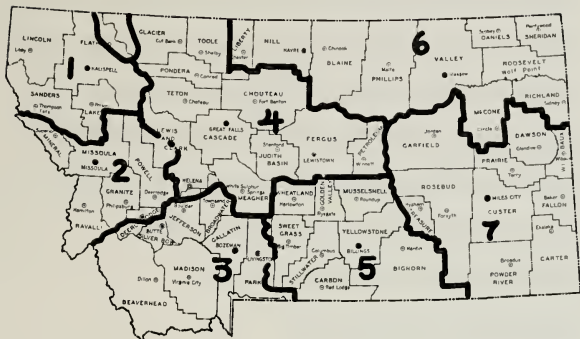


E. J. SKIBBY
Lewistown
Commission Member



WALTER E. STAVES
Polson
Commission Member

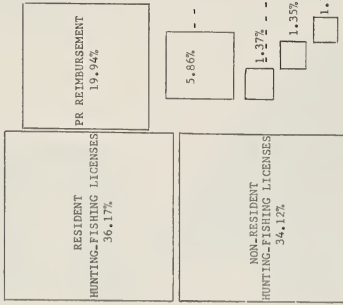
FISH & GAME ADMINISTRATIVE DISTRICTS



INCOME AND EXPENDITURES

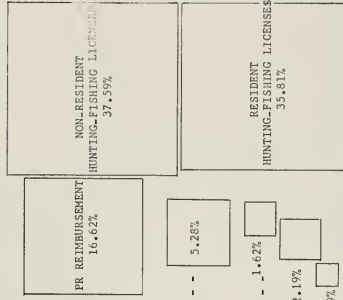
INCOME

1960 Fiscal Year



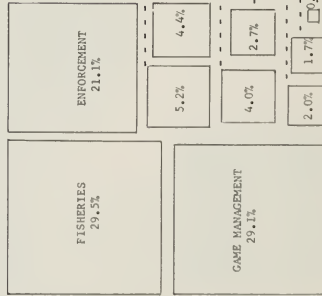
INCOME

1961 Fiscal Year



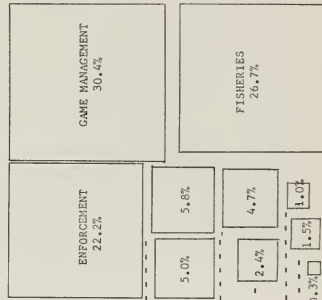
EXPENDITURES

1960 Fiscal Year

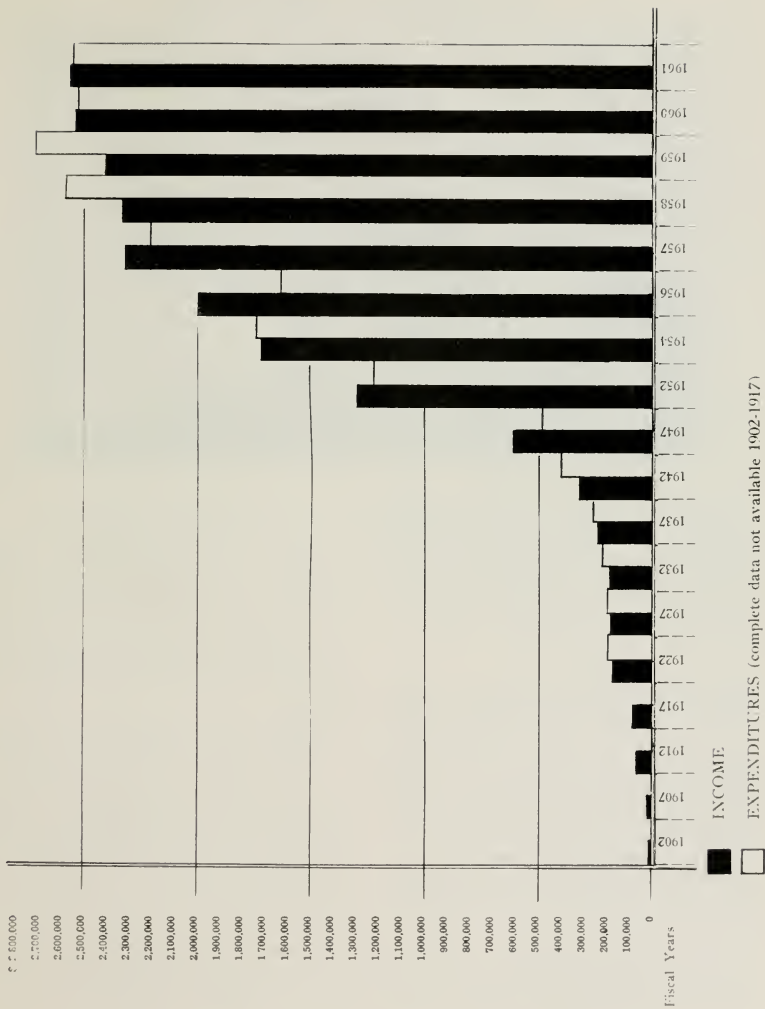


EXPENDITURES

1961 Fiscal Year



COMPARISON OF INCOME AND DISBURSEMENTS (1902 Through April 30, 1962)



RECOMMENDED LEGISLATION



Non-Resident Bear License

Black and brown bear numbers have been held at a good level in Montana bear habitats. Additional hunting pressure can be exerted on them. In 1961 the Legislature provided for a \$20 non-resident bear license until December 31, 1962. It is recommended that authority for the Fish and Game Commission to continue issuance of this license be provided by the Legislature.

Special Non-Resident Deer and Antelope License

Since 1955 the Legislature has granted authority to the Fish and Game Commission to issue \$20 non-resident deer licenses and \$20 non-resident antelope licenses. Authority to issue these licenses has become a valuable tool to direct hunting pressure in areas where it is needed. Since 1955 the following number of licenses have been issued:

It is recommended that the Legislature perpetuate authority of the Commission to issue these licenses. Resident hunting pressure in certain areas of the

State is insufficient to give adequate harvest for the good of the deer habitats in those areas.

Fish Habitat Protection

Montana streams have provided excellent trout fishing for many people throughout the nation. Fishing is an important part of tourism which is of great economic importance to the state. Therefore, maintenance of good quality trout stream fishing is a resource worth saving. The Montana Fish and Game Commission recommends the enactment of legislation which is designed to protect stream fishing habitat.

Separate Bird and Fishing License To Broaden Hunter Safety Training License Requirement

Firearms safety training for young adults has been recognized as resulting in greater safety for those who hunt. Present laws require only those persons age 12 through 17 must present a certificate showing they have completed a hunter safety training course before they may purchase a resident big game license.

	1955	1956	1957	1958	1959	1960	1961
Non-Resident Deer	2,623	6,445	5,038	7,533	9,291	12,042	13,427
Hunter Success _____				87.8%	87.0%	91.7%	92.8%
Non-Resident Antelope	3,495	5,033	2,895	0	1,237	1,043	2,778
Hunter Success _____						98.5%	96.1%

It is recommended that the provisions of this law requiring hunter safety training be extended to require firearm safety training for small game hunting in addition to big game hunting.

It will be necessary to separate the bird and fishing license into a fishing license and a separate small game license. Included in such legislation must be an amendment to Section 26-215 to remove authorization for persons under 15 years of age to hunt game birds without a license.

License Fees

If the bird and fishing license is separated, the fishing license fee should remain at \$3.00 The bird and bear license fee should be \$2.00 and should include a black or brown bear tag. The small game license would become a prerequisite license for the following licenses and tags:

Elk	\$1.00
Deer	\$1.00
Additional Deer	\$1.00
Antelope	\$1.00
Grizzly Bear	\$1.00

Liberalize Beaver Protection Laws

Many years ago laws were designed to restore Montana's badly depleted beaver. The protection and management provided under Section 26-401 has accomplished this objective. Beaver have become overpopulated in many areas and no longer need the protection. It is recommended that Sections 26-401 and 26-402 be repealed and management of beaver can thereafter be accomplished under the provisions of Section 26-321. The Commission would continue to manage beaver by regulations which could either liberalize or restrict the taking of beaver as required.

Repeal Shipping Permit Regulations

Restrictive laws regulating shipment of game, fish or fur have been in effect since 1917. These laws were enacted to curtail market hunting of fish and wildlife. They have served their purpose, and it is no longer necessary to inconvenience those who wish to ship or transport legally taken fish or game to destinations outside of Montana. Labeling of packages containing fish, game or furs will be required as provided in Section 26-704.

It is therefore recommended that Sections 26-701, 26-702, 26-703, 26-705 and 26-707 be repealed.

Motorboat and Vessel Regulation

During the 1961 Legislative Session an amendment to Section 69-3505 modified fire extinguisher equipment requirements for boats under 26 feet long. Through an oversight, sub-paragraphs 5, 6, and 7 of this section were left out. These sub-paragraphs provide for: (5) flame arrestors on all gas engines (except outboard); (6) gives regulation authority to administrating board to keep equipment requirements in conformity with federal laws and regulations promulgated by the U. S. Coast Guard, and (7) prohibition against operation of vessels not equipped as required by Section 69-3505 or modification thereof.

It is recommended that Section 69-3505 be amended to include the original sub-paragraphs 5, 6, and 7.

It is also recommended that Section 69-3502 of the motorboat and vessel regulation be amended in sub-paragraphs 7 to read as follows: "(7) The word 'Board' shall mean the State Board of Equalization."

This would transfer administration of the certificate of number system from the Fish and Game Department to the State Board of Equalization, and provide that county treasurers issue certificate of numbers. This would simplify the procedure of making application because of the requirement for a tax receipt showing that taxes have been paid on the boat before a certificate of number is issued.

Night Hunting

The Fish and Game Commission recommends that the Legislature consider favorably legislation designed to give better control over night hunting of non-game animals.

Firearms—Use of During Hunter Safety Training

Section 94-3579 provides that any minor child under the age of 14 shall not be permitted to carry or use any firearm of any description, loaded with powder and lead, unless such child is in the company of his parent or guardian.

It is recommended that this section be amended to provide that any minor child who is enrolled in a certified hunter safety training course shall be allowed, while in presence of the training instructor, to handle and discharge firearms as may be required without having his parent or guardian present.

INFORMATION - EDUCATION



The hunter safety program is one of many I & E interests. The interests of this division cover the full scale of Fish & Game activities.

The thought often expressed that fish and game management should be simplified is, for the most part, wishful thinking. The very growth and nature of our society requires more and more of recreational resources. In order to meet these demands, resource management must be more exacting so that the maximum numbers of fish and game may be produced. Accordingly, management gradually becomes more complex.

Because of the growing complexity of fish and game management, communications is becoming one of the most important elements in both management and administration. Every fish and game employee has the duty to communicate with sportsmen. Some persons and some divisions are more active in this effort since the nature of their work brings them more frequently into contact with the public.

The division which is devoted almost entirely to the many avenues of communications is that of Information and Education.

News Services

News media, including newspapers, radio stations, and television stations, are the most important outlets for wide dissemination of fish and game information, especially when the information is of immediate interest. As special news items arise, such as opening or closing of a special big game season, they are immediately given to the wire services and to newspapers in the area affected. Additional news bulletins are prepared as the need arises to keep license agents up to date on hunting regulations. Newspaper features and magazines are further outlets for fish and game information.

Mail Inquires

A lot of fish and game communications will always depend upon direct mail in answer to inquiries and requests. Because of the many thousand pieces of such mail each year, special bulletins and re-print materials have been prepared which nicely answer most inquiries. Special requests and inquiries that require unusual information must be given individual attention.

District Representatives

Information officers are presently assigned to five of the seven fish and game administrative districts. These are Great Falls, Billings, Glasgow, Bozeman, and Missoula. These men are able to give more time to and become better acquainted with local situations than they would were they located in Helena. The department is thus able to better serve sportsmen on the local level while still doing so in a coordinated manner.

They work through all communications media, including papers, radio, TV, magazines, and personal contact. Though their efforts are directed toward communications, the D.I.O. personnel have firm biological backgrounds. Their work has proven an invaluable part of the overall I. & E. program.

Movies and Photography

Next to actually being on the scene, no other media is as appealing or as effective as a good sound-movie. In fact, movies often have advantage over actual experience since the observer can sit in comfort and safety while he looks at what may otherwise be a dangerous or uncomfortable situation.

The film laboratory, besides doing a considerable amount of actual photography, is charged with putting together sound-tracking and duplicating film footage taken by other I. & E. personnel. These films are made available to schools, TV stations, sportsmen, and other interested groups through the fish and game film library.

Hunter and Water Safety

The responsibility of this program was delegated to the Montana Fish and Game Department, and ultimately the Information & Education Division was made responsible for its central administration. Though central administration is done by the I. & E. Division, the Enforcement Division has shouldered most of the field administration. Actual instruction of youngsters is given by non-department instructors. This dedicated group of volunteer instructors serve

without pay and have done an excellent job of giving required instruction to young hunters.

By the end of May, 1962, 2,087 certified instructors have given courses to 31,918 students. During the biennium covered by this report, 11,400 students have received certificates of competency.

The water safety law placed restrictions on licensing water craft, operation of boats and other water craft, and general water safety. Here again, the I. & E. Division has been the central administrative agent. The enforcement division has been active in this program also, especially from the standpoint of enforcing water safety regulations.

During the past biennium 5,232 boats have been licensed in Montana and 12,186 have been licensed since the program first became effective.

Youth Education

As America becomes more cognizant of the value in outdoor recreation, there is a corresponding demand by schools and youth organizations for instruction in fish and game management. An Education Representative devotes most of his time toward working with these groups.

Wildlife Exhibit

The Education Representative is also in charge of a wildlife exhibit which attends as many of the county fairs each summer as is practicable. This live-animal exhibit has always been one of the most popular features of the fairs. It gives both the youngsters and adults a chance to see first-hand many of the game and non-game animals that go to make up the natural fauna of Montana.

ADULT EDUCATION

The Fish and Game Department annually finances a program of adult education in cooperation with the Montana State University at Missoula and State College at Bozeman. The program calls for a series of educational lectures on wildlife and resource management to be presented in a number of Montana towns each year. As stated in the original agreement, the purpose of this program is to "develop a better understanding of advanced management of the natural resource base to the end that a more favorable environment for wildlife species may be attained and maintained."

Besides conducting regular forums, the Wildlife Extensionists work with sportsmens groups, schools, youth groups, and cooperate with the Department in other education programs as time permits.

GAME MANAGEMENT

Good hunting for game birds and animals is the prime objective of game management. The art and science of game management is directed toward



continuing opportunity for an annual harvest of game birds and animals in a sporting manner. This opportunity is the license buyer's return on his investment. In addition, most sportsmen expect some degree of success in tangible results in the bag. This responsibility cannot be successfully met unless the foundation for bird and animal life—the soil and growing plants—is protected from deterioration. If game habitat is maintained in good condition and if game populations exist in reasonable harmony with other uses of the land, then it is relatively easy to perpetuate annual crops of game birds and animals.

Successful discharge of the responsibilities of game management depends upon many accurate decisions by Department administrators and by the Fish and Game Commission. Accurate decisions are guided by facts; thus, it follows that the Department must employ skilled personnel and the most appropriate techniques in fact-finding. Scientific discipline demands that the results of fact-finding be expressed quantitatively and that these figures be subjected to modern mathematical testing. Electronic data-processing by computers and other high speed equipment has become a routine part of modern game management. This has added greatly to the efficiency and accuracy with which information is handled.

Facts sought in game management are concerned primarily with three areas of investigation—harvest, population trends and habitat conditions. This is emphasized in the following formal Department policy governing season recommendations made by field personnel:

"To the fullest possible extent, fish and game season recommendations are to be based upon biological data such as annual measurements of harvest, population trends and, in the case of big game, range condition trends and forage utilization. This information shall be obtained by standardized methods and procedures as outlined by the respec-

tive management division. Such recommendations shall also consider other land uses and public understanding. Another basic consideration in formal season recommendations shall be the alleviation of game damage to private property."

The primary tool of game management is regulated harvest through recreational hunting. Annual surpluses of game birds taken in this manner are used to the benefit and enjoyment of approximately

100,000 upland bird and waterfowl hunters each year. These hunters harvest in excess of 500,000 birds each year. An army of big game hunters numbering about 140,000 similarly enjoys a harvest of 150,000 or more big game animals. These sportsmen also serve the necessary function of adjusting big game numbers to capacity of winter food supplies. In addition the animal fur take of 60,000 pelts brings monetary rewards to about 1,000 trappers.

RESEARCH IN MONTANA'S GAME MANAGEMENT



Scientific management necessitates a constant search for facts. Here, pheasants are being caught at night and banded. Band returns will give facts on an area where hens have been hunted for several years.

The use of the scientific approach in game management is relatively new. During the past forty years this approach has grown from a small beginning to the point where game management is now considered a science. As with all new developments, research is needed in order to best accomplish the job. The statement "Research is the key to tomor-

row" is never more true than when it is applied to the game management field. With increasing human populations utilizing our wildlife resources, we need all of the information possible in order to manage and maintain wildlife.

Research in Montana is being accomplished in two major fields. Small game research deals with

our native birds. Big game research, of course, includes all of our large four-footed game animals.

Small Game Research. At this time, we are conducting research on two species of grouse—the blue grouse in the mountainous country and the sharp-tailed grouse on the prairie. This research is aimed primarily at establishing what constitutes good grouse range in the various vegetative complexes throughout the state. In addition, information is being obtained on vitally needed life histories and methods of census and harvest potential. To date, all of these studies have shown the way to more liberalized seasons without adversely affecting the total grouse population. More information will certainly show the way toward refinement in the management of these species.

Big Game Research. Currently we are engaged in working with elk, moose, bear and forage relationships between deer, elk and livestock. The end result of all of these studies will be refined management for the species involved. To date, we have utilized our research findings in management of bear and moose. The refinement of our harvest procedures on these species can be directly attributed to the research that has gone into this program. As one study is completed, another is undertaken on a basis of priority established by the needs of the Department.

Research often moves slowly. However, in game management it pays off in maximum wildlife to satisfy current, as well as future needs of our ever growing population.

GAME HIGHLIGHTS OF THE BIENNIUM



Montana's take of big game animals hit a high in 1961.

BIG GAME

Record Big Game Harvest

The remarkable all-time record big game harvest of 166,700 animals in 1961 was the outstanding occurrence of the biennium. Five months of hunting opportunity on nine species of big game combined with good hunting weather and enthusiastic hunters produced these agreeable results. The potential exists for even greater harvest without harm to breeding stocks. In fact, in many big game areas greater harvests are an absolute **must** if we are to protect and preserve critical winter forage supplies threatened by current and past overuse.

Quantity and Quality

Record harvests were set for four species: elk, moose, sheep and black bear. Increases in quantity have not been at the cost of quality. Montana's superb back-country continues to furnish some of the finest recreational hunting in the nation. Montana big game trophies again took top spots in the National Boone and Crockett Club competition. For example, Montana trophies took first place in elk, mule deer (non-typical) and white-tailed deer (non-typical) in the 1961 competition.

Look Back Ten Years

A look at the records shows that the big game

license buyer is getting more for his money and effort than he did ten or twenty years ago. The 1961 grand total of 166,700 big game animals far overshadows the 1951 figure of 62,000 and the 1941 total of only 22,500.

A Decade of Progress

	1951	1961
Deer	39,000	129,100
Elk	14,600	15,500
Antelope	8,200	19,300
Moose	90	530
Mountain Goat	70	330
Bighorn Sheep	0	70

GAME DEVELOPMENT PROGRAM

Game development projects make up an important part of the Game Management Division program. Much of this work represents a continuation of projects started during earlier biennium periods. Important new projects, however, were added during the reporting biennium.

Winter Game Range Development

Since 1948 several critically needed winter game range areas have been acquired by the Montana Fish and Game Commission. Winter forage is available on these special areas for major numbers of game—primarily elk. These game ranges amount to approximately 60,000 acres of state owned land. A somewhat lesser acreage of lands held under lease round out an important pattern of winter ranges developed. They have proven to be immensely important from several aspects. Such acquired elk ranges furnish critically needed winter forage for herds of major importance. In addition, they draw and hold game animals off nearby private lands. In this way, a relatively small acreage of winter range, properly located in the foothills, can be the key to future sport hunting over a large adjoining mountainous area.

Ranges acquired prior to the reporting biennium include the Sun River Game Range near Augusta, the Blackfoot-Clearwater Winter Game Range near Ovando, the Judith River Winter Game Range near Utica, the Gallatin Winter Game Range near Gallatin Gateway, the Madison-Bear Creek Winter Game Range on the Madison-Gallatin Range near Ennis and the Haymaker Winter Game Range near Two-dot. Two additional game ranges have been obtained during the reporting period—the **Madison-Wall Creek**

Game Range on the west side of the Madison Valley above Cameron and the **Fleecer Mountain Game Range** southwest of Butte near Divide.

An important aspect of the ownership of these Game Ranges by the state and one that is sometimes not well understood is the fact that an **annual payment in lieu of taxes** is made by the Montana Fish and Game Commission to the various counties in which these Game Ranges are located. The amount per acre, as determined by county assessors, is equal to the taxes paid by neighboring ranchers on similar types of land. This **payment in lieu of taxes** is very important in maintaining the financial structure of the counties. Should a portion of a Game Range be found surplus to game needs, this portion will either be returned to private ownership or traded to round out the present unit.



Big crafty honkers are a real challenge for waterfowl hunters.

Waterfowl and Upland Game Development

Several waterfowl development areas of major importance were further improved during the biennium. Freezout Lake area, located thirty-five miles from Great Falls, was improved a great deal by additional diking. A pattern of dikes in this area maintains water levels most advantageous for waterfowl development. Grain crops continued to be pro-

duced in a state-owned strip of land around the east edge of the project. These crops were left in the field to attract waterfowl. This has minimized depredation on adjoining croplands under private ownership. Excellent public hunting has been provided over most of the area.

A relatively small closure on the south end of the project has encouraged the development of Canada geese. A captive flock is being utilized in this area to establish a nesting population.

The Nine-Pipe Game Management area is located in the Flathead Valley in the Ronan-St. Ignatius area. Acquisition of key tracts of land particularly in the vicinity of the Nine-Pipe Refuge has developed an area that provides outstanding opportunities for public hunting. As with Freezout, food patches have been developed. Water is being provided for pot-holes previously intermittently dry. Necessary development and maintenance work has primarily to do with water control structures and boundary fences.

The Milk River Game Management area (Water Development Project) is located near Nelson Reservoir out of Malta. The primary objective has been to improve waterfowl breeding, nesting, feeding and hunting conditions. Development work carried out during the past several years has consisted primarily of the construction of dams, several dikes and necessary boundary fencing. The newly created water impoundment areas have proven very attractive to waterfowl. In addition to ducks, Canada geese are utilizing this area in considerable numbers.

SMALL GAME

Waterfowl Management in Two Flyways

Montana has now become the first state to be divided into two flyways for waterfowl management. Biological fact-finding over the past ten years was unquestionably the deciding factor in accomplishing this goal. Information on banding, production and harvest was gathered and analyzed. As a result, we can now have an early waterfowl season in eastern Montana and a later waterfowl season in western Montana. This procedure improves the hunting opportunity for hunters throughout the state.

Wild Turkey Management

Wild turkeys have increased during the biennium, to the point where considerable new territory has been open to the hunting of this magnificent game bird. The Department is still searching for adequate



The "King of Game Birds" are being hunted in several Montana areas.

habitat in which to transplant these birds. As the habitat is located, the birds are trapped and transplanted. New flocks are continually being established. Hunting opportunity and interest is increasing each year.

Grouse

Drought conditions, with the resultant loss of vegetative cover, has affected our Upland Game Bird management over the past two years. Certain species have been more affected than others. Production in the Prairie Grouse species has been lowered. The over-all hunting opportunity during the past two years has remained approximately the same. Increased use of the hunting opportunity has resulted in a comparable harvest of Prairie Grouse in spite of lower population and an increase in harvest of Mountain Grouse with favorable production of these species.

Upswing in Trapping

The general interest in the trapping of fur has increased. This, of course, is a reflection of the price paid for fur. During this period, the beaver and mink harvest rose to the highest figure since 1954 trapping season. In addition, much more interest has been displayed in the trapping of the long furred species such as skunk, bobcat and raccoon.

DISTRICT WILDLIFE INVESTIGATIONS PROJECTS

The Montana Fish and Game Commission has divided the state into seven administrative districts. Game managers and their assistants are assigned to each district to obtain information necessary for modern game management. Facts concerning game birds, game animals and fur animals and their habi-

tats are gathered on each district. Recommendations for hunting seasons are made by the District Game Manager largely on the basis of these facts.

Wildlife investigation activities during the biennium were financed largely by Federal Aid to Wildlife Restoration (Pittman-Robertson) apportionments. Under this Act the state is reimbursed for 75 per cent of the cost of approved projects. The district projects and their major emphasis are described briefly.

District 1—Northwest Montana Headquarters Kalispell

Some of the wildest and most remote country in Montana is found in this district. The back country elk hunting attracts people from all over the nation and support a major outfitting industry. This area leads as a producer of white-tailed deer, mountain goats and black and grizzly bear. All other species of Montana big game are present although antelope are not hunted.

Upland bird hunting is provided mainly by mountain grouse and pheasants. The lower Flathead Valley is one of the state's important pheasant hunting areas. District One forests support the state's largest populations of ruffed and Franklin's grouse. Waterfowl are another important resource of this area in terms of annual production as well as hunting opportunity. Wild turkeys have been planted but have not yet increased to huntable numbers.

District 2—West Central Montana Headquarters Missoula

This small district tops them all in elk hunting with the mountain ranges south and west of Missoula providing the best elk hunting in the state. District Two is also an important producer of mountain goats. All other species of big game are present in huntable numbers.

As in District One, small game hunting is primarily for mountain grouse, pheasants and waterfowl. The area is outstanding for its blue grouse hunting. Wild turkeys have been planted there but it is still too early to determine the success of the program.

District 3—Southwest Montana Headquarters Bozeman

This varied district supports huntable numbers of all Montana big game animals. Southwest Montana leads in the production of moose and is near the top in deer and elk production. This district

shares with District Five the distinction of having the only bighorn sheep area open to an unlimited number of hunters.

Prairie grouse are added to the list of upland birds in this part of the state with the emphasis on the sage grouse. Pheasants, mountain grouse and waterfowl round out the small game hunting picture.

District 4—North Central Montana Headquarters Great Falls

Combining mountains, foothills and plains in one of the largest districts, this region leads in deer and bighorn sheep harvest. Other important big game species are elk, antelope and mountain goats.

North Central Montana is a small game hunter's paradise. Some of the finest hunting for pheasants, sage grouse, sharp-tailed grouse, Hungarian partridge, blue grouse and waterfowl is found here. In 1961 wild turkeys were added to this list with an open season in the Missouri River Breaks.

District 5—South Central Montana Headquarters Billings

Deer and antelope top the list of big game species in this part of Montana although all nine species are found in huntable numbers. The bighorn sheep on the Absaroka plateau provides excellent opportunity for rugged recreation.

Pheasants in the Yellowstone Valley and other irrigated areas together with prairie grouse make up most of the upland bird shooting. This is one of the few places in the state where the elusive chukar partridge is found in numbers that will support hunting. Increasing turkey flocks in the Bull Mountains bear the promise of hunting for this magnificent game bird in the near future.

District 6—Northeast Montana Headquarters Glasgow

Deer and antelope are the primary big game species in this predominantly prairie area although locally important elk herds are found in the Missouri Breaks and Bear Paw Mountains.

The potholes, marshes and reservoirs of the highline are important as waterfowl breeding grounds and hunting areas. Pheasants, prairie grouse, Hungarian partridges and, as of 1961, wild turkeys make up the list of upland birds available to sportsmen. The area is especially noted for its sage grouse hunting.

District 7—Southeast Montana Headquarters Miles City

Southeast Montana with its extensive prairie and badland areas leads all other districts in antelope harvest. Deer hunter success tops all other parts of the state with harvest ranking second. Bighorn sheep and elk exist in small numbers but do not support hunting.

The Long Pines of southeast Montana were the initial site of Merriam turkey releases in 1955. Since then, four successful hunting seasons have been held there and many turkeys have been transplanted to other suitable locations. Other areas in District Seven have been opened to turkey hunting and all indications are that the turkey will become even more popular as an upland game bird in southeast Montana. Prairie grouse and pheasants are the other major upland bird species. Waterfowl hunting is largely limited to the Yellowstone River and reservoirs.

SERVICE PROJECTS

General Wildlife Restocking

The principal restocking during the biennium has been the live-trapping and transplanting of bighorn sheep, mountain goats and Merriam's wild turkeys. The trapping of mountain goats from several ranges in Montana and the movement of this valuable big game species to new ranges has been an important project for a number of years. Several new and highly productive herds have been developed in this way.

The largest and most recent plants of sheep have been made in the Stickney Creek-Sheep Creek area across the Missouri River from Cascade. This is a particularly likely range having an interesting history of mountain sheep that were apparently plentiful there many years ago. Lewis and Clark, in their journals, made particular note of the bighorn in this area. In addition to sheep obtained from the Sun River Canyon and Wildhorse Island, the largest single plant yet made was obtained from surplus animals made available from the National Bison Range at Moiese.

Work with the Merriam or Western wild turkey has been particularly encouraging during the past several years. The original stock obtained from Wyoming and Colorado which were introduced into the Long Pines area in Carter county and the Judith Mountains in Fergus county have done well. Subsequent plants have been made possible in Montana



Several new and productive herds of mountain sheep have been developed through trapping and transplanting.

with birds from these original plant sites. Additional important areas now developing from more recent plantings are the Ashland country south of Miles City, the area around Plains, the Gates of the Mountains region north of Helena, the Bull Mountains between Roundup and Billings and also the Missouri River bottoms on the upper reaches of the Fort Peck Game Range. Sport hunting in several of these areas is adding a new and challenging aspect to Montana's varied outdoor recreation program.

Statewide Maintenance

During the past several years, development areas have been located on thirty-two reservoirs throughout eastern Montana. Although not large, these areas have been found of particular importance in attracting waterfowl for nesting, feeding and resting in this part of the state. They have also contributed materially to the upland game birds in those areas. These developments located for the most part at the upper end of reservoirs have been fenced so that food and cover plants particularly desired by waterfowl and upland game birds could be encouraged.

These fences are carefully located so they in no way minimize the value of the reservoirs for livestock watering purposes. Maintenance is necessary each year to keep these areas fully productive.

Payment in Lieu of Taxes

A payment in lieu of taxes is made annually by the Montana Fish and Game Commission for land purchased for big game and waterfowl development. These payments were authorized by the Montana State Legislature. These department lands are assessed by the county assessors in each county where they might be located and the payments are comparable to those made by private land holders in these areas. During the two years covered by this biennium, the payments to counties has amounted to approximately \$18,000 per year.

Wildlife Investigations Laboratory

A wildlife investigations laboratory is maintained at Montana State College in Bozeman. This laboratory is staffed by department personnel who work in close cooperation with the college. Information being gathered concerns food habits of various game species with age ratio information and the standardization of techniques used by field personnel. Presently, the laboratory has collected and is analyzing information obtained from fifteen hundred elk. Information from the Yellowstone Park reduction program last winter. Such information as age, weights,

sex ratios, stomach contents, blood samples and various other materials were gathered and will be analyzed as time becomes available. The outcome should be immensely important to the management of elk here in Montana and throughout the west. This is undoubtedly the most complete collection yet made in regard to elk on this continent.

Game Bird Farms

The Warm Springs Bird Farm has operated at full capacity during the two years of the reporting biennium. The production from the Fort Peck pheasant farm was seriously affected during these past two years by an unknown mortality condition, and an almost complete loss of birds was experienced two years ago at this farm. Every effort was made in attempting to minimize this situation. Sick birds and samples from sick and dead birds were sent to every available laboratory for analysis. Soil and vegetative samples were also studied. The causative agent was not however determined during the past year. Consequently, the following year a smaller number of birds were raised at the Fort Peck Game Farm with the primary objective of determining if a loss would again be experienced among the pheasants raised at this farm. The loss did recur and has been diagnosed as a form of poisoning known as botulism. This poison results from a bacteria. Complete information on details of the disease are not as yet available.

MONTANA COOPERATIVE WILDLIFE RESEARCH UNIT

The Montana Cooperative Wildlife Research Unit was established at Montana State University on February 8, 1950. It is operated through a coordinating committee with representatives from the State Fish and Game Department, State University and U. S. Fish and Wildlife Service.

Objectives of the unit are:

To provide technical and professional training on various levels in wildlife management, teaching, research, demonstration and administration.

To investigate and correlate the production, utilization, management and restoration of desirable populations of wildlife compatible with good land use.

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.

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.

To disseminate research findings through the publication of reports, bulletins, circulars, and journal and magazine articles.

New projects are expected to provide important management information for Montana's game. Mule deer, one of the most important big game species, will be studied intensively on the National Bison Range at Moiese. This heavily harvested, completely controlled mule deer herd provides an unusual opportunity to study the effects of hunting. An accurate census is obtained annually and the yearly reduction is carried out under controlled conditions. In addition to this opportunity for harvest analysis it

will be possible to get a lot of information on the seasonal condition of mule deer. This will supplement the data gathered from the mule deer herd in Rattlesnake drainage near Missoula.

The effect that a magpie control program may have on a pheasant population is being studied in the Bitterroot Valley. It is hoped that the results of this study will provide some light for a controversy that has generated an unusual amount of heat among pheasant hunters for years.

Research Projects*

	Status
Harvest and Condition Studies of Mule Deer.....	New
Seasonal Condition of Mule Deer.....	Continuing
Mule Deer Winter Forage Relations Study.....	Completed
Aging of Fisher and Analysis of Reproductive Systems	Continuing
Population Study of Canada Geese in the Flathead Valley	Continuing
Experiments with the Plastic Jesse-Knot Marker.....	Completed
Motion Pictures of Unit Activities.....	Continuing
A Physiological and Anatomical Study of Bighorn Sheep.....	Continuing
A Study of Lungworm Infection in Bighorn Sheep.....	Continuing
Quantitative Aspects of Raptor Predation.....	Continuing
Study of Alpine Ecology in the Northern Rocky Mountains	Continuing
Bighorn Sheep Population Study	Continuing
An Ecological Study of the Grizzly Bear.....	Continuing
Ecology of the Feeding Behavior of Black Bear in Northwestern Montana	Completed
Effect of Magpie Control on Magpie Population and Reproduction	Completed
A Study of Moose in the Rock Creek Drainage.....	Completed
Aging Mule Deer and Bison	New
Productivity of Redhead Ducks in the Flathead Valley	Completed
Effects of Magpie Control on a Pheasant Population	New
Factors Influencing Horn Growth in Pronghorn Antelope	New
Competition as a Factor in Habitat Selection Between a Sympatric Population of Microtus pennsylvanicus and M. montanus	New
Systematics of Blue Grouse in Northwestern Montana	Continuing

* Completed projects have been reported on in journals or theses, and in addition, segments of some continuing projects have been published.



FISHERIES

During the first two months of 1963 our Legislature will make decisions affecting the future of Montana's sport fishing. In making such decisions they may review what was done in the past and evaluate past results. Supposing fifty years from now legislators evaluate the decisions of the 1963 lawmakers as they influenced Montana's sport fishery resource. What decisions will have helped perpetuate Montana's world-renowned trout fishery?

Indications are that 50 years from today Montana will still offer excellent lake and reservoir fishing. Some of these waters will be clean and have sufficient natural spawning to maintain fishing. Still others will be able to support good trout fishing, but only through planting. Some others—and we hope they are few—will have extremes in water level fluctuation, sediment or other conditions that will make them unsuitable for game fish.

This is predicted for lakes and reservoirs, what about streams? The future of wide-spread stream fishing is questionable. It is, so to speak, the hour

of decision, a time when we must decide whether trout stream fishing as we know it today is worth preserving.

Montana is unique in that it has a considerable share of the finest trout streams left in the nation. The trout streams in many states have been ruined by civilization. In South Dakota's Black Hills, for example, 1,200 miles of trout streams have dwindled down to 160 miles that will support trout.

Trout stream fishing is supported largely by wild fish—that is, fish reared from eggs that were laid in the stream. In order to produce trout, and particularly the 2, 3 and 4 pound and larger ones we seek, there must be good fish habitat. In streams this means adequate flows of clean water; sufficient cover such as pools formed by stream meanders, and clean unsilted gravel areas for spawning and production of insects for fish food.

Trout stream fishing depends on our maintaining the stream conditions necessary for the production

and growth of trout. We simply could not maintain fishing at its present level with hatchery fish alone.

Montana is losing good trout stream habitat at an alarming rate. Stream straightening, dam building, channel changing, pollution, siltation, irrigation and over-grazing of stream banks by livestock are all taking their toll. Trout stream habitat is going "down the drain" so fast that we cannot even adequately inventory the losses.

Is Montana's unique trout stream fishery worth protecting? Sheer economics alone say so. A 1960 study showed fishermen spent 36 million dollars pursuing their sport in the state. About two-thirds of

the fishing was on trout streams. This fishery can become more and more of an asset to Montana, but only if it is protected and perpetuated.

We need public understanding of the importance of trout stream habitat to trout fishing. The Fish and Game Commission is in the position of having the responsibility for managing the fisheries resource without having a word to say about what may be done to the habitat of that resource.

Legislation is needed to protect trout stream habitat and insure perpetuation of Montana's trout streams and fishery.



This net, set to sample an impoundment, turned up an unexpected number of walleyes.

GENERAL FISHERIES MANAGEMENT

General fisheries management covers all aspects of fisheries outside of fish propagation in hatcheries. It is concerned with fish losses, including those caused by the damage or destruction of fish habitat; with the proper use of hatchery fish; with stream and lake improvement and rough fish eradication; with fishermen access; with the creation of new fishing

waters, and with investigation of management problems. This is the work of the fishery biologist. Much of it is supported with federal aid funds. Some of the more detailed studies are made in cooperation with the Zoology and Entomology Department of Montana State College and the Bureau of Sport Fisheries and Wildlife.

NORTHWEST FISHERIES DISTRICT

During the biennium 13 streams and 35 lakes were surveyed in the Northwest Montana Fisheries District. The purpose of these studies is to determine the physical, chemical, and biological qualities of our better sport fishing waters. These surveys are the basis for management recommendations and rehabilitation projects. They also provide the basis for amending the hatchery planting program to make optimum use of hatchery fish. Species presently used in managing the northwest district waters are cutthroat, rainbow, eastern brook, golden trout, and largemouth bass.

The Flathead River and its tributary streams above Flathead Lake are providing good to excellent cutthroat trout fishing. A study on cutthroat was designed to gain information on the extent of their spawning areas, the time of spawning, the distance traveled, and the numbers of young fish returning to Flathead Lake.

To date, 1,175 west-slope cutthroat trout and 216 Dolly Varden have been tagged and released in the 171 miles of the Flathead River system. Tag returns on these fish show considerable movement during their life cycles to and from spawning streams. Young tagged fish move downstream in the fall. Downstream trips of over 40 miles in less than one week are not unusual. The majority of these fish range in size from 7 to 10 inches long and furnish the recruitment to the Flathead Lake fishery. Spring, upstream movements, tend to be slower and are regulated by run-off and water flows in the river system. These fish are the larger mature fish ranging from 12 to 17 inches long. The information gained in this study further exemplifies the importance of secondary spawning tributaries. Maintaining passageways to these streams for spawning fish and downstream recruitment is an important phase in the management of the Flathead Lake fishery.

During this biennium twelve lakes in the district were rehabilitated through the use of toxaphene and emulsifiable rotenone. These treated lakes have a combined surface acreage of 806 acres and range in depth from shallows of 1 to 2 feet to a maximum of 160 feet.

WESTERN FISHERIES DISTRICT

Two long-range creel census jobs, lake rehabilitation and experimental work with mechanical aeration systems, highlighted fishery work in the western district during the biennium. However, general survey work continued to be the major project activity and covered 26 lakes and 38 streams. Fifty-three of these were initial surveys. Their purpose was for

continued cataloging of waters to provide a basis for future management. The remainder (on 11 waters) were re-surveys to evaluate the effect of experimental management practices, or some new land or water use project.

The Georgetown Lake creel census was continued during the winter of 1960-61 and summer of 1961. The purpose of this study, which began in 1958, is to provide harvest and fishing pressure information necessary for the best management of this popular fishing lake. Although this census, which is made at two-year intervals, has only completed its second year, it has already shown that Georgetown Lake can be open to fishing for one more month per year with little if any loss in fishing quality.

The section of the Clark Fork River most severely affected by the 1960 pollution problem was closed to angling in 1960 and 1961. The river was sampled both years to check its damage and recovery. Game fish, which were very scarce in 1960, had increased over five times by 1961 and the river was opened to fishing with the general season in 1962.

A population study was begun on three western Montana water-supply streams which have been closed to fishing for many years. The objective of this job is to determine normal ups and downs of fish in unfished streams and to record the effect of fishing pressure on virgin streams. One stream was opened to fishing in 1962. The study will continue for several years and will furnish needed information on the management of our relatively sterile, west-slope, cutthroat streams.

Winterkill of fish occurs in ice-covered lakes when oxygen dissolved in the water is used up. Two mechanical aeration systems for preventing winterkill have been tested in western district lakes during the biennium. Considerable work remains to be done on the chemical, biological and thermal effects of aerators and on the safety of their installations. It may be that winterkill can never be entirely prevented, but it seems likely, judging from our work so far, that both its frequency and severity can be reduced by the proper use of aeration systems in certain lakes. Experimental work on these aerators and evaluation of their effects will continue for several years.

One 300-foot section of Flint Creek, near Philipsburg, has been sampled five times since 1955. This section was straightened and cleared by highway construction in late 1956 and early 1957. The 1956 sampling was done before, and the 1957 sampling after the construction job. Numbers of trout, six inches

and over, which were collected and released each year were: 1955, 75; 1956, 69; 1957, 6; 1961, 23 and 1962, 23. This information shows that while the initial effect of severe stream damage partially diminishes with time, the damaged section will have fewer trout for a long time and sometimes indefinitely. An attempt will be made to improve the existing habitat in this section by placing boulders in the cleared channel. The section will be sampled periodically in the future.

The Rock Creek creel census study has continued since 1958. This research project is designed to obtain angling pressure and harvest information from Rock Creek as a means of evaluating the use of catchable-sized fish for stream planting. The basic plan for this study was to plant Rock Creek annually with 30,000 hatchery-reared rainbow trout for the initial three years of the study, then to cease planting for several years after which angling pressure and harvest information for each period would be compared. At the end of these two phases, data will be analyzed to determine if Rock Creek should be planted. If planting is necessary, the study will continue in an attempt to establish the optimum planting rate.

Information to date has shown that approximately 15,000 fisherman trips were made in Rock Creek each year during the 1958-60 period. The harvest of game fish during this period was approximately 50,000 game fish each year. Planted fish comprised 23.0 to 26.4 per cent of the yearly harvest of fish from Rock Creek. The return to the creel of planted fish ranged from 34.3 to 40.1 per cent in the year they were planted. An approximate one to four per cent were taken following the year of plant.

Final estimates have not been completed for the 1961 angling season. Preliminary estimates indicate that there was a reduction in both harvest and pressure during the first year without planting. This was as anticipated. However, the rate of angling success (fish caught per hour) remained at a comparable level to that of the initial three years.

In 1960, each angler's fishing license number was recorded in addition to standard census data. This procedure was adopted as a means of determining the distribution among anglers of the total number of fish checked through the check stations. Census coverage was approximately 50 per cent. This investigation revealed that the most successful five per cent of both resident and non-resident license holders interviewed, made 18 per cent of the total number of fishing trips to Rock Creek and caught 33 per cent of the fish caught. In adding the next five

per cent of most successful anglers, a total of 10 per cent of the anglers checked made 27 per cent of the fishing trips and caught 50 per cent of the fish. At the 25 per cent level of most successful anglers, 45 per cent of the trips were made, and they caught 77 per cent of the total number of fish caught. Although the stream had been planted at a relatively heavy rate, 33 per cent of the anglers interviewed caught no fish.

SOUTHWEST FISHERIES DISTRICT

Mountain lakes were emphasized in the survey work during this biennium. Forty-one lakes in the Gallatin-Madison area were surveyed. Information on physical and biological characteristics was obtained so the fishery potential of these waters and the management measures could be determined.

A fish population study of Dailey Lake was made during 1960 and 1961. Creel census was conducted during the regular fishing seasons of both years. Fishermen harvested approximately thirty pounds of rainbow trout per acre and approximately ten pounds of yellow perch per acre each year. The estimated annual harvest was about 10,000 rainbow as compared to the annual plant of 20,000 catchable rainbows. Natural mortality apparently takes about



Use of a helicopter has greatly simplified transportation for mountain lake surveys.

50 per cent of the stocked trout. In 1962, the plant was reduced by one-fourth and the creel census will be continued to evaluate this change in the planting schedule.

Observations were made on the spawning, growth, distribution, harvest and movement of trout in Willow Creek Reservoir from March through November, 1960. Successful reproduction was observed only in Willow Creek. Rainbow trout taken in 1960 showed a decline in average size and slower growth rate than the same species taken in previous years. Distribution of trout in the reservoir appeared to be correlated with water temperatures. Rainbow trout were most evenly distributed in the reservoir when water temperatures were warmest, but were concentrated near the surface when temperatures were cool. Brown trout were always more abundant near the bottom, and when water was warmest were restricted to deeper areas. Brown trout made up thirty per cent of the game fish in gill net catch but only 2½ per cent of the estimated harvest, indicating that present fishing methods are not effective on this species. Marking studies indicated that the hatchery fish as well as fish marked in the spawning runs distributed themselves throughout the reservoir. The estimated harvest of rainbow trout was less than 15,000 fish during the fishing season. These fish were mostly from the 1959 and 1960 plants of 55,000 fish per year. In 1961, the plant was reduced and the season was liberalized. The evaluation of angler harvest is being continued to determine the effect of this change in management.

A population study was continued on Canyon Ferry Reservoir during 1960. Gill net sets were made duplicating the sets of 1955 and 1958. Comparison indicated that the fish population of this reservoir had more or less stabilized by 1958. Growth rates increased during the early years of impoundment but decreased to pre-impoundment levels by 1958. Fingerling rainbow trout stocking was successful only during the early years of impoundment. A change to planting trout seven inches long or more has maintained the fishery but it is possible that a comparable fishery could be maintained with smaller size fish. If this proves true, a considerably greater number of smaller fish could be planted for the same cost as the present plants. A creel census is now underway to evaluate the success of various sizes of planted trout. The U. S. Bureau of Sport Fisheries and Wildlife is assisting in this study.

During 1960 the U. S. Forest Service sprayed DDT in a portion of the Gallatin Drainage in an effort to control spruce budworms. Observations were made

in the area to determine the effect of this project on trout streams. Spray concentrations were reduced along the streams but sampling with fine-mesh nets indicated that stream insects were killed in all of the tributaries and throughout the Gallatin River within and below the spray area. The only trout mortality was in Rat Lake where the spray caused an extensive kill.

An investigation was begun on the water temperatures of the Madison River and the influence of the three lakes on the river. Due to the thermal waters of the Firehole River, the upper Madison River is unusually warm for a headwater stream. It appears that Hebgen and Earthquake Lakes cool the stream during the critical early summer weeks while Meadow Lake warms the stream during the same period. Summer stream temperatures reached highs of 80° F. above Hebgen and 83° F. below Meadow Lake. These temperatures are approaching critical levels for trout. Any further developments of reservoirs or diversions which would increase water temperatures may seriously affect trout production in the Madison River.

Hebgen Reservoir (15,000 acres) in southern Gallatin County on the Madison River was drawn slowly for inspection and repair following the August 1959 earthquake in the area. The reservoir was treated with toxaphene at the rate of 0.025 parts per million in an attempt to kill off Utah chubs. The toxaphene was applied by spray plane to the lower portion of the reservoir pool and the upper portion through drip stations located on the tributaries. Although water that seeped through the closed control gates was toxic to fish for a distance of one-half mile below the dam, very few fish were killed in the upper portion of the reservoir. It is possible that high turbidity in the upper portion of the reservoir pool was responsible for the rather poor results. Fish stocking, since the reservoir refilled with water, has provided excellent fishing.

CENTRAL FISHERIES DISTRICT

Eleven lakes and impoundments were surveyed during the biennium. Several of these were studied in order to evaluate the success of different periods and rates of stocking fish following rehabilitation. Information from this continuing study thus far shows that a better return of planted fish is being realized from plants made later in the season. Other information recorded on lakes and impoundments included size, volume and fish numbers for use in future management.

Survey information was collected from ten streams during the past two years. An intensive study on the Marias River below Tiber Dam was completed which provided considerable information valuable to fishery management. This study included an evaluation of the effects of the Tiber impoundment on the river downstream from Tiber Dam. Fish habitat in the Marias River immediately below Tiber Dam was greatly improved by the reservoir acting as a settling basin for the otherwise silty Marias River. This improved habitat has been providing good trout and sauger fishing. Efforts to stabilize the flow in this area of improved habitat, if successful, could extend this area and further improve the fishery outlook in the Tiber-Marias area.

Rehabilitation to remove rough fish and re-establish trout was accomplished on nine lakes and reservoirs and three streams. Three private ponds were rehabilitated with owners paying the cost of rehabilitation and planting.

During the summer of 1961 many of the waters in the district dropped to extremely low levels—some streams and lakes dried up completely. Because of this, many adjustments had to be made in planting schedules. Bynum, Martinsdale and Harris Reservoirs were drawn to the lowest levels in many years. Low levels offered the opportunity to rehabilitate economically, so rough fish were removed by chemical treatment. These reservoirs have since been planted with rainbow trout.

Cutthroat trout were introduced into two streams in the upper Sun River drainage and one stream in the Judith River drainage. Evaluation of the success of these plants is being continued.

Considerable trout stream habitat was lost due to stream channel alteration in the district over the past two years. Channel changes were made on several important trout streams to make way for road construction, additional crop land and other purposes. Some of this stream alteration could have been prevented if it had been subjected to review in the planning stages.

SOUTHEAST FISHERIES DISTRICT

Investigations in Montana have consistently shown that wild trout in streams provide the majority of the fish for the creel. Therefore, this district has concentrated on projects to maintain future stream fishing.

During the biennium a stream sediment investigation project was undertaken. The Montana Fish

and Game Department and many Montana sportsmen are concerned about the harmful effects of sediment from agricultural pollution on trout streams. We know that heavily silted streams are not good fishing streams. We also know that the vast majority of trout caught from our streams are wild trout—fish that grew from eggs incubated in the clean stream gravel.

The future of stream fishing in Montana will depend largely on how many of these wild trout our streams will produce. Therefore, it is to the benefit of Montana, both from an economic and recreational standpoint, to keep streams in a suitable condition to produce trout. In order to maintain and improve the capacity of our streams to produce trout, we must know the specific requirements of trout and we must also know the specific conditions harmful to them.

We are now studying the effects of agricultural pollution on trout. Our study considers silt in streams accompanied by low streams flows and high water temperatures, and the effects of these agricultural pollutants on trout.

Bluewater Creek is one of our study streams—an example of a stream affected by agricultural pollution. The use of the water from this stream is fairly typical of situations found in other trout streams in Montana. Diversion ditches take cool, clean water out of the stream. Some of this water is used to irrigate cultivated cropland. Unused water is returned to the creek via waste water ditches, warmer and dirtier.

How does agricultural pollution affect trout in

Specialized equipment is used to measure oxygen content of water moving through stream-bed gravel.



Bluewater Creek? Let us look first at the creek above the diversion ditches where the water is cool and clean. In this part of the stream, one acre of stream produced over 4,000 trout and only 40 suckers. This is good trout water. Below the ditches that return irrigation waste water, Bluewater Creek is warm and muddy. Here, we find only 80 trout and over 12,000 suckers, dace and minnows in one acre. Obviously, this is not good trout water.

In upper Bluewater Creek, the average daily silt or sediment concentration was a low 20 parts per million. The lower part of the creek receives silt from irrigation waste water ditches. Here, the average daily silt concentration is eight times as great as in the upper part of the creek. For the most part, the high concentrations of silt in the lower part of the creek occurred during the irrigation season.

A comparison of stream flows in the creek above and below the diversion ditches show that fish below diversions have an unstable water supply with low flows during the irrigation season. What effects do these low flows have on water temperatures? In July, the average maximum monthly temperature was 72° F., well within the limits for trout. Below the ditch, the average maximum monthly temperature was 81° F., higher than ideal temperatures for trout.

The Bluewater Creek study was initiated to demonstrate how agricultural pollution—stream silt accompanied by low flows and high water temperatures—reduce the capacity of a stream to produce trout. By comparing the fish populations with silt concentrations, stream flow, and water temperature in two areas, we can see that agricultural pollution changes Bluewater Creek from a trout stream in the clean water areas to a rough fish stream in the silty areas.

Specifically, how does agricultural pollution harm trout? We know that trout deposit their eggs in stream-bed gravel. In order to hatch, the incubating eggs need high concentrations of oxygen and enough water to wash away waste products given off by growing trout eggs. Large amounts of silt settling on riffle areas where eggs are incubating clogs up the gravel. In a sense, the eggs are smothered by silt.

We buried live eggs in the gravel in both the clean and silty parts of Bluewater Creek. Approximately, 1,500 eggs were incubated in the unsilted part; 6,000 in the silty part.

In the clean part of the stream, 98 per cent of the eggs hatched successfully. In the silty part of the stream not one of the eggs hatched. A careful exami-

nation of the dead trout eggs revealed the death-dealing agent—a layer of silt covered the eggs.

Our study shows how agricultural pollution with high silt concentrations accompanied by low flows and high water temperatures harm wild trout. The Montana Fish and Game Department feels that agricultural pollution should be recognized along with municipal and industrial pollution as a detriment to outdoor recreation in Montana. We want to emphasize that agricultural pollution is not limited to a few streams, rather it is a statewide problem in Montana.

A detailed survey was conducted on Bluewater Creek. The objective was to study the relationship between stream sediment and trout egg incubation.

Five sampling stations were established in Bluewater Creek to measure sediment concentrations and discharge. In the vicinity of the sediment-discharge stations, man-made redds were constructed with sorted gravel. Eyed rainbow trout eggs in hatching boxes were introduced into the redds. Periodically, the Mark VI standpipe apparatus was used to measure intragravel dissolved oxygen and intragravel apparent velocity within the redds. The sampling stations with low sedimentation rates, responded with high intragravel dissolved oxygen rates; high intragravel seepage rates (apparent velocities); and low trout embryo mortality. Conversely, the sampling stations with high sediment rates, responded with low intragravel dissolved oxygen rates; low intragravel seepage (apparent velocities) rates; and high trout embryo mortality.

Stream survey work was done on the Tongue, Clarks Fork, and Stillwater Rivers. Kersey Lake was also surveyed in preparation for a rehabilitation project.

A stream channel alteration inventory was completed on the Little Big Horn River. Over one-half of the river channels had been altered. Channel relocations resulted in 17 miles of new, straightened channel which diverted the water from 36 miles of former, meandering channel. Diking and channel clearance altered five miles of river channel and six miles of river bank had been riprapped. Channel alterations on Montana streams have been accompanied by drastic decreases in trout populations, and results in a serious drain in our stream fishing resource.

Rock Island Lake and Crater Lake were rehabilitated during the biennium. Both lakes contained suckers and chubs which were probably introduced by fishermen using small fish for bait. Both species

of fish were a considerable distance from their normal range. In addition to limiting production of desirable fish, they are a potential source of contamination to other nearby waters.

NORTHEAST FISHERIES DISTRICT

The success of the Beaver Creek Reservoir project in Hill county again highlights the fisheries activities of the Northeast Fisheries District. Fishing in this 35-acre reservoir, built by the Montana Fish and Game Department for fish management purposes, is maintained by annual plants of rainbow trout fingerlings. Angler success has been good during early and late summer. Some angling is also done through the ice during the winter fishing season.

Other reservoirs in the district managed for trout

include: Miller No. 6, Kuhr-Newhouse, H. C. Kuhr, Riebe, Keuster, Gartside, and Johnson reservoirs, and the Cole gravel pits.

Several reservoirs were surveyed and found to have sufficient depth and water quality for trout management, and two marginal trout streams in the area were surveyed during the biennium. These were Wolf and Tule Creeks.

Several reservoirs were surveyed and found to contain various species of warm water fish. These reservoirs were Killenbeck, Whitetail, Raymond, Porta, Lindsey, and Thornley Dead River.

Rough fish in the Northwest Cole gravel pit, and PR 137 were removed with fish toxicants. Rainbow trout will be used in the future management of these two bodies of water.



Signs like these indicate where the public finds free access to fishing areas.

LAKE AND STREAM ACCESS

The amount of fishing waters available to the public in Montana is steadily decreasing. One of the ways that fishing access can be lost is by land being posted against trespass. If one area is posted, the fishing pressure then increases on the remaining available waters.

The Department has a program for acquiring and developing sites for public fishing access. The purpose of the program is to relieve the landowner of at least a portion of his trespass problem, and to give fishermen a place to fish, park cars, launch boats, or eat picnic lunches. Many sites are managed in close cooperation with sportsmen's clubs, service clubs, or city, state, and federal agencies. Most sites are comparatively small, and take a minimum of

land from private ownership. A few sites are obtained by gift or lease, but the majority are purchased outright.

During the biennium, the following sites were obtained or are under option:

Harrison Lake	1 Tract	45 Acres
Yellowstone River	6 Tracts	32 Acres
Whitefish River	1 Tract	4 Acres
Madison River	2 Tracts	242 Acres
Jefferson River	1 Tract	2 Acres
Blanchard Lake	1 Tract	2 Acres
	<hr/>	<hr/>
	12 Tracts	327 Acres

In a few past cases it has been necessary to buy unwanted lands in order to get needed lands. The surplus lands are traded for desirable lands or are sold at public auction. Sales and trades now in progress will dispose of 315 acres in Gallatin county and 840 acres in Meagher county.

Land already in public ownership is incorporated in this program wherever possible. Since 1951, a survey of state and federal lands to determine their value as fishing access has been in progress. As a result, the Bureau of Land Management and the State Board of Land Commissioners have been requested to retain in public ownership, lands bordering good fishing waters so that access to their waters will be assured for the people of Montana.

STATEWIDE CREEL CENSUS

Information on fishing success is essential in planning a fisheries management program. A statewide creel census has been in operation since 1948. Catch information is gathered by wardens, biologists and hatcherymen, and is received from sportsmen in Fisherman's Logs. In addition, from time to time questionnaires are sent to a 10 per cent sample of the fishing license holders. The information received is tabulated by electronic machines.

Our statewide creel census shows that the anglers' average catch was four trout and salmon for each day spent fishing. About two-thirds of the fishermen in Montana prefer trout stream fishing to any other type.

Montana rates with the top trout fishing states, if, indeed, it is not the top state.

FISHERIES INVESTIGATIONS LABORATORY

Determining the ages of fish was the primary work performed at the fish laboratory at Montana State College. During the biennium over 15,000 fish scale samples were sent to the laboratory by fisheries biologists throughout the state. The scale samples were processed, plastic impressions made and these used to determine the age and growth rates of the fish. These data were returned to the fisheries biologists for use in various fisheries research and management problems.

To date, over 58,000 scale samples have been processed at the laboratory and a summary of all the significant age and growth data in the files is now almost completed.

The laboratory also makes studies on the food habits of fish populations and analyses of samples of stream bottom insects (fish food.) These jobs are undertaken for fish managers and biologists as the need arises.

Location of the laboratory at Montana State College allows the use of part-time student help to do much of the time-consuming, sorting and preparations. This has proven an efficient and economical use of manpower.

RESERVOIR INVESTIGATIONS

Fisheries studies were continued on three western Montana hydro-electric reservoirs: Noxon Rapids and Cabinet Gorge on the Clark Fork of the Columbia River near Thompson Falls, and Hungry Horse on the South Fork of the Flathead River near Kalispell. Principal aspects covered by the research program included evaluation of stocking hatchery-reared rainbow trout, creel census, population trends with emphasis on recovery of non-game fish in partially rehabilitated Noxon Rapids, physical and chemical characteristics of the two Clark Fork reservoirs, and methods to increase or establish spawning runs of trout.

Following the partial rehabilitation of the Noxon Rapids project in 1958, three million fingerling rainbow trout were planted during 1958, 1959, 1960, 1961, and 1962. These hatchery trout produced good fishing from 1959 through the spring of 1961. Fishing success fell markedly in May 1961 and has continued low.

Population trend information has shown changes occurring in the fish population of Noxon Rapids Reservoir since the first census was taken in 1959. In 1959, rainbow comprised 80 per cent of the total population; in 1961 rainbow comprised only 10 per cent, and initial 1962 information indicates that the percentage of rainbows has fallen to less than five per cent. Somewhat off-setting the decline of the rainbow trout was the increased numbers of three other game species: brown trout, Dolly Varden trout, and whitefish.

The rapid buildup of the rough fish and decline of the rainbow as it occurred in Noxon Rapids casts doubt on the value of partial chemical treatment of large rivers being inundated for reservoirs.

Measurements taken of the temperature and oxygen levels in Noxon Rapids indicate that these were within the limits of trout requirements. Other factors such as rate of water exchange, shoreline fluctuation, and lake currents may be detrimental to

trout. It is known that planted trout from Noxon Rapids have moved downstream into Cabinet Gorge Reservoir and on into the lower Clark Fork River and Lake Pend Oreille in Idaho. Research has indicated that the main factors influencing this downstream movement of planted rainbow trout may be the reservoir fluctuation, type of drawdown, and time of drawdown.

The future of the Noxon Rapids fishery and similar fisheries lie, to a good part, in the ability of the game fish to successfully spawn. Surveys of streams tributary to Noxon Rapids have shown that very few of the planted rainbow trout entered these streams to spawn. To aid the establishment of spawning runs of rainbow trout in Noxon Rapids, 400,000 eyed rainbow eggs were planted in two tributary streams. These fish, having been hatched in a stream, may have developed facilities to enter that stream upon reaching spawning size and age. The results of these egg plants can not be determined until the spring of 1963 or 1964 when the fish reach spawning age.

Brown trout and Dolly Varden have re-established spawning runs in three Noxon tributaries. These two species spawned in the same streams before the completion of Noxon Rapids in 1958.

Planting of 150,000 sub-catchable size rainbow trout continued in Cabinet Gorge in 1960 and 1961. These hatchery fish, along with escapement from Noxon Rapids Reservoir, produced excellent angling in 1960 and 1961. Fishing success during the early months of 1962 showed a decline as compared to the previous two years.

The 1959 and 1960 planting of rainbow trout in this reservoir increased the percentage of rainbow trout in the total population. Rainbow trout comprised less than one per cent in 1959, 20 per cent in 1960, and 10 per cent in 1961. Initial 1962 information indicates that the rainbow population is now similar to the 1959 level. As in Noxon Rapids, brown trout and Dolly Varden have shown small increases. Suckers, peamouth, squawfish, and yellow perch are the principal non-game fish species.

Brown trout and Dolly Varden are spawning successfully in Cabinet Gorge. Small numbers of rainbow trout are also reproducing, but not enough to

maintain a good fishable population. Only two tributary streams suitable for spawning enter into Cabinet Gorge. This lack of adequate spawning area is thought to be one serious detriment to the establishment of a self-sustaining rainbow trout population.

Management of the two lower Clark Fork River hydro-electric impoundments is now at a transitory stage. Planting of large numbers of fingerling rainbow trout has produced good to excellent angling, but only for a relatively short time. These hatchery trout apparently have not established themselves as a reproducing population and non-game fish have increased in numbers to pre-impoundment levels. Brown trout and Dolly Varden have fared well in the two lakes, but whether these two species of fish can maintain a desirable angler success level is debatable.

Population trend information has been collected yearly from Hungry Horse Reservoir. This trend information shows that the peak reservoir population was reached about 1958 and is now declining. This decline is the result of many factors of which the most important is the increasing age of the reservoir. Numbers of Dolly Varden, whitefish, suckers, and squawfish have remained constant, but the numbers of cutthroat appear to have declined.

Research was initiated during the biennium to determine when and where the lake cutthroat and Dolly Varden spawn, and the abundance of young fish entering into the lake each year. Surveys were started on tributary streams suitable for cutthroat spawning. Work was started in conjunction with the Forest Service to repair certain road culverts acting as barriers to upstream movement of fish. The removal of these culverts as barriers should increase the area available to spawning cutthroat and Dolly Varden considerably.

Creel census information collected from Hungry Horse Reservoir indicates that fishing success has declined since the late 1950's, but that it has leveled off to a steady rate. The average size of the cutthroat caught by anglers has increased from 0.5 pounds in 1958 to 1.0 pounds in 1961. Large Dolly Varden (5 to 15 pounds) are increasing in numbers in the annual catch. In general, the Hungry Horse Reservoir is an excellent "quality" fishery.

POLLUTION CONTROL AND INVESTIGATIONS



Species of water insects reflect the condition of water in which they live and are thus important indicators of pollution.

The Montana Fish and Game Department has cooperated in the pollution control program by assigning a biologist to the Board of Health. The statewide classification was completed under the direction of the State Board of Health which administers the Water Pollution Control Act. This is a classification of Montana streams as to use so adequate pollution control standards can be established and maintained.

An extensive investigation was made on the Clark Fork of the Columbia River during the summer of 1960, following a mine-mill waste pollution and fish kill in the late winter of that year. The upper 30 miles of the Clark Fork (below the Anaconda Company settling ponds to Garrison, Montana, was found to be in poor condition biologically. Some improvement was shown in the river from Garrison to Bonner in late summer. Some of the increase in pollution sensitive organisms (those organisms unable to survive in polluted conditions) in this section of the river was undoubtedly due to natural population fluctuations, but is a definite indication that clean water conditions exist. If present pollution abatement practices are maintained, the condition of the upper river will undoubtedly continue to improve.

The effect of Missoula sewage on the Clark Fork River is still apparent below Missoula, but the stream

should improve with the advent of sewage treatment of that city. A treatment plant is now under construction.

The 1960 stream sampling reflected clean water conditions below the Bitterroot River in the vicinity of the Waldorf-Hoerner Pulp and Paper Mill. A severe kill of whitefish occurred in a stretch of river (approximately 10 miles long) below the Waldorf-Hoerner Mill during late September of 1961. The cause of the kill could not be definitely established; however, fish sampling indicated the source of the pollutant to be the Waldorf-Hoerner Mill. The area of the kill was very similar to the 1958 kill which was attributed to wastes from that mill.

As in the past, waste stabilization lagoons at the Waldorf-Hoerner Mill were emptied during the high water period in April, May and June of 1962. Acute toxicity bioassays were conducted on wastes to be released and recommendations for safe concentrations, based on the bioassay results, were made by pollution control personnel. In all cases Waldorf-Hoerner Company personnel responded favorably to the recommendations. By this approach, together with the increased waste storage facilities and other methods of disposal, the effect of waste discharges on the river can be held to a minimum. The effect of the latest series of discharges cannot be deter-

mined until a stream investigation is made later in 1962.

With the advent of increased industrialization in the state, it is apparent that more sensitive methods for detecting low level pollution be developed if stream fisheries are to be maintained at their present quality. A research project has been proposed at Montana State College under the direction of Dr. C. J. D. Brown, to investigate the low level effects of various wastes on trout, but as yet funds have not been made available.

A three-year, pre-impoundment water quality investigation is being conducted on the upper Missouri River Drainage and will be concluded in September, 1962. Samples are collected from 18 established points on the Missouri, Gallatin, Madison, Jefferson, Beaverhead and Big Hole rivers to give a representative picture of the present water quality in this drainage. In addition, biological data were collected from the Beaverhead and Big Hole rivers. These data will be useful in determining the effect of the proposed dams and accompanying irrigated land drainage on these important fishing streams.

An investigation was begun in August of 1961 on the Yellowstone River in the vicinity of Billings. The purpose is to determine the effect of various municipi-

pal and industrial wastes upon the various water uses of the Yellowstone River. The river between Billings and Laurel has returned to clean water conditions since the last survey in 1955, primarily due to improved treatment facilities by the Farmer's Union Oil Refinery and Northern Pacific Railway shops. Little or no improvement was noted in the river below Billings during this period. Gross pollution is evident below the Yegen Drain; however, new and improved facilities are being planned by the users of the ditch.

Taste and odor has been reported to be a problem in the fish of the lower Yellowstone making them unappealing for consumption. Further study into this problem will be carried out during the summer of 1962.

The effects of sediment from the Hart Mountain Irrigation Project in Wyoming, on the Clark Fork of the Yellowstone River, were investigated in the vicinity of Belfry. Fish-egg survival experiments and bottom fauna sampling above and below Big Sand Coulee Creek (irrigation return from Hart-Mountain Project) showed a substantial effect of sediment on the aquatic life of the river. To identify the source of pollution, sediment samples will be collected from the river and the irrigation return by U. S. Geological Survey personnel during the summer of 1962.

FISH HATCHERY SYSTEM

Through the Montana fish culture program, sportsmen fishing in the state are able to fish successfully many waters that would normally have no sport fish in them. Examples of the type of fishing furnished are Browns Lake near Ovando, Georgetown Lake above Anaconda, and Duck Lake near Babb.

To provide an ever-increasing fishing public with opportunities to fish, eight state fish hatcheries produce some 12 million fish annually. Whether it be a sleek grayling, a fighting rainbow or cutthroat trout, or a large walleye or northern pike that fits the needs of our waters, the Montana hatchery system can produce it.

Through adoption of new techniques in fish production—feeding, treating, and distributing—Montana fish hatcheries have increased their efficiency and are able to meet present day management demands.

Hatchery Improvements

During the past biennium several improvements have been made or are in the process of being made at our various hatcheries. At Bluewater Hatchery near Fromberg, a headgate was constructed at an alternate spring and 480 feet of concrete tile was laid to bring this water into the main water supply. A new chain link fence was erected around the ponds at the Great Falls Hatchery. At the Arlee Hatchery, downed timber was cleared and a dike was constructed to prevent flood damage which has repeatedly caused trouble when high water occurs in the Jocko River. Extensive work at the Anaconda Hatchery improved fish rearing facilities. Installation of an auxiliary pump at the Somers Hatchery insures a fresh supply of water for that station at all times. To take care of the expanded facilities at the Lewistown Hatchery a mechanical fish loader, a power pond cleaner, and a diesel truck with a 2,000-gallon

distribution tank have been acquired. New plans soon to be carried out will control the water from a large spring above the lower unit of the Lewistown Hatchery. Use of the spring water during periods of high water in Spring Creek will eliminate problems caused by high turbidity. Recurring damage to the river wall and water supply line at the Great Falls Hatchery will be avoided by extending the wall and filling further out into the river. Routine maintenance work has been carried out by all of our state hatcheries.

Brood Stock

The use of domestic brood stock has played a very important part in the Montana fish hatchery program. Presently brood stock is located at the Arlee, Libby, Emigrant and Big Timber fish hatcheries. The value of a good, proven egg supply cannot be underestimated. For example, the Arlee Hatchery now produces up to five million rainbow trout eggs and may be developed further. With established brood stocks, the hatchery system has a basis on which it can determine the number of eggs and fish available from year to year. With wild stock eggs it is impossible to estimate production figures until trapping and spawning operations have been completed. While the holding of brood stock may cut production somewhat at that particular station, the advantages of a dependable egg source far outweighs the disadvantages.

Almost all eggs taken from wild stock are obtained from the Somers Hatchery.

Distribution

One of the most important functions of the hatchery system, obviously, is the distribution of fish once they are raised. A fish that has been reared to the proper size for stocking is of little value if it cannot be planted in good condition in the waters for which it was intended. The Montana Fish and Game Department has kept abreast of all new developments in fish distribution and has actually worked out distribution units that fulfill the requirements of the long hauls necessary in a state as large as Montana.

The use of oxygen in the water, with agitators to remove the toxic gases that accumulate from metabolic wastes, has made it possible to transport in one unit 1,000 to 1,200 pounds of live fish across the entire state with a minimum of mortality.



This 1 1/2 ton truck with stainless steel tanks and oxygen tanks can carry over 1,000 lbs. of fish for long distances.

Montana's first distribution truck, a converted 1920 Buick, could haul 150 lbs. of fish for short hauls.



Investigations

The Montana Fish and Game Department, in cooperation with research scientists, Dr. Melvin Dollar and Dr. Max Katz of the University of Washington, has carried out extensive nutritional studies and disease studies of trout. Through these studies the Department will achieve a more effective feeding and disease control program in trout. This work is closely allied to experiments in the incorporation of a nitrofurantoin compound, NF 180, into our fish food as a disease control.

These investigations may lead to the answers that will help the hatchery system rear some of the native Montana species of fish that, in many cases, seem highly susceptible to diseases when propagated at the hatchery.

General

Five years ago the hatchery system adopted an annual report form that accurately assessed all expenditures for fish produced. Prior to 1957 it was not possible to evaluate realistically the production of any one individual hatchery. All hatchery costs were recorded as one expenditure. Actual costs of producing a pound of fish were somewhat vague. Since

the annual report has been used, it has been possible to present accurate costs on all phases of fish propagation. Montana has a modern, up-to-date hatchery system, alert and flexible enough to use advantageously the rapid developments in the fish culture field. The following table emphasizes the great strides made by the Montana hatchery system in the last five years.

Jan. 1, 1957 to Dec. 31, 1957			Jan. 1, 1961 to Dec. 31, 1961		
Production Costs	Produced Pounds	Fish Costs Per Pound	Production Costs	Pounds Produced	Fish Costs Per Pound
\$151,715.71	185,001	\$0.82	\$147,078.51	332,674	\$0.442

EGG PRODUCTION

Species	Jan. 1-Dec. 31, 1960	Jan. 1-Dec. 31, 1961
Rainbow	8,212,430	8,744,536
Cutthroat	1,811,664	1,649,191
Grayling	1,196,316	1,519,842
Golden Trout	70,851	....
Kokanee	7,563,176	4,636,602
Walleye Pike	683,250	1,562,050
Northern Pike	262,500	453,750
TOTALS	19,800,187	18,565,971

SUMMARY OF PRODUCTION FOR THE MONTANA HATCHERY SYSTEM

	Numbers Planted		Pounds Produced		Cost Per Pounds of Fish Produced	
	1960	1961	1960	1961	1960	1961
Anaconda	839,957	788,764	41,597	70,804	.544	.4033
Arlee	295,248	573,834	30,020	26,588	.4150	.571
Big Timber	51,820	49,591	9,051	9,831	.82	.56
Bluewater	841,658	982,045	47,519	50,093	.4450	.3373
Emigrant	295,972	174,839	9,678	11,665	.52	.43
Great Falls	596,111	267,825	26,361	38,681	.551	.368
Hamilton	96,084	85,004	2,000		2.34	
Lewistown	1,737,098	1,790,733	107,540	114,645	.44	.38
Libby	184,479	170,423	2,576	3,219	1.74	1.08
McNeil	1,499,000	4,670,000	25	79	24.01	6.84
Somers	3,002,782	2,642,256	4,263	7,069	1.74	1.70

FISH PLANTED BY STATE AND FEDERAL HATCHERIES IN MONTANA

Species	Size	Jan. 1-Dec. 31, 1960		Jan. 1-Dec. 31, 1961	
		Numbers	Pounds	Numbers	Pounds
Rainbow	Eggs			399,059	64
	1	64,740	54		
	2	1,220,360	8,722	633,209	2,577
	3	2,189,862	25,025	2,397,214	24,531
	4	1,282,294	33,170	172,228	12,526
	5	551,060	29,780	261,020	13,222
	6	145,999	14,339	792,424	70,857
	Legal	1,869,815	401,850	1,809,952	412,361
	Adult	2,376	3,205	4,323	4,174
Cutthroat Trout	1	794,868	235	4,070	2
	2	549,640	2,954	545,941	1,790
	3	269,757	1,902	224,926	1,041
	4	219,073	6,450	34,433	824
	5	248,776	11,604	150,801	6,672
	6	79,652	6,476	83,152	8,309
	Legal	17,742	2,861	46,488	6,531
	Adult	6,967	8,880	1,335	1,859
Eastern Brook	2			7,904	38
	3			69,071	430
	4	12,800	320		
	5			8,200	450
Golden Trout	1			20,610	10
	4	7,980	103	440	11
	Legal	1,050	300	980	245
Sockeye Salmon	1	1,333,711	288	2,011,973	545
Grayling	Fry	86,935	5	630,950	36
	1	673,118	42		
	2			684	16
	3			4,800	16
	Legal			31,967	2,722
	Adult	603	501	1,877	1,747
Yellow Perch	Fry	10,000	1		
Sauger/Walleye	Fry	1,355,000	19	68,000	1
Northern Pike	Fry	134,000	5	879,000	22
Bluegill				194,750	147
Channel Catfish				5,000	9
Bass				24,700	71
TOTAL		13,142,385	559,801	15,311,481	573,914

LAW ENFORCEMENT

A growing America is seeking more outdoor recreation and demanding more of resource agencies. During the past twenty years many new tasks have been added to the responsibilities of the Montana Fish and Game Department. Many of these new responsibilities have been delegated to the Enforcement Division.

Twenty years ago Dr. McFarland, then State Game Warden and head of the Department, realized the need for improving the standards of Fish and Game personnel. His progressive thinking and planning initiated the first in-service training session to better train personnel in the various fields of wildlife management, law enforcement and public relations.

The game warden of yester-year was mostly concerned with the enforcement of regulations of the wildlife resource. His primary duty was patrolling his district on the lookout for people hunting during closed seasons and taking more than the legal limit of fish and game. In the "good old days", the waste of game resources caused by surplus animal populations dying on over-used ranges was of little concern to anyone because then there was plenty for all. This lack of management went by apparently unnoticed because nature left enough in most cases so there was no shortage until the thirties when game populations hit an all time low. Times changed, and more intensive land use caused the wildlife habitat to dwindle providing less opportunity for hunters and fishermen to bag their game or fill their creel. Because of the increased number of recreationists and because resource management is becoming more recognized as a necessity, the public is insisting that wildlife management be done in a more efficient manner. Today there is no place for waste because the demand often exceeds the supply.

The Montana Fish and Game Department is coping with the increased use of wildlife resources. We are finding new ways to provide sportsmen with as much hunting and fishing as possible.

The game warden's position is a difficult one and more complicated than it was a few years ago. He must have a basic knowledge in fish and game management, ability to administer good public relations, be well informed on laws and regulations and have special training in law enforcement. The enactment of new laws to provide more and safer recreation has placed further demands upon the officers.

Firearm and Hunter Safety

Field administration of the Firearm Safety Law is another important task of the warden force. This law provides for a course of instruction in the safe handling of firearms for children between 12 and 18. This instruction not only makes a safer hunter of Montana's youth but is also an added incentive for parents to set a safe example for their children.

Boating Laws

A uniform boat and water safety law was passed during the biennium that set safety regulation for boaters and for other uses of water areas. The Fish and Game Department and specifically wardens are charged with enforcing this law. With the increased interest in boating and water skiing, the enforcement of this law becomes more time consuming. Frequent complaints are directed to the officer concerning reckless operation of boats. Fortunately, few people are injured by these thoughtless water antics but these incidents are annoying to other boaters and water users. Reckless boat maneuvers do not usually leave tracks; consequently, considerable time is consumed investigating boating violations.

Boat Registration Inspection.



Sanitation

The Commission, by legislative action, has the authority to set forth and enforce rules and regulations on public fishing waters in the interest of public health, public safety and the protection of property. Swimming, boating, water skiing, picnicking, camping, sanitation and the use of firearms falls under jurisdiction of this law.

Sloppy outdoor manners lead to more stringent laws to curb the careless.

Land Access Program

The Department has a program of purchasing public access and developing public fishing sites. Many people appreciate driving to a free camping area bordering a fine trout stream or mountain lake and these sites have taken up a considerable amount of a warden's time. Access areas are becoming very popular and are providing much carefree recreation for the public. They are alleviating some of the acute sportsmen-landowner problems which have developed locally. Most are relatively new and have not been developed. Development of these areas includes fencing, preparation of sanitary facilities and devising means for disposing of trash and garbage. Use of these areas, after facilities are installed, will also increase the workload as maintenance will be a must.

Game Damage and Bear Depredation

More intensive land use quite often conflicts with wildlife habitat. Consequently, many complaints of game damage are received. Typical complaints from private landowners are: "the elk are in my haystack, the deer are in my garden, the bears are robbing my orchards". These complaints received by the State Fish and Game Department are given immediate attention by the game wardens.

Landowner-Sportsmen Relations

As the number of fishermen and hunters increase, landowner-sportsmen relations become more acute. The Fish and Game Department find themselves in the middle of many misunderstandings. The Department attempts to provide recreational areas for the sportsmen, but is also concerned over unnecessary damage to private property.

District Game Wardens make many contacts with the ranchers and try to work out problems with them. The Department is aware of, and appreciates the role private landowners play in providing a place for the sportsmen to hunt and fish.

Sportsmanship and respect for the landowner should be the motto of the sportsman because he has much to gain by keeping these lands open to recreation. The Department urges you to "ask" before you hunt or fish on private land. If the privilege is granted, please respect the landowner's property and do not scatter litter on his land or along the road.



Working toward good landowner-sportsmen relations.

Youth Groups

Game wardens are called on frequently to work with Boy Scout groups, 4-H Club members, Hunter-Safety classes and other youth groups in an effort to impress them with the importance of conservation and good sportsmanship.

Fair Exhibit

In cooperation with the I. and E. Division, game wardens assist in collecting and caring for wild animals for County Fair exhibits. This is a very important attraction at the fairs and people never seem to tire of viewing animals from the wild.

Game Management Data

Gathering game management data is very important in any good game management program.

Game wardens assist other personnel in gathering information regarding big game populations and their wintering areas. Information concerning nesting areas, brood populations of game birds, and general range conditions is also gathered by the wardens.

Increased Hunting and Fishing Pressure

On a nation-wide average, the number of anglers and hunters have increased at a faster rate over the past five years than has the population of the United States. Our total population increased eleven per cent in the past five years, while hunters and fishermen increased twenty-four and twenty-two per cent respectively. Women and children are more active in outdoor sports. Lady hunters have increased 106 per cent.

Examples of tremendous increases in the use of our wildlife resources can be found in the Great Falls-Lewistown area where the Minuteman Missile program has been underway for nearly two years. Airmen and their families, moving into the Glasgow Air Base, have nearly doubled the population and hunting and boating has skyrocketed in this north-eastern community. The construction of Yellowtail Dam in the Hardin area has brought additional workers and their families into that area.

Paralleling the increase in license sales and number of sportsmen and women who hunt and fish or use the recreational resources of this state, is the advancement of equipment and methods of taking game and fish.

Four-wheel-drive vehicles, outboard motors, trailer houses, campers, high velocity rifles, telescope sights, binoculars, spinning rods and reels, etc. have made the hunter and fisherman more effective. A shorter working week with more leisure time, better roads and highways and means of transportation have put sportsmen into the field more than ever before.

Organization

In order to cope with this added workload, it has been necessary for the Fish and Game Department to modernize its organization and strive for increased efficiency. Twenty years ago, 34 Deputy Game Wardens made up the Law Enforcement Division of the State Fish and Game Department. Now there are

more than 50. Since the workload of the Enforcement Division has increased many-fold, the Commission found it necessary to appoint a Chief Enforcement Officer with headquarters in the state office.

The state has been divided into seven supervisory districts with a district supervisor in charge of enforcement personnel. A district headquarter's building is located in each supervisory district to provide office space and store equipment. The first headquarter's building was constructed at Bozeman in District 3 and buildings are now owned at Kalispell, Missoula, Great Falls, Billings, Glasgow and Miles City.

Supervision and Training

The Chief of Enforcement is responsible for operation of the enforcement division and the coordination of its activities with other divisions within the department.

The District Warden Supervisors direct the enforcement program within their respective districts by supervising the enforcement personnel and coordinating their work with that of other divisions within the district.

The warden of yesterday appeared in various types of garb. Today, he is neatly uniformed for either summer or winter duty. He is more easily recognized, thus better able to serve the public.

Several of the enforcement personnel have college degrees in wildlife management. This is an asset to their work; however, frequent in-service training programs are necessary for all personnel. In 1941 the first in-service training sessions were initiated to better train personnel in various fields of wildlife management. Since then training sessions have been held at the State College, the State University and various institutions. All wardens and supervisors are trained in Red Cross first aid and several are instructors. Several wardens and supervisors have also been trained in radiological monitoring and serve as instructors in cooperation with civil defense authorities.

District Warden Supervisors help set up and instruct in these training programs with special attention being given to the newer wardens. New wardens are indoctrinated and trained at district headquarters under direct supervision of the supervisor and work with older wardens until they are adequately trained to manage a district.

District meetings are called monthly to disseminate

nate information and coordinate the department programs, thus striving for an efficient and uniform program throughout the state.

Equipment

In the past, wardens furnished their own vehicles. In 1954 wardens were issued state-owned vehicles. Wardens are now furnished vehicles to suit their district and many are using four-wheel drive vehicles to keep abreast with the outdoor recreationist.

Now the Commission is continually providing the game wardens with newer and better equipment so that they are able to stay abreast in their contacts with hunters and fishermen who use modern day equipment to travel to the fields and streams. In order to adequately check the water recreationists, it is necessary to have water equipment to make proper contact with them. Four-wheel drive vehicles are a necessity on many of the mountain roads and trails. Twenty years ago wardens seldom were able to contact each other or other enforcement officers for assistance and aid in the field. Today, radio equipped vehicles provide more efficiency in law enforcement. These units are on the same frequency with the Highway Patrol and county sheriffs and cooperation between individuals and agencies provides a better law enforcement program.

Radio equipped planes make possible instant communication from air to ground. In cases of fire,

night hunting, search and rescue, lost hunters and patrol for out-of-season hunters and fishermen, this is a very important feature.

A Bell 47 G-3B Helicopter has been added to the department's inventory of equipment. This new bird expedites quicker contact with game violators back in the roadless areas. It has a lot of value as a rapid means of transportation and contacts are much more efficient.

IBM equipment in the state office has been put to good use by the Enforcement Division. License applications are processed through these machines and in turn many non-residents who take a chance on purchasing a resident hunting or fishing license have been processed in court.

Contacting license dealers and then working license applications is another time consuming and tedious part of a warden's work.

Results

Percentage-wise, the number of hunters and fishermen now seeking outdoor recreation has far surpassed the additional game wardens employed by the State Fish and Game Department. However, better trained personnel, using modern equipment, are daily providing more efficient and courteous service to an ever-increasing number of outdoor recreationists.

Modern communications improve law enforcement.



FISH AND GAME VIOLATIONS

	May 1, 1960 through April 30, 1961	May 1, 1961 through April 30, 1962
Big Game	334	475
Game Birds and Migratory Waterfowl	103	149
Fish	517	573
Fur Bearers	28	25
Water Safety	277	166
Shooting Safety	52	55
Miscellaneous	184	248
TOTALS	1495	1691

FISH AND GAME VIOLATIONS By Warden Supervisor District

	May 1, 1960 through April 30, 1961	May 1, 1961 through April 30, 1962
District No. 1	200	204
District No. 2	225	275
District No. 3	318	375
District No. 4	335	322
District No. 5	214	288
District No. 6	85	129
District No. 7	118	98
TOTALS	1495	1691

FISH AND GAME FINES By Type of Violation

	May 1, 1960 through April 30, 1961	May 1, 1961 through April 30, 1962
Big Game	\$11,960.05	\$18,128.55
Game Birds and Migratory Waterfowl	2,421.20	3,527.70
Fish	10,895.20	11,289.91
Fur Bearers	714.55	632.20
Water Safety	2,798.40	1,292.60
Shooting Safety	856.85	988.00
Miscellaneous	4,392.90	6,662.60
TOTALS	\$34,039.15	\$42,521.56

STATISTICAL SECTION

The old saying "Time is Money" is still an important adage even in recreation management. People concerned with Montana's wildlife resource find that the presence of concise accurate facts when dealing with many problems is a necessity. To implement this need for facts, a statistical section, consisting of a Wildlife Statistician and one Clerk, has been in operation for a little more than two years.

It is a new program, but there is little doubt that it is a positive one. The blending of mathematics and biology necessary to prepare the information needed by the personnel of the Montana Fish and Game Department is a highly technical job. It requires an understanding of the objectives of all Department personnel, the utilization of modern high speed computers, and a recognition that the final product must be helpful in producing more recreation for Montana.

The Statistical Section has completely changed the harvest analysis techniques used. In so doing, the Game Management Division removed about seven months a year work load from its personnel and the same information is calculated in less than five hours on a computer. Similar economies have been realized in the Fish Division where the person-

nel on one creel census project was cut from four summer employees to two. The Information and Education Division saved nearly \$20,000.00 in having the Statistical Section and Montana State College perform its economic survey rather than contracting the project to an outside firm. Many other projects have been similarly beneficial to the Department by saving time, extra employees and money.

Statistics is an integral part of research and the utilization of statistical techniques in wildlife research has become a "must." The mass of data needed must be processed using electronic data processing machines or else the accumulation of factual information is too great to assimilate. To the research biologist, this is a great help since it means that he may spend more time in the field to make observations for which he is employed. These observations are then analyzed by the Statistical Section and returned to the biologist for interpretation.

The Statistical Section is working toward becoming a strong supporting unit of all Divisions of the Department. It has proved that properly combined mathematics and data processing can help improve recreation.

STATISTICS

1960 LICENSE SALES BY COUNTIES

County	Resident Bird & Fish	Resident Big Game	Limited Fishing	Non-Res. Fishing	Non-Res. Bird	Non-Res. Big Game	Boy and Arrow	Non-Res. Deer	Mt. Goat	Boat	Turkey	Special Permits	TOTALS
Beverhead	2,828	1,902	3,530	280	3	195	32	138	.....	9	.....	.....	8,917
Big Horn	1,659	1,048	180	75	14	5	7	.....	.....	8	.....	.....	2,996
Blaine	1,373	916	43	6	.....	.....	21	24	.....	.....	.....	.....	2,386
Broadwater	1,085	745	154	30	1	22	12	.....	.....	14	.....	.....	2,063
Carbon	2,465	1,511	438	69	1	38	20	100	.....	7	.....	.....	4,649
Carter	673	649	7	2	.....	.....	8	8	.....	2	238	.....	1,587
Cascade	20,079	11,781	1,489	268	32	139	283	334	62	322	.....	.....	34,789
Chouteau	1,856	1,174	89	10	1	3	19	31	.....	30	.....	.....	3,213
Custer	2,825	2,209	69	19	2	61	37	526	.....	30	187	.....	5,965
Daniels	637	473	3	.....	.....	.....	.....	.....	.....	12	.....	.....	1,125
Dawson	2,752	2,100	54	28	5	21	71	.....	.....	57	.....	.....	5,088
Deer Lodge	4,445	2,475	605	70	1	29	23	4	.....	71	.....	.....	7,723
Fallon	895	809	6	8	.....	11	19	.....	.....	9	433	.....	2,190
Fergus	4,937	3,990	572	79	18	88	157	1,536	.....	45	.....	.....	11,482
Flinthead	11,585	7,750	3,150	352	16	176	120	151	154	361	.....	.....	23,815
Gallatin	8,872	5,331	7,001	898	4	288	71	131	.....	118	.....	.....	22,714
Gardfield	401	385	19	4	1	10	6	.....	.....	3	.....	.....	829
Glacier	2,590	1,186	513	108	12	26	43	10	18	36	.....	.....	4,542
Golden Valley	392	288	16	3	.....	1	12	19	.....	2	.....	.....	733
Gronite	1,044	783	183	29	.....	19	11	22	.....	9	.....	.....	2,100
Hill	4,449	2,564	157	32	.....	12	67	45	.....	66	.....	.....	7,392
Jefferson	987	708	198	24	.....	18	6	9	.....	3	.....	.....	1,953
Judith Basin	973	771	84	15	.....	9	10	55	.....	4	.....	.....	1,921
Lake	4,000	2,149	2,595	209	24	41	15	27	35	82	.....	.....	9,177
Lewis & Clark	9,036	5,439	1,231	157	14	1,692	231	6,536	638	210	194	.....	25,378
Liberty	868	345	101	22	1	.....	48	.....	.....	35	.....	.....	1,420
Lincoln	4,610	3,267	1,234	190	5	48	35	109	71	57	.....	.....	9,517
Morison	2,151	1,385	2,763	224	7	111	12	.....	.....	9	.....	.....	6,777
McCone	657	517	10	1	.....	10	17	.....	.....	6	.....	.....	1,218

1960 LICENSE SALES BY COUNTIES—(Continued)

County	Resident Bird & Fish	Resident Big Game	Limited Fishing	Non-Res. Fishing	Non-Res. Bird	Non-Res. Big Game	Bow and Arrow	Non-Res. Deer	Mt. Goat	Beet	Turkey	Special Permits	TOTALS
Meagher	1,207	947	192	33		62	14	244		3			2,702
Mineral	1,231	1,010	712	466	15	104	7	122		8			3,675
Missoula	13,254	8,165	2,213	409	28	325	101	221	185	247			25,148
Musselshell	1,394	1,054	99	17	3	6	12			7			2,592
Park	4,915	3,307	1,504	191	1	70	32	128		20			10,168
Petroleum	219	188	3					189		2			601
Phillips	1,587	1,253	45	4	5	3	15	167		31			3,110
Pondera	2,388	1,413	145	40	1	9	65	20	10	17			4,108
Powder River	652	602	20	5		7	9			2	92		1,389
Powell	2,051	1,532	216	39	1	37	6	16	12	31			3,951
Prairie	464	383	5				5			2			859
Ravalli	3,982	2,708	1,350	131	6	192	4	10		26			8,389
Richland	2,100	1,477	40	30	10	4	50			17			3,728
Roosevelt	2,193	1,505	49	8	5	11	37			49			3,857
Rosebud	1,215	962	35	5	5	1	19			8			2,250
Sanders	2,671	1,925	2,296	283	29	85	24	296	13	48			7,670
Sheridan	1,012	772	4		3	1	19			22			1,833
Silver Bow	11,031	5,384	959	134	1	79	76	6		133			17,803
Stillwater	2,308	1,341	441	31	12	39	136			9			4,317
Sweet Grass	1,331	982	361	80	2	28	18	155		2			2,959
Teton	2,118	1,449	147	30	13	37	46	47	19	41			3,947
Toole	1,843	1,024	92	79	2	9	16			49			3,114
Treasure	266	204	10	2						1			483
Valley	4,950	3,505	283	113	17	17	79	191		120			9,285
Wheatland	1,117	846	167	17	17	18	40	111		8			2,324
Wibaux	284	253	8	5			4						554
Yellowstone	18,002	11,199	1,202	169	15	80	190	142		256			31,255
Special Non-Resident Antelope													1,043
Special Moose													553
Special Sheep													413
TOTALS	186,969	120,040	39,098	5,533	325	4,278	2,340	12,008	1,217	2,788	1,144	2,009	377,749

1961 LICENSE SALES BY COUNTIES

County	Resident Bird & Fish	Resident Big Game	Limited Fishing	Non-Res. Fishing	Non-Res. Bird	Non-Res. Big Game	Ew and Arrow	Non-Res. Deer	Mt. Goat	Boat	Turkey	Non-Res. Bear	Sportal Fermals	TOTALS
Beverhead	2,801	1,946	3,240	278	3	282	23	182	....	12	....	....	....	8,767
Big Horn	1,457	981	129	57	16	5	13	41	....	3	....	....	....	2,702
Blaire	1,301	942	27	7	1	....	29	31	....	5	....	....	....	2,343
Broadwater	1,030	765	154	21	....	23	17	56	....	5	....	....	....	2,071
Cartoon	2,303	1,482	396	73	1	26	11	86	....	3	....	....	....	4,381
Carter	625	617	10	1	....	15	5	....	....	1	....	....	....	1,274
Cascade	20,373	11,810	1,330	391	14	129	306	312	52	192	13	2	....	34,924
Chouteau	1,665	1,069	56	13	2	....	15	19	....	12	....	....	....	2,851
Custer	2,731	2,259	53	12	9	98	43	....	....	14	740	....	....	5,959
Daniels	....	718	6	....	....	....	....	....	....	6	....	....	....	1,244
Dawson	2,687	2,120	62	12	....	15	61	....	....	21	....	....	....	4,978
Deer Lodge	4,208	2,404	573	59	....	36	17	1	....	36	....	....	....	7,334
Fallon	960	861	7	5	4	5	20	....	....	1	....	....	....	1,863
Fergus	5,216	4,245	543	138	10	67	138	1,160	....	31	241	....	....	11,789
Fitchhead	11,805	8,179	3,243	367	16	225	109	....	158	235	....	8	....	24,345
Geulatin	9,040	5,581	8,912	933	8	365	110	185	....	155	....	1	....	25,290
Garfield	399	359	15	....	....	4	3	....	....	....	60	....	....	841
Glacier	2,490	1,144	755	137	4	13	44	....	....	28	....	1	....	4,624
Golden Valley	430	286	16	3	....	....	13	55	....	....	....	....	....	803
Granite	1,043	734	214	42	....	....	17	4	....	3	....	....	....	2,070
Hill	4,301	2,498	1,222	17	2	23	60	4	....	21	52	....	....	7,100
Jefferson	973	723	233	23	....	24	2	32	....	2	....	....	....	2,012
Judith Basin	1,058	826	75	44	....	2	5	46	....	....	....	....	....	2,061
Lake	3,653	2,015	2,488	195	17	51	9	....	38	89	....	1	....	8,556
Lewis & Clark	9,369	5,791	1,128	148	18	1,641	217	597	211	149	142	19	....	19,451
Liberty	774	365	71	13	....	....	25	4	....	7	....	....	....	1,259
Lincoln	4,584	3,432	1,191	217	6	35	26	....	28	43	....	1	....	9,563
Madison	2,185	1,409	4,015	251	17	125	9	130	....	12	....	3	....	8,156
McCone	576	457	7	....	....	3	16	....	....	4	....	....	....	1,663
Meagher	1,170	938	165	27	....	34	7	218	....	1	....	....	....	2,560
Mineral	1,161	1,071	764	442	11	97	3	....	....	2	....	7	....	3,558
Missoula	13,407	8,692	2,200	368	45	359	64	156	134	160	....	10	....	25,575
Missoula	1,385	1,045	84	15	1	4	10	....	....	....	....	....	....	2,547
Park	4,989	3,406	1,716	214	7	75	38	246	....	16	....	2	....	10,709
Petroleum	255	188	7	3	....	....	....	197	....	4	23	....	....	671
Phillips	1,523	1,223	37	4	9	3	10	247	....	14	83	....	....	3,137

1961 LICENSE SALES BY COUNTIES—(Continued)

County	Resident Bird & Fish	Resident Big Game	Limited Fishing	Non-Res. Fishing	Non-Res. Bird	Non-Res. Big Game	Non-Res. Arrow	Non-Res. Deer	Mt. Goat	Boat	Turkey	Non-Res. Bear	Special Permits	TOTALS
Pondera	2,335	1,413	127	32	3	16	50	10	10	24	...	3	...	4,023
Powder River	580	562	14	3	...	8	11	...	...	...	...	...	...	1,178
Powell	2,109	1,489	252	30	...	49	12	...	5	13	...	...	...	3,959
Prairie	417	371	8	1	...	4	5	...	...	2	...	...	...	808
Rawlley	4,003	2,748	1,316	128	4	234	3	41	...	13	...	5	...	8,495
Richland	1,914	1,417	85	17	2	21	60	...	...	10	...	...	...	3,456
Roosevelt	2,159	1,564	40	8	4	13	27	...	...	37	...	...	...	3,852
Rosebud	1,113	914	35	3	2	2	16	...	...	2	...	...	...	2,087
Sanders	2,684	2,043	1,709	318	13	94	10	...	5	28	...	12	...	6,926
Sheridan	987	745	4	1	4	3	7	...	...	16	...	...	...	1,767
Silver Bow	10,945	5,478	1,089	107	1	124	86	35	...	114	...	...	...	17,959
Stillwater	2,255	1,311	433	49	3	11	43	287	...	...	...	1	...	4,398
Sweet Grass	1,300	931	408	43	2	32	19	278	...	8	...	3	...	3,024
Teton	2,131	1,407	178	34	8	32	45	...	37	11	...	1	...	3,884
Toole	1,851	1,023	70	55	1	8	28	...	...	18	...	...	...	2,854
Treasure	231	157	4	1	...	...	...	...	...	2	...	...	...	395
Valley	5,277	3,686	247	32	13	14	83	84	...	131	20	...	...	9,587
Wheatland	1,031	781	100	14	1	19	28	141	...	2	...	1	...	2,118
Wilbax	263	245	6	7	...	...	2	...	...	...	...	...	...	523
Yellowstone	17,659	10,957	1,047	185	18	92	175	128	...	198	92	3	...	30,564
TOTALS	185,719	121,629	41,147	5,598	299	4,538	2,132	5,022	686	1,930	1,466	84	...	370,310
Idaho	...	...	50	28	...	1	...	5	...	...	...	...	...	84
Utah	...	...	269	3	...	...	...	...	...	...	...	...	...	272
Washington	...	...	114	30	2	2	4	9	...	1	...	2	...	164
Wyoming	...	...	9	9	5	...	...	...	...	...	...	...	...	23
Special Permits														
Non-Resident Deer													8,391	
Non-Resident Ant.													2,778	
Mountain Goat													452	
Moose													633	
Sheep													380	
TOTALS	185,719	121,629	41,989	5,668	306	4,541	2,196	5,036	686	1,931	1,466	86	12,634	383,487

**MONTANA HUNTING AND FISHING LICENSE SALES
1950 THROUGH 1961**

LICENSE	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961
Resident Bird & Fish	159,284	170,449	183,770	181,560	186,395	189,449	191,081	188,048	187,949	185,727	186,969	185,719
Resident Big Game	87,261	100,740	116,566	117,984	121,712	124,932	121,026	118,235	121,019	118,649	120,040	121,629
Non-Res. Limited Fishing	23,664	24,730	27,940	31,295	33,231	36,671	41,328	41,869	40,933	40,522	39,252	41,589
Non-Res. Season Fishing	3,741	4,385	5,017	4,080	4,005	4,134	5,090	5,705	5,859	5,801	5,562	5,668
Non-Resident Bird	124	216	262	149	201	242	268	277	309	333	327	306
Non-Resident Big Game	897	1,245	1,615	1,607	1,547	2,180	2,974	3,774	3,923	4,088	4,279	4,541
Bow and Arrow	.....	.....	.....	535	715	841	1,453	1,929	2,413	2,759	2,955	2,196
Special Antelope	8,345	9,272	18,622	23,677	20,886	.....	.....	.....	.....	.....	.....	.....
Special Moose	76	105	211	142	192	343	405	411	572	505	553	633
Special Elk	245	357	341	.....	.....	.....	.....	.....	.....	.....	.....	.....
Special Deer	1,513	1,254	4,270	.....	.....	.....	.....	.....	.....	.....	.....	.....
Special Mountain Sheep	.....	.....	.....	30	53	59	269	195	302	327	413	380
Special Mountain Goat	.....	.....	.....	50	100	225	851	1,070	1,398	1,203	1,217	1,138
Special Buffalo	.....	.....	.....	3	3	.....	.....	.....	.....	.....	.....	.....
Non-Resident Deer	.....	.....	.....	.....	.....	2,623	6,445	5,038	7,533	9,291	12,042	13,427
Non-Resident Antelope	.....	.....	.....	.....	.....	3,495	5,033	2,895	.....	1,237	1,043	2,778
Boat Applications	.....	.....	.....	.....	.....	.....	.....	.....	.....	6,895	2,789	1,931
Turkey Permits	.....	.....	.....	.....	.....	.....	.....	.....	.....	814	1,144	1,466
Non-Resident Bear	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	86
TOTALS	285,150	312,813	358,614	361,112	369,040	365,193	376,223	369,446	372,210	379,145	377,983	383,487

**MONTANA FISH AND GAME DEPARTMENT
STATEMENT OF INCOME**

MAY 1, 1960—APRIL 30, 1961

Hunting and Fishing Licenses:

Resident Bird & Fish	186,969	@	\$ 3.00	\$ 560,907.00
Resident Big Game	120,040	@	3.00	360,120.00
Non-Resident Limited Fishing	39,252	@	3.00	117,756.00
Non-Resident Fishing	5,562	@	10.00	55,620.00
Non-Resident Bird	327	@	25.00	8,175.00
Non-Resident Big Game	4,279	@	100.00	427,900.00
Shipping Permits	7,019	@	.60	4,211.40
Fishing Certificates of Identification	2,137	@	1.00	2,137.00
Bow and Arrow	2,355	@	2.00	4,710.00
Big Game Certificates of Identification	720	@	1.00	720.00
Non-Resident Deer	12,042	@	20.00	240,840.00
Non-Resident Antelope	1,043	@	20.00	20,860.00
Mountain Goat	1,217	@	5.00	6,085.00
Boat Application	2,789	@	3.00	8,367.00
Fur Shipping Permit	185	@	.60	111.00
Turkey	1,144	@	2.00	2,288.00
Moose	553	@	25.00	13,825.00
Mountain Sheep	413	@	15.00	6,195.00
Boat Certificates of Identification	87	@	1.00	87.00

\$1,840,914.40

—55,972.80

Less Dealers' Fees \$1,784,941.60

1959 Accounts Paid 9,165.90

Total Income from Hunting and Fishing License Sales \$1,794,107.50

Miscellaneous Sales:

General Trappers	1,116	@	10.00	11,160.00
Land Owner Trappers	171	@	1.00	171.00
Beaver Tags	24,207	@	.50	12,103.50
Beaver Permits	471	@	5.00	2,355.00
Outfitters	316	@	10.00	3,160.00
Resident Fur Dealer	28	@	10.00	280.00
Taxidermist	26	@	15.00	390.00
Fur Dealer Agent	29	@	10.00	290.00
Non-Resident Fur Dealer	5	@	50.00	250.00
Minnnow Seining Permits	11	@	10.00	110.00

30,269.50

Miscellaneous Revenue:

Fines	34,631.35
Sale of Confiscated Fish and Meats	1,841.53
Rents	15,334.76
Other Revenue	2,160.39
Lease of Land—Tiber Dam	4,831.58
Lease of Land—Canyon Ferry	1,608.95
Sale of Fish Eggs	2,760.00
Interest—Bond Investment	3,750.00
Rough Fish—Fort Peck	209.95
Sale of Confiscated Hides	186.00
Allan Foundation	1,761.43

69,075.94

Less O'Kacy Coaches Check 68,649.62

\$1,893,026.62

Pittman-Robertson Income by Federal Reimbursement 503,482.23

Dingell-Johnson Income by Federal Reimbursement 147,926.46

\$2,544,435.31

Less April 28 Deposit Credited in Treasurer's May Records —5,973.41

TOTAL INCOME TO DEPARTMENT FOR PERIOD MAY 1, 1960-APRIL, 30, 1961 \$2,538,461.90

**MONTANA FISH AND GAME DEPARTMENT
STATEMENT OF INCOME**

MAY 1, 1961—APRIL 30, 1962

Hunting and Fishing Licenses:

Resident Bird & Fish	185,719	@	\$ 3.00	\$ 557,157.00	
Resident Big Game	121,629	@	3.00	364,887.00	
Non-Resident Limited Fishing	41,589	@	3.00	124,767.00	
Non-Resident Fishing	5,668	@	10.00	56,680.00	
Non-Resident Bird	306	@	25.00	7,650.00	
Non-Resident Big Game	4,541	@	100.00	454,100.00	
Shipping Permits	7,151	@	.60	4,290.60	
Fishing Certificates of Identification	2,129	@	1.00	2,129.00	
Bow and Arrow	2,196	@	2.00	4,392.00	
Big Game Certificates of Identification	771	@	1.00	771.00	
Non-Resident Deer	13,427	@	20.00	268,540.00	
Non-Resident Antelope	2,778	@	20.00	55,560.00	
Mountain Goat	1,138	@	5.00	5,690.00	
Boat Application	1,931	@	3.00	5,793.00	
Fur Shipping Permits	132	@	.60	79.20	
Turkey	1,466	@	2.00	2,932.00	
Moose	633	@	25.00	15,825.00	
Mountain Sheep	380	@	15.00	5,700.00	
Boat Certificates of Identification	47	@	1.00	47.00	
Non-Resident Bear	86	@	20.00	1,720.00	
				<u>\$1,938,709.80</u>	
Less Dealers' Fees				<u>—56,057.25</u>	\$1,882,652.55
1960 Accounts Paid					<u>11,068.00</u>
Total Income from Hunting and Fishing License Sales					<u>\$1,893,720.55</u>

Miscellaneous Sales:

General Trappers	953	@	10.00	9,530.00	
Beaver Tags	15,144	@	.50	7,572.00	
Beaver Permits	247	@	5.00	1,235.00	
Outfitters	298	@	10.00	2,980.00	
Land Owner Trapper	131	@	1.00	131.00	
Resident Fur Dealer	33	@	10.00	330.00	
Fur Dealer Agent	30	@	10.00	300.00	
Non-Resident Fur Dealer	4	@	50.00	200.00	
Taxidermist	22	@	15.00	330.00	
Minnow Seining Permits	18	@	10.00	180.00	22,788.00

Miscellaneous Revenue:

Fines				41,380.01	
Sale of Confiscated Fish and Meats				3,232.49	
Rents				18,741.70	
Other Revenue				22,285.72	
Lease of Land—Tiber Dam				4,741.78	
Lease of Land—Canyon Ferry				1,155.75	
Sale of Fish Eggs				480.00	
Interest on Bonds				3,750.00	
Rough Fish—Fort Peck				98.80	
Allan Foundation				1,345.10	97,211.35

Pittman-Robertson Income by Federal Reimbursement					\$2,013,719.90
Dingell-Johnson Income by Federal Reimbursement					424,138.92
					<u>134,736.85</u>

Plus April 28, 1961 Deposit Credited in Treasurer's May Records					\$2,572,595.67
					5,973.41
TOTAL INCOME TO DEPARTMENT FOR PERIOD MAY 1, 1961-APRIL 30, 1962					<u>\$2,578,569.08</u>

DETAIL OF EXPENDITURES

For Fiscal Years Ending April 30, 1961 and April 30, 1962

	April 1961	April 1962
COMMISSIONERS		
Per Diem	\$ 3,024.10	\$ 3,208.63
Operation	5,084.45	5,756.83
TOTAL	\$ 8,108.55	\$ 8,965.46
ADMINISTRATION		
Salaries and Benefits	\$ 112,247.01	\$ 107,747.81
Operation	61,890.91	46,599.01
Capital Expenditures	4,127.61	23,924.71
Repair and Replacement	1,254.30	341.39
TOTAL	\$ 179,519.83	\$ 178,612.92
MISCELLANEOUS ACCOUNTS		
Printing Licenses - Maps	\$ 28,846.99	\$ 40,268.25
Refunds	1,108.50	899.75
Appropriation to State Controller	12,225.33	7,297.53
Canyon Ferry Dam	1,448.11	2,373.00
Tiber Dam	1,666.12	1,416.51
Search and Rescue	351.15	316.86
Miles City Goose Pasture	388.68	162.86
Economic Survey	3,052.44	5,888.40
Fisher Stocking Project	1,646.70*	
Indian Affairs	1,158.31	1,393.94
Bulk Gasoline and Oil Account	298.18*	1,069.68
TOTAL	\$ 48,300.75	\$ 61,086.78
INFORMATION AND EDUCATION		
Salaries	\$ 41,637.78	\$ 46,515.22
Operation	21,313.17	36,824.80
Capital Expenditures	5,710.84	4,139.06
Repair and Replacement	303.74	226.37
TOTAL	\$ 68,965.53	\$ 87,705.45
HUNTER AND BOAT SAFETY PROGRAM		
Salaries	\$ 12,541.58	\$ 7,233.48
Operation	3,808.88	5,556.05
Capital Expenditures	294.35	349.25
Repair and Replacement	36.43	
TOTAL	\$ 16,681.24	\$ 13,138.78
DISTRICT 2 INFORMATION AND EDUCATION PROGRAM		
Salaries	\$ 7,503.60	\$ 6,521.47
Operation	3,699.27	4,240.02
Capital Expenditures	72.77	1.50
Repair and Replacement	16.17	42.50
TOTAL	\$ 11,291.81	\$ 10,805.49

* Indicates Credit

DETAIL OF EXPENDITURES—(Continued)

	April 1961	April 1962
DISTRICT 3 INFORMATION AND EDUCATION PROGRAM		
Salaries	\$	\$ 6,439.04
Operation		2,810.38
Capital Expenditures		635.44
TOTAL	\$	\$ 9,884.86
DISTRICT 4 INFORMATION AND EDUCATION PROGRAM		
Salaries	\$ 8,261.43	\$ 8,685.05
Operation	4,099.99	5,807.81
Capital Expenditures	404.69	6.95
Repair and Replacement	46.97	42.52
TOTAL	\$ 12,813.08	\$ 14,542.33
DISTRICT 5 INFORMATION AND EDUCATION PROGRAM		
Salaries	\$ 7,379.79	\$ 8,384.84
Operation	3,393.93	3,893.24
Capital Expenditures	437.94	11.15
Repair and Replacement	49.36	-
TOTAL	\$ 11,261.02	\$ 12,289.23
DISTRICT 6 INFORMATION AND EDUCATION PROGRAM		
Salaries	\$ 4,902.48	\$
Operation	4,843.86	279.31
Capital Expenditures	627.95	-
Repair and Replacement	1.75	-
TOTAL	\$ 10,376.04	\$ 279.31
GRAND TOTAL INFORMATION AND EDUCATION	\$ 131,388.72	\$ 148,645.45
GRANTS		
Predator Control Bounties	\$ 3,750.55	\$ 3,100.00
Predator Control Grant	41,053.80	37,181.50
Montana State University Grant	19,000.00	9,508.44
Montana State College Grant	20,600.00	-
TOTAL	\$ 84,404.35	\$ 49,789.94
UNIVERSITY RESEARCH UNIT		
Salaries	\$ 12,622.43	\$ 13,428.60
Operation	4,973.50	4,165.45
Capital Expenditures	380.29	75.09
Repair and Replacement	75.62	36.49
TOTAL	\$ 18,051.84	\$ 17,705.63

* Indicates Credit

DETAIL OF EXPENDITURES—(Continued)

	April 1961	April 1962
DISTRICT HEADQUARTERS ACCOUNT		
Salaries	\$ 3,086.26	\$ 889.58
Operation	11,665.39*	7,859.27*
Capital Expenditures	4,033.72	2,411.61
Repair and Replacement	689.49	1,368.02
TOTAL	<u>\$ 3,855.92*</u>	<u>\$ 3,190.06*</u>
AIRPLANE ACCOUNT		
Salaries	\$ 92.81	\$ 99.81
Operation	14,762.01	14,390.60
Capital Expenditures	20,925.88	3.50
Repair and Replacement	3,544.76	6,210.32
Credit for Airplane Trade-In	2,650.00*	—
Credit for Airplane Hire	21,234.02*	23,493.50*
TOTAL	<u>\$ 15,441.44</u>	<u>\$ 2,789.27*</u>
VEHICLE ACCOUNT		
Salaries	\$ 29.80	\$ 252.52
Operation	100,201.04	57,173.57
Capital Expenditures	93,728.54	89,505.75
Repair and Replacement	32,033.09	64,885.73
Credit for Vehicle Trade-Ins	26,456.39*	30,687.84*
Credit for Vehicle Mileage	268,053.76*	232,050.04*
TOTAL	<u>\$ 68,517.68*</u>	<u>\$ 50,920.31*</u>
OVERSNOW VEHICLE ACCOUNT		
Operation	\$ 62.74	\$ 56.78
Repair and Replacement	222.79	155.19
Credit for Oversnow Hire	337.50*	372.00*
TOTAL	<u>\$ 51.97*</u>	<u>\$ 160.03*</u>
HELICOPTER ACCOUNT		
Salaries	\$ —	\$ 1,357.71
Operation	—	314.07
Capital Expenditures	—	49,260.75
TOTAL	<u>\$ —</u>	<u>\$ 50,932.53</u>
ENFORCEMENT—District No. 1		
Salaries	\$ 43,192.66	\$ 46,609.17
Operation	21,263.53	20,856.14
Capital Expenditures	2,414.54	407.96
Repair and Replacement	320.48	46.55
TOTAL	<u>\$ 67,191.21</u>	<u>\$ 67,919.82</u>

* Indicates Credit

DETAIL OF EXPENDITURES—(Continued)

	April 1961	April 1962
ENFORCEMENT—District No. 2		
Salaries	\$ 48,436.19	\$ 53,824.91
Operation	23,209.82	24,000.06
Capital Expenditures	3,488.37	3,147.72
Repair and Replacement	226.22	45.96
TOTAL	\$ 75,360.60	\$ 81,018.65
ENFORCEMENT—District No. 3		
Salaries	\$ 59,282.00	\$ 58,221.55
Operation	35,068.00	32,253.96
Capital Expenditures	1,554.07	2,983.34
Repair and Replacement	682.17	208.32
TOTAL	\$ 96,586.24	\$ 93,667.17
ENFORCEMENT—District No. 4		
Salaries	\$ 60,049.61	\$ 64,560.37
Operation	32,305.36	29,800.45
Capital Expenditures	4,351.26	5,046.68
Repair and Replacement	99.59	111.71
TOTAL	\$ 96,805.82	\$ 99,519.21
ENFORCEMENT—District No. 5		
Salaries	\$ 50,129.63	\$ 56,061.33
Operation	24,583.01	23,031.54
Capital Expenditures	3,020.88	2,610.92
Repair and Replacement	84.15	86.03
TOTAL	\$ 77,817.67	\$ 81,789.82
ENFORCEMENT—District No. 6		
Salaries	\$ 34,807.05	\$ 38,568.68
Operation	20,806.98	20,078.79
Capital Expenditures	2,784.13	705.57
Repair and Replacement	39.71	47.01
TOTAL	\$ 58,437.87	\$ 59,400.05
ENFORCEMENT—District No. 7		
Salaries	\$ 29,719.34	\$ 30,124.05
Operation	18,293.83	16,258.53
Capital Expenditures	2,022.52	278.65
Repair and Replacement	78.49	160.47
TOTAL	\$ 50,114.18	\$ 46,821.70

* Indicates Credit

DETAIL OF EXPENDITURES—(Continued)

	April 1961	April 1962
ENFORCEMENT—General		
Salaries	\$ 8,512.83	\$ 15,535.11
Operation	12,335.22	15,796.08
Capital Expenditures	9,696.56*	5,113.63
Repair and Replacement .....	....	267.99*
TOTAL	\$ 11,161.49	\$ 36,176.83
TOTAL ENFORCEMENT	\$ 533,475.08	\$ 566,313.25
 FISHERIES DIVISION:		
FISH HATCHERIES		
ANACONDA		
Salaries	\$ 23,242.80	\$ 22,991.59
Operation	14,557.25	24,116.01
Capital Expenditures	644.60	1,418.22
Repair and Replacement	856.79	558.89
TOTAL	\$ 39,301.44	\$ 49,084.71
 ARLEE		
Salaries	\$ 16,394.98	\$ 18,715.83
Operation	12,249.93	15,084.35
Capital Expenditures	459.36	171.69
Repair and Replacement	646.35	315.78
TOTAL	\$ 29,750.62	\$ 34,287.65
 BLUEWATER		
Salaries	\$ 20,896.85	\$ 20,166.79
Operation	14,860.94	21,174.08
Capital Expenditures	1,045.28	204.35
Repair and Replacement	1,134.10	664.83
TOTAL	\$ 37,937.17	\$ 42,210.05
 BIG TIMBER		
Salaries	\$ 11,534.56	\$ 11,723.21
Operation	3,728.05	4,110.84
Capital Expenditures	361.83	55.53
Repair and Replacement	55.95	151.84
TOTAL	\$ 15,680.39	\$ 16,041.42
 EMIGRANT		
Salaries	\$ 11,815.31	\$ 11,711.14
Operation	4,963.49	6,610.63
Capital Expenditures	487.60	143.86
Repair and Replacement	317.60	26.34
TOTAL	\$ 17,584.00	\$ 18,491.97

* Indicates Credit

DETAIL OF EXPENDITURES—(Continued)

	April 1961	April 1962
GREAT FALLS		
Salaries	\$ 18,794.41	\$ 16,514.29
Operation	13,681.99	16,980.84
Capital Expenditures	10,347.81	1,151.18
Repair and Replacement	3,575.80	432.22
TOTAL	\$ 46,400.01	\$ 35,078.53
HAMILTON		
Salaries	\$ 12,452.92	\$ 1,257.48
Operation	3,791.24	809.17
Capital Expenditures	38.47	15.10
Repair and Replacement	499.93	—
TOTAL	\$ 16,782.56	\$ 2,081.75
LEWISTOWN		
Salaries	\$ 34,602.64	\$ 29,120.35
Operation	39,570.01	48,098.60
Capital Expenditures	79,557.78	5,748.60
Repair and Replacement	2,530.07	1,741.35
TOTAL	\$ 156,260.50	\$ 84,708.90
LIBBY		
Salaries	\$ 12,200.65	\$ 12,338.91
Operation	879.82	4,071.29
Capital Expenditures	230.85	299.68
Repair and Replacement	377.96	326.43
TOTAL	\$ 13,689.28	\$ 17,036.31
McNEIL		
Salaries	\$ 2,182.06	\$ 3,317.01
Operation	1,072.52	1,625.66
Capital Expenditures	86.85	21.79
Repair and Replacement	64.28	108.64
TOTAL	\$ 3,405.71	\$ 5,073.10
OVANDO		
Operation	\$ 19.24	\$ 9.49
TOTAL	\$ 19.24	\$ 9.49
POLSON		
Salaries	\$ 921.61	\$ 372.09
Operation	583.83	517.41
Capital Expenditures	29.14	15.60
Repair and Replacement	89.40	1.72
TOTAL	\$ 1,623.98	\$ 906.82

DETAIL OF EXPENDITURES—(Continued)

	April 1961	April 1962
SOMERS		
Salaries	\$ 16,600.15	\$ 20,769.89
Operation	4,867.62	8,813.82
Capital Expenditures	636.95	815.56
Repair and Replacement	863.45	121.36
TOTAL	\$ 22,988.17	\$ 30,520.63
FISHERIES GENERAL—(Includes fish distribution, hatchery biologists, supt. of hatcheries, and supt. of fisheries.)		
Salaries	\$ 27,545.93	\$ 26,414.88
Operation	10,217.07	20,562.10*
Capital Expenditures	2,027.48	2,685.87
Repair and Replacement	188.49	118.15
TOTAL	\$ 39,978.97	\$ 8,656.80
SPAWNING STATIONS		
Salaries	\$ 16,167.67	\$ 7,663.03
Operation	5,598.25	5,340.34
Capital Expenditures	17.32	165.98
Repair and Replacement	77.22	286.04
TOTAL	\$ 21,860.46	\$ 13,455.39
FISHERIES MANAGEMENT PROJECTS—		
MISCELLANEOUS FIELD PROJECTS		
Salaries	\$ 65,321.26	\$ 79,819.28
Operation	25,499.57	71,110.22
Capital Expenditures	8,185.66	13,992.03
Repair and Replacement	1,646.94	1,097.92
TOTAL	\$ 100,653.43	\$ 166,019.45
DINGELL-JOHNSON PROJECTS		
Salaries	\$ 101,182.99	\$ 84,497.19
Operation	47,952.50	34,944.03
Capital Expenditures	33,943.17	39,935.77
Repair and Replacement	1,082.48	277.08
TOTAL	\$ 184,161.14	\$ 159,654.07
TOTAL FISHERIES DIVISION	\$ 748,077.07	\$ 683,317.04
GAME FARM DIVISION		
FORT PECK		
Salaries	\$ 8,742.10	\$ 4,261.24
Operation	7,000.72	3,313.48
Capital Expenditures	100.69	476.56
Repair and Replacement	817.10	87.42
TOTAL	\$ 16,660.61	\$ 8,138.70

* Indicates Credit

DETAIL OF EXPENDITURES—(Continued)

	April 1961	April 1962
WARM SPRINGS		
Salaries	\$ 15,390.17	\$ 15,443.90
Operation	9,305.81	13,161.11
Capital Expenditures	706.31	328.60
Repair and Replacement	278.60	616.35
TOTAL	\$ 25,680.89	\$ 29,549.96
 MOIESE		
Operation	\$ 343.27	\$ 433.50
Capital Expenditures	—	468.95
Repair and Replacement	77.28	125.50
TOTAL	\$ 420.55	\$ 1,027.95
TOTAL GAME FARM DIVISION	\$ 42,762.05	\$ 38,716.61
 HELENA WAREHOUSE		
Salaries	\$ 10,190.44	\$ 6,790.43
Operation	910.92	1,146.52
Capital Expenditures	25,657.75	5,026.77
Repair and Replacement	666.58	37.66
TOTAL	\$ 37,425.69	\$ 13,001.38
 MECHANIC SHOP		
Salaries	\$ 13,443.68	\$ 12,365.54
Operation	568.49	690.34
Capital Expenditures	2,380.61	136.90
Repair and Replacement	2,183.20	1,000.79
Credit for Services	5,243.78*	2,898.06*
TOTAL	\$ 13,332.20	\$ 11,295.51
 WOODWORKING SHOP		
Salaries	\$ 76.72	\$ —
Operation	80.78	—
Repair and Replacement	30.50	—
TOTAL	\$ 188.00	\$ —
 STORES AND SUPPLIES		
Operation	\$ —	\$ 435.21
Expenditures for Merchandise	49,198.51	46,119.67
Credit for Merchandise Checked Out	41,239.40*	38,119.35*
TOTAL	\$ 7,959.11	\$ 8,435.56

* Indicates Credit

DETAIL OF EXPENDITURES—(Continued)

	April 1961	April 1962
WILDLIFE RESTORATION		
Salaries	\$ 20,927.49	\$ 26,573.50
Operation	8,111.26	30,456.91
Capital Expenditures	1,699.13	2,216.13*
Repair and Replacement	39.31	173.58
TOTAL	\$ 30,777.19	\$ 54,987.86
RESTORATION—P. R. PROJECTS		
Salaries	\$ 350,847.21	\$ 342,776.79
Operation	156,303.12	176,313.08
Capital Expenditures	187,024.34	196,803.24
Repair and Replacement	12,200.41	4,785.53
TOTAL	\$ 706,375.08	\$ 720,678.64
TOTAL SALARIES	\$ 1,355,619.48	\$ 1,347,979.69
TOTAL OPERATIONS	532,741.68	608,641.04
TOTAL CAPITAL EXPENDITURES	467,959.93	427,797.09
TOTAL REPAIR AND REPLACEMENT	80,210.61	113,919.60
TOTAL APPROPRIATIONS	96,629.68	57,087.47
GRAND TOTAL OF EXPENDITURES	\$ 2,533,161.38	\$ 2,555,424.89

* Indicates Credit

Return To
INFORMATION-EDUCATION DIVISION
MONTANA FISH & GAME DEPARTMENT
Helena, Montana

RESERVE MONTANA'S
FISHING STREAMS
ASK PERMISSION
TO
HUNT AND FISH



Form 3547 Requested

From
STATE OF MONTANA
Department of Fish and Game
Helena, Montana

TO
JAMES PEEK, MGMT. BIOLOGIST
MONT. FISH & GAME DEPT
BOX 393
ENNIS, MONT