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UNIVERSITY OF CALIFORNIA

Twenty-Third Biennial Report

July 1, 1948 to June 30, 1950



State of Idaho
Department
of
Fish and Game

State of Idaho
Department of Fish and Game

Idaho Fish and Game Commission
Boise, Idaho

Honorable Len H. Jordan
Governor of Idaho
Boise, Idaho

Sir:

Transmitted herewith for your consideration is the twenty-third biennial report of the activities of the Idaho Fish and Game Department.

This report covers the period July 1, 1948 through June 30, 1950, with certain data for the last six months of 1950.

Respectfully submitted,

J. B. Dahlstrom, Chairman
R. G. Cole, Secretary
O. W. McConnell
W. George Moody
Paul Thoman

Attest:

T. B. Murray
Director .

WILDLIFE POLICY

The wildlife policy of the State of Idaho has been established under the Fish and Game Commission Initiative Act of 1938, as follows.

“All wildlife, including all wild animals, wild birds, and fish within the State of Idaho, is hereby declared to be the property of the State of Idaho. It shall be preserved, protected, perpetuated and managed. It shall only be captured or taken at such times or places, under such conditions, or by such means, or in such manner, as will preserve, protect, and perpetuate such wildlife, and provide for the citizens of this state, and as by law permitted to others, continued supplies of such wildlife for hunting, fishing and trapping.

It shall be the authority, power and duty of said Commission to carry out the policy of the state in accordance with this act.”

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PERSONNEL

The Commission

John DahlstromPocatello
R. G. Cole Boise
Paul ThomanTwin Falls
George Moody Calder
O. W. McConnell Grangeville

The Department

T. B. Murray, Director

James C. Simpson Fish Culturist	Ivol Sies Assistant Improvement Supervisor
Vernon B. Rich Federal Aid Coordinator	Robert J. Hofmann Engineer
P. J. McDermott, Jr. Big Game Supervisor Acting Fur Supervisor	T. D. Biladeau Big Game Biologist
Marshall C. Edson Public Relations Officer	Kenneth Spiekerman Assistant Public Relations Officer

R. E. Hoffman, Chief Clerk

Betty Tucker, Principal Sec'y.	Elva J. Blood, Stenographer
Fay Whitson, Principal Clerk	Alice Paulin, Stenographer
Anne Mastro, Principal Clerk	Theresa Brozovich, Clerk-Typist
Louise Snodgrass, Senior Stenographer	Vera H. Huetson, Clerk-Typist
Alice Uda, Senior Stenographer	Kenneth R. Montgomery, Accounting Clerk
James Bothwell, Senior Stenographer	Edris Williams, Accounting Clerk
Claudine Porter, Senior Stenographer	
Edward J. Monaghan, Pilot	
D. W. McRae, Warehouseman	

District Conservation Supervisors

Frank R. KeoughCoeur d'Alene
Harry PalmerLewiston
J. B. F. DillonWeiser
Hawley HillJerome
O. R. ChristensonIdaho Falls

Conservation Officers

Relf H. Abbott, Middle Fork, Salmon River	Norman Jockumsen, St. Anthony E. L. Keppner, Malad
Dale Anderson, Weiser	Ray J. Kernan, Lewiston
Melvin Barrus, Blackfoot	Fred E. Kreller, Council
William Lee Black, Mtn. Home	Stanley Larson, Sugar City
Virgil R. Borden, Caldwell	Edward A. Linck, More's Creek
Joe A. Bross, Jr., Grandview	Albert F. Lyle, New Plymouth
Alonzo F. Brown, Wendell	Claude I. Matthews, Shoshone
Franklin Bruins, Priest River	Dana L. Messenger, Boise
John Cerny, St. Maries	T. J. Mizer, Hailey
Fred M. Clark, Riggins	Henry M. Reeves, American Falls
Arnold Coleman, Salmon	Joel C. Reynolds, Rupert
John S. Costello, Coeur d'Alene	Glen Richardson, Kooskia
Murvie E. Crook, Driggs	Keith Rudd, Nez Perce
Grover C. Davis, Filer	Cecil Sanford, Bayview
L. Dean Davis, Preston	E. B. Scholes, Salmon
Marshall C. Dillon, Rigby	George F. Staudt, Kellogg
Karl E. Dresser, Emmett	John P. Smith, Lapwai
Hale Ebling, Deary	John W. Smith, Boise
Paul Flinn, Bonners Ferry	Dale Tanner, Pocatello
Dan France, Dubois	Wendell Twitchell, Soda Springs
Charles W. Gallaher, Grangeville	Boyd Thietten, Mackay
Lester Gissel, Sandpoint	Wallace Wakefield, Nampa
Elmo W. Heter, McCall	J. M. Wilkins, Orofino
W. R. Horning, Montpelier	Derrel G. Wright, Fairfield
LaVarr Jacklin, Arco	

Fisheries Personnel

James C. Simpson, Fish Culturist

Forrest Hauck, BiologistBoise
Tim Vaughan, BiologistEagle
Don Andriano, Assistna Fisheries Biologist.....Boise
Robert I. Irving, Assistant Fisheries Biologist...Boise
.....Grangeville
Leon Murphy, Assistant Fisheries Biologist.....

STATE FISH HATCHERY AMERICAN FALLS

B. D. Ainsworth Superintendent
Martin Burgemeister
Mickey Bess

STATE FISH HATCHERY ASHTON

Harvey Albrethson, Sup't.
**Don Haevers

STATE FISH HATCHERY CLARK FORK

Alan J. Clark, Superintendent
Maurice Harding

STATE FISH HATCHERY COEUR D'ALENE

Edward Langworthy, Assistant
*Morris Southward

STATE FISH HATCHERY EAGLE

Frank Gaver, Superintendent
Clarence Bess

STATE FISH HATCHERY HAGERMAN

Elwood Grimes, Superintendent
Burt Bowlden
Fred Keppner
Robert Phillips
Charles Sherwood

HALE FISH HATCHERY MULLAN

Walter Bethke, Sup't.

HAYSPUR HATCHERY, GANNETT

L. W. Gaver, Superintendent
Melvin Collins

HENRY'S LAKE HATCHERY MACKS INN

L. T. Hunt, Superintendent

STATE FISH HATCHERY MACKAY

John M. Coleman, Sup't.
Frank J. Hocking

STATE FISH HATCHERY McCALL

Charles Neider, Superintendent

STATE FISH HATCHERY SANDPOINT

J. E. Clark, Superintendent

STATE FISH HATCHERY TWIN FALLS

E. O. Bailey, Superintendent

WHISKEY CREEK HATCHERY GRACE

Norman C. Floyd, Sup't.
Clifford Middleton, Lewiston

*On Leave of Absence

**Resigned during Biennium

Upland Bird Personnel

***Maurice H. Lundy, Upland Bird Supervisor**

Michael Throckmorton, Upland Bird Biologist.....Lewiston
Charles Blake, Assistant Bird BiologistJerome
Alvard R. Kiler, Assistant Bird BiologistBoise
Elwood Bizeau, Assistant Bird Biologist.....Idaho Falls
William Gnemi, Game Farm SuperintendentJerome
Hugh Harper, Game Farm Assistant.....Lapwai
Homer Stever, Game Farm Assistant.....Post Falls
Charles M. Wyman, Game Farm AssistantLapwai
*Resigned Oct. 1950

Big Game Biologists

Dwight R. Smith Salmon
Stewart M. Brandborg Sandpoint
Robert L. Casebeer Coeur d'Alene
W. Leslie Pengelly Coeur d'Alene
A. Errol Nielson Meridian
Wesley Shaw St. Anthony
Roger J. McCormack Hamilton, Montana

Construction Personnel

Frank E. Lanham, Transit Man Coeur d'Alene
Herman Anderson, Construction ForemanHagerman
Lester Hendrickson, Construction ForemanAmerican Falls
Al Kirkham, Construction ForemanAshton

Refuge Managers

Orrin F. Blattner Terretton
H. E. Cherry Hagerman

On Military Leave of Absence

Stanley Frederickson, Conservation Officer, First Grade
Alvin L. Misseldine, Conservation Officer, First Grade
Philip Swanstrum, Conservation Officer, First Grade
Roger M. Williams, Big Game Biologist

In Memoriam

Frank H. Oster, who was Improvement Supervisor, died May 1, 1950. He began his services with the department in February, 1942

ADMINISTRATION

The Idaho Fish and Game Department operates under the commission form of management. The commission plan, in effect in most states, places authority in the hands of the five appointed members of the board, to determine policies, make rules and regulations to carry out intent and purposes of the laws pertaining to wild animals, birds and fish. The commission also has powers to acquire lands for the purpose of fish hatcheries, bird farms restoration and propagation, for public hunting and fishing areas, and to enter into cooperative agreements with other agencies to promote wildlife research and develop wildlife projects.

Commissioners are appointed by the Governor of the State for terms of six years. One commissioner is appointed to represent each of the five districts of the State. These districts are:

District No. 1—Boundary, Bonner, Kootenai, Shoshone and Benewah counties.

District No. 2—Latah, Clearwater, Nez Perce, Lewis and Idaho counties.

District No. 3—Ada, Adams, Boise, Canyon, Elmore, Gem, Owyhee, Payette, Valley and Washington counties.

District No. 4—Camas, Gooding, Twin Falls, Cassia, Jerome, Blaine, Lincoln, Butte, Minidoka, Lemhi and Custer counties.

District No. 5—Clark, Fremont, Madison, Teton, Jefferson, Bonneville, Bingham, Bannock, Power, Oneida, Caribou, Franklin and Bear Lake counties.

Members

Members of the commission during the biennium covered by this report were: George Moody of Calder, Walter Fiscus, Potlatch, Clare W. Wellman, Lewiston, Oliver W. McConnell, Grangeville, R. G. Cole, Boise, Paul Thoman, Twin Falls, Alton Howell, Idaho Falls and John Dahlstrom, Pocatello.

Clare W. Wellman was appointed commissioner for District No. 2 when the term of Walter Fiscus expired in December, 1948. Mr. Fiscus had been a member of the Idaho commission since its inception. Mr. Wellman resigned one year later and Oliver W. McConnell of Grangeville was appointed to fill the unexpired term.

Alton Howell of Idaho Falls resigned from the commission in the fall of 1948 and John Dahlstrom of Pocatello was appointed to complete his unexpired term.

R. G. Cole who was serving the balance of the unexpired term of C. J. Westcott, who resigned late in 1946, was reappointed to the commission in January 1949 for a six year term.

FISH AND GAME DEPARTMENT

Commission Meetings

The commission establishes fishing seasons, bag limits and regulations in January of each year. Big game seasons and areas are set up in April of each year after reports are available from the field with information regarding population and winter carryover. Upland bird seasons are usually set in July of each year. A fourth quarterly meeting is held in October of each year. Special sessions may be called for emergency measures.

In July 1948 the members of the commission traveled in portions of districts 3, 4 and 5 to inspect installations and facilities of the department. Meetings were held with several sportsmens groups.

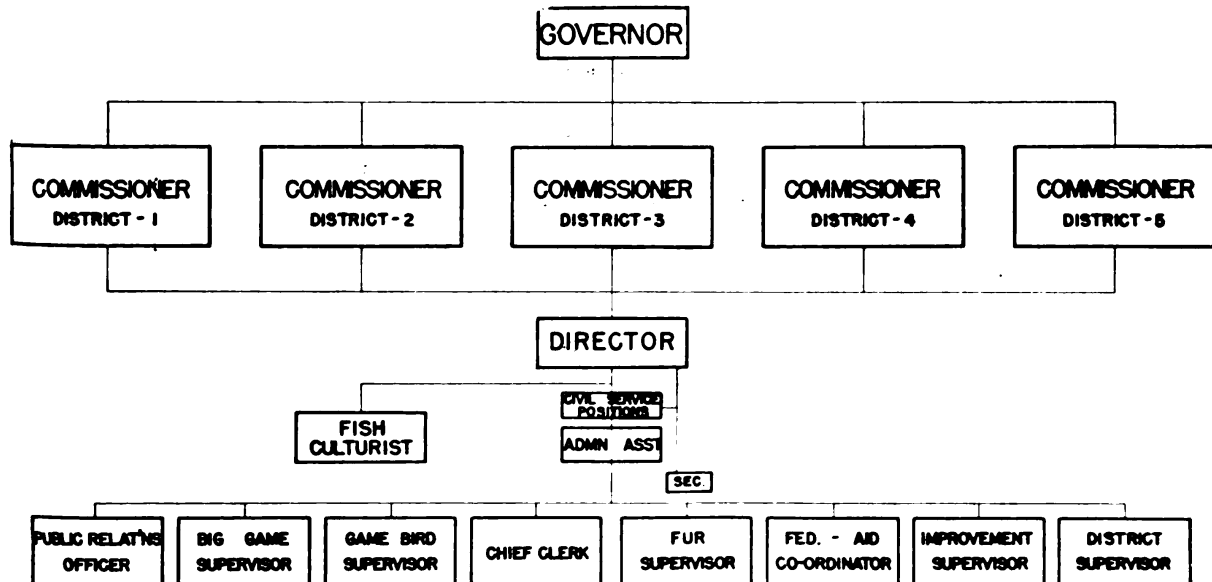
During the July session in 1949 commissioners traveled north to inspect department work and installations and to meet with sportsmens groups in Districts No. 1 and 2.

A special session was held during the State Wildlife Federation meeting in McCall in December 1949 and again in 1950.

Department Personnel

The director of the fish and game department and the fish culturist are appointed by the commission. Regular certified employees of the department are appointed from the civil service register of the Merit System Council. Examinations are given by the council for each position after qualifications are met.

Extra help may be appointed on a temporary basis for checking stations, construction, census work, habitat improvement, and other work not covered by the classified plan. The department has approximately 125 employees certified as regular employees under the merit system plan.



IMPROVEMENT DIVISION

NEW CONSTRUCTION AND IMPROVEMENTS

The following new construction and maintenance work has been done during the biennium. A considerable amount of work is now under construction. However, because of the fact that this work will not be completed until sometime during the 1951-52 biennium, it is not listed here.

FISH HATCHERIES

American Falls

Twenty concrete piers were placed at the head end of the brood stock pond to provide suitable pond space for handling of brood stock during spawning season.

A new coal storage building was constructed.

The grinding room was remodeled by placing a four-foot concrete wall around the room to replace the wooden wall.

A concrete ramp was placed in front of the grinding room to facilitate the unloading of meat products and for sanitary purposes.

Fences were maintained and portions rebuilt.

Crews are engaged at present in making necessary station repairs and in construction of a new battery of earth raceways.

All pond drains having wooden pipes were replaced with steel pipes.

Four septic tanks were constructed to provide necessary sanitation for the residences and the hatchery.

Ashton

The superintendent's dwelling was remodeled by the addition of a utility room.

An oil furnace was installed in the superintendent's residence.

Two out-buildings, consisting of a root cellar and a cold storage house which were in poor condition, were demolished.

The hatchery grounds were leveled and landscaped.

A six-inch pipeline was installed from the water supply pond to a battery of two concrete raceways. The drainage pipe which had originally supplied these ponds was dug up and will be used elsewhere. This work was undertaken because of an inadequate water supply for the raceways.

FISH AND GAME DEPARTMENT



Power shovel digs spillway for Elk creek dam. Game department is restoring a mile-long reservoir, which was once a heavy producer of eastern brook trout. This large construction project was let on bid to a contracting firm.

Clark Fork

An addition to the cold storage building to make a meat storage room, a coal room and toilet and shower facilities was constructed.

One end of the hatchery was boxed in to provide a dry storage room.

A new 10-inch pipeline, approximately 400 feet from a spring which had not previously been tapped, was installed in order to provide clear water for the hatchery during spring runoff.

A brood stock rearing pond, 196 feet long, 28 feet wide and five feet deep, was built. Made necessary divisions and repairs to pipeline to facilitate the operation of a new pond.

Installed nine concrete piers in the main brood stock pond to facilitate spawning operations.

Assisted the Village of Clark Fork in repairing the water supply pond dike since the hatchery receives part of its water supply from this pond.

TWENTY-THIRD BIENNIAL REPORT

Coeur d'Alene

The interior of the hatchery dwelling was remodeled and modernized.

Coffee Pot Rapids

A new concrete floor was installed in the spawning house.

Eagle

A new well, 12 inches in diameter and 375 feet deep, was drilled. This well produces 450 gallons of artesian water per minute. Work has started on the drilling of a second well.

Two concrete raceways, each six feet by 166 feet, with provisions for dividing each into two sections, were constructed.

Two water aerators were constructed on existing wells to facilitate in reducing the concentration of dissolved nitrogen in the water. Both of these have aided materially in alleviating this condition.

Six concrete vats were constructed in the hatchery to replace old wooden troughs.

The wooden head troughs were replaced with concrete.

The hatchery drains and redistribution system were rebuilt to facilitate operations.

A concrete wall, four feet high, was installed around the grinding room to replace the decayed wooden wall and to aid in cleaning. Doors and windows were added, as required.

Elk River Dam

An earth dam was constructed, with concrete core and spillway and necessary log booms, across Elk Creek in Clearwater County. This project cost approximately \$42,000.

Fernwood

An 8 foot by 20 foot addition was constructed to the residence to provide sanitary facilities and an extra storage room. The residence was raised and placed on a concrete foundation.

Sufficient land was drained and covered with gravel to provide a suitable turn-around for the fish transport tank.

Hagerman

Eight concrete raceways, each four feet wide by 120 feet long with necessary provisions for subdividing into four sections, were constructed.

Two of the 120 foot earth raceways were concreted to provide suitable pond space for loading fish into transport tanks.

A cold storage building with approximately 10,000 cubic feet of storage space was constructed. This building has two large cold storage rooms, a small holding room, a machinery room and a grinding and mixing room.

FISH AND GAME DEPARTMENT

A 40 foot by 60 foot quonset-type metal building with an attached pump room, sanitary facilities and an office was constructed for a hatchery. Inside the hatchery building 28 concrete vats, each 14 feet 9 inches long and 2 feet 8 inches wide were built.

A concrete raceway, 10 feet wide and 150 feet long, was constructed at the base of the four large earth ponds to facilitate catching the fish when draining the earth ponds.

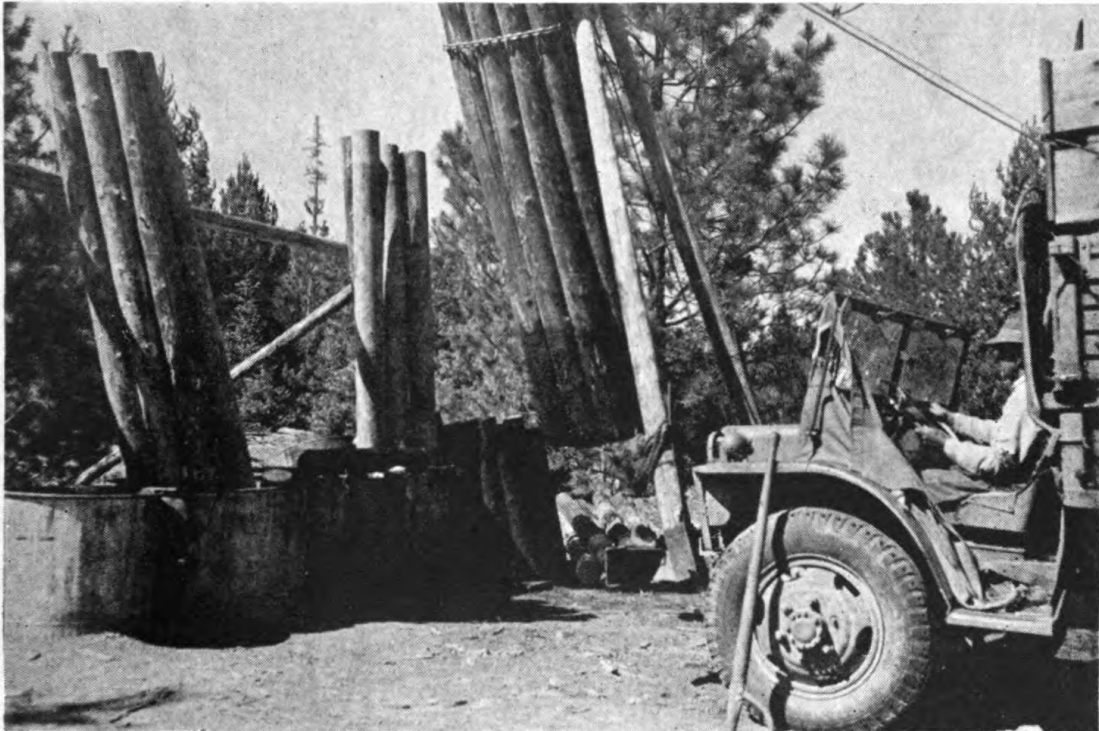
A six-room superintendent's dwelling, a five-room assistant's dwelling and a duplex, one end of which is suitable for batching quarters and the other suitable for a family residence, each section divided into four rooms with bath, were constructed.

Lawns were planted around the duplex and the superintendent's dwellings.

A 20 foot by 50 foot quonset-type building was constructed and equipped for a slaughter house.

A 28 foot by 108 foot combination garage and machinery storage shed was constructed, one end of which is equipped with a two-stall garage and work shop.

Pond screens made of woven wire and thin wall metal conduit frames were constructed to cover all ponds.



Fence posts for five mile barrier around deer study area are treated to prolong life in the ground. Construction crews annually keep miles of fence in repair, and build new fence for land acquisition projects. Dip formula was worked out at University of Idaho.

TWENTY-THIRD BIENNIAL REPORT

Hayspur

An oil furnace was installed in the superintendent's residence.

Henry's Lake

The old fish hatchery building was demolished and a new one constructed with four-foot concrete walls and remainder of log siding. The building is 22 feet by 70 feet and has a metal roof. The hatchery is now divided into an eyeing and hatching room suitable for six vats, three feet wide by 15 feet long, together with the necessary egg incubators to care for the eyeing of twelve million eggs, an egg picking room, lavatory facilities, cold storage room and a single car garage.

The wooden supply line was replaced by a steel pipeline and extended from the hatchery to the spawning house.

A residence and 1.25 acres of land were purchased. This land lies between the hatchery and Henry's Lake shore. It will provide additional living quarters for staff personnel and lake frontage for docking of department-owned boats.

The flume used for returning spawned-out fish to the lake was rebuilt.

Two and one half miles of road was constructed, including two cattle guards, to provide public access to Henry's Lake. Sanitary facilities were also constructed for public use. Twenty acres of land were obtained under easment from the State Land Board for public playgrounds.

Work remaining at Henry's Lake consists of remodeling the old hatchery residence and grading surrounding land to prevent rain and snow water from running into the building.

Lapwai Holring Ponds

A concrete wall, 3½ feet high by 400 feet long, was constructed to provide the rearing ponds in order to provide smaller raceways for handling of fish for redistribution purposes.

Mackay

A coal furnace was installed in the residence...

Commission approval has been obtained for a complete rebuilding of this station.

McCall

The water supply line from Big Payette Lake to the diversion box was repaired to stop leakage.

Powell Holding Ponds

Made necessary repairs and improvements to three holding ponds to facilitate redistribution of fish.

Sandpoint

The basement of the hatchery assistant's dwelling was remodeled to provide an extra bedroom and an office.

FISH AND GAME DEPARTMENT

Santa Creek Improvement

Rock was blasted out of the channel to allow for an upstream migration of fish. The channel had been made impassable through recent highway construction.

Twin Falls

One battery of concrete raceways were demolished and rebuilt. That battery consisted of two raceways eight feet wide and 200 feet long.

A coal furnace was installed in the superintendent's residence and necessary repairs were made to the interior of the house.

Whiskey Creek

A new five-room superintendent's dwelling was constructed.

Six earth raceways, each seven feet by 345 feet with the necessary provisions to divide each into three sections, were added.

A new concrete head flume, four feet wide, three feet deep and 200 feet long, and a concrete tailrace, 150 feet long, were constructed.

The necessary excavating and back filling was done to facilitate construction and operation.

A new access road from the county road to hatchery, together with two cattle guards, were constructed. In cooperation with the county, two and one half miles of county road was built to provide suitable access to the property.

The concrete walls of the spring house were extended vertically and covered by a metal roof.

The hatchery supply line was re-tarred and leaks repaired.

The water diversion system, together with the necessary ditches and culverts, was installed to provide additional water from a spring which had not been used previously.

The over-head of one end off the hatchery building was enclosed to provide dry storage facilities.

GAME FARMS

Eagle

The bird pens were moved to a new location.

Six acres of land were leveled so that they could be irrigated for the production of bird feed.

One granary was constructed to hold grain for emergency feeding.

Jerome Game Farm

The steel grain bins were constructed on a concrete foundation to provide storage space for 6,000 bushels of grains for bird feed.

Four acres of land was leveled so that it could be irrigated.

A district warehouse, 20 feet by 40 feet with a concrete floor is under construction.

TWENTY-THIRD BIENNIAL REPORT

Lapwai Game Farm

A new bridge to replace the one taken out by the flood of 1948 was constructed.

North Idaho Bird Refuge

A district warehouse, of cinder block construction, 24 feet by 50 feet, was built.

An irrigation pipeline and laterals were installed to facilitate the irrigation of land used to produce grains and feed for birds.

An oil furnace was installed in the residence.

BIG GAME DIVISION

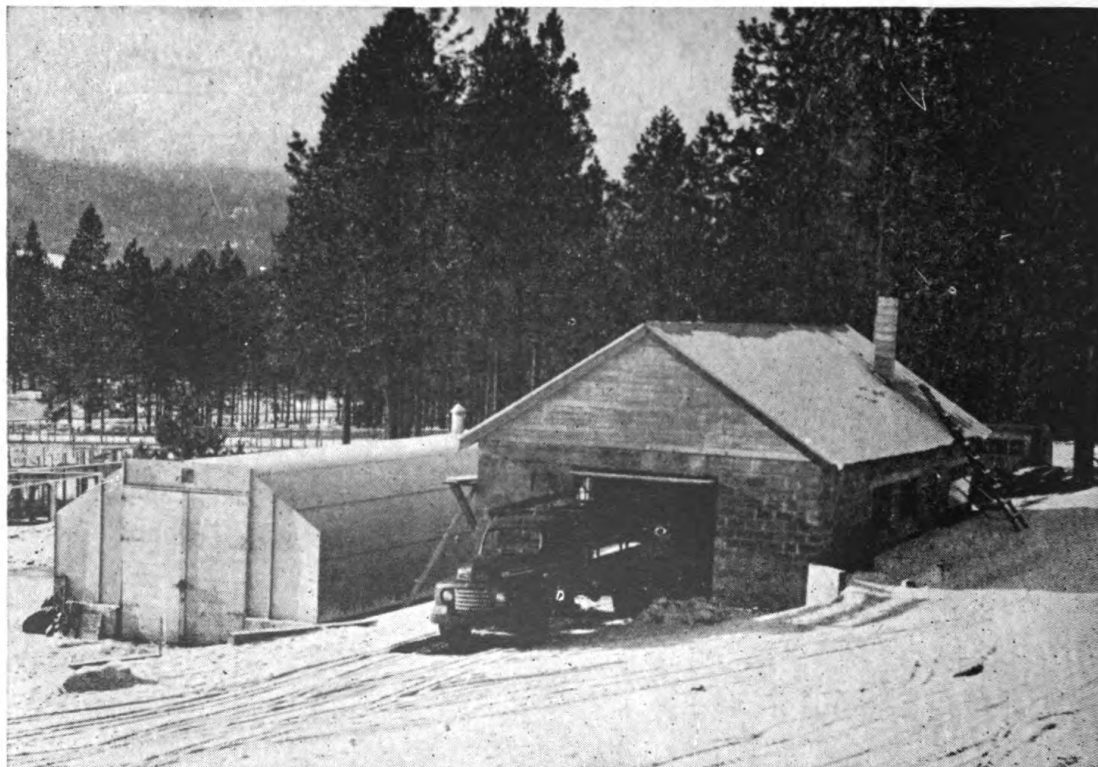
Ashton

A granary, built on a concrete foundation and capable of holding 3,000 bushels of grain, was constructed for emergency feed storage.

Coeur d'Alene

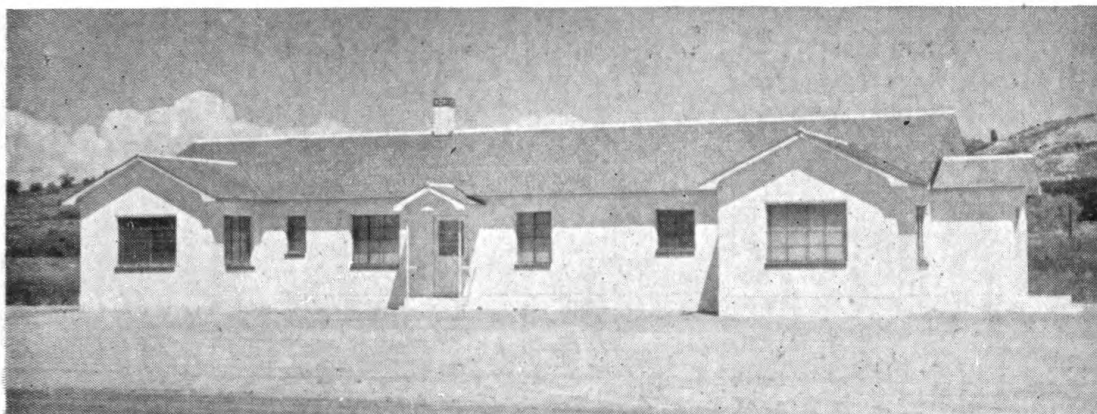
Two 16 feet by 20 feet hay sheds, capable of storing 15 tons of hay each, were constructed on the Coeur d'Alene River drainage.

A feed shed and a conservation officer stop-over 'cabin' were constructed at Fishhook Creek on the St. Joe River.



Garage and storage hut at North Idaho bird refuge provide room for drying nets and camping equipment, storing checking station materials and equipment used on farm. Quonset and cinderblock construction are used for most storage installations to assure fireproof, long-lived buildings.

FISH AND GAME DEPARTMENT



Living quarters for hatchery workers are neat modern and simple in design. This duplex at the Hagerman plant houses permanent and seasonal workers. Most hatcheries have required additional living quarters with expansion of production facilities, necessitating employment of more personnel.

Deary

The interior of the dwelling was remodeled.

Hagerman Refuge

The entire irrigation system on the refuge was remodeled and concrete headgates were installed.

Four granaries, each with storage capacity of 5,000 bushels of grain, were constructed to provide holding facilities for emergency feeding.

All fences were maintained and approximately three miles of new fence was constructed to enclose lands which previously had been unfenced.

Two sets of double cattle guards were installed on access roads.

In order to utilize sandy soil on ten acres of steep hillside a 12-inch wooden pressure line with 55 outlets and contour ditches were constructed to provide water for irrigating desirable grains and grasses.

Kooskia

A two-story duplex dwelling was constructed, with the first floor divided for a garage and checking station.

Mores Creek Refuge

The water storage tank and the water supply system for the residence and for irrigation purposes were rebuilt.

Boise Warehouse

Shop work, consisting of sign painting for game department installations and conservation officer activities and construction of storm windows, screens and doors and other related projects, was carried on.

UPLAND GAME BIRD DIVISION

PHEASANTS

Pheasant populations in Idaho have shown an increase in 1949 over the 1947 season, and a sharp decrease on a statewide basis during 1950. Field observations showed a satisfactory carry-over population after the hunting season in the fall of 1947, but prolonged severe winter condition during January and February of 1948 caused a decline in spite of extensive feeding efforts by the game department and sportsmen.

Nesting and hatching conditions were reasonably favorable over most of southern Idaho in the spring of 1949, and hatching success was sufficient to produce a better than average population that summer. Continued checks and census work during the summer and early fall supported the indication of fairly large pheasant numbers, but expected heavy hunting pressures and lowered numbers in some areas caused the Idaho Fish and Game Commission to restrict the take by prohibiting the shipment of any upland game birds from the state during the fall of 1949.

The winter of 1949-1950 was more severe in most of north Idaho, especially with deep snows covering food patches and eliminating necessary cover. Several areas in southern Idaho experienced adverse winter conditions, but only for a short time. Holdover of adult birds was generally good in the spring of 1950, but long cold spells coupled with above normal rainfall delayed nesting and nearly eliminated the hatch in some sections. The 1950 pheasant population was apparently below that of several years past. Bag limits were reduced over much of the state and seasons shortened in most districts. The restriction on shipment of birds was continued during the 1950 season.

Habitat improvement for upland game birds was initiated in the early summer of 1948 on an extended basis. Previous activities along this line were confined to small plantings on department owned refuge sites. In 1949 and 1950 the habitat improvement program was expanded under federal aid restoration and called for cooperative agreements between landowners and the game department to provide hunting privileges for the public on specified property, posting by the department, patrol to aid in enforcement and habitat plantings on designated areas.

This project was statewide and presently includes nearly 50,000 acres. During the two year period 85,000 cover and food plants have been placed. These include multiflora rose, blackberry, southernwood, caragana, redosier, dogwood, wild grape, matrimony vine, Russian mulberry, Russian olive, locust, willow and senna.

FISH AND GAME DEPARTMENT



Department Bird Biologist Alvard Kiler and Farm-Game project cooperating farmer erect "Safety Zone" sign so hunters will respect area where danger of damage to property exists.

The department received 100,000 multiflora rose plants in the fall of 1950 and crews have been placing these excellent cover and food plants on projects during the fall. Present agreements call for delivery of 250,000 shrubs of many species during 1951, and the same number every year for several years.

Pheasant production has continued at our game farms on a stable basis. The Lapwai Game Farm in north Idaho has been expanded by construction of additional outside holding and rearing pens since the last biennium. Additional output has followed. The construction work at the North Idaho Bird Refuge near Coeur d'Alene was completed and space provided for winter hold-over of approximately 3,000 pheasants. A pipe line providing water for food production within the pens, and landscaping about the headquarters, has been installed. The Coeur d'Alene station allows spring release of adult birds to provide brood stock in the fields that may nest under natural conditions.

TWENTY-THIRD BIENNIAL REPORT

Several additional pheasant release pens were constructed during 1950 to add to approximately 40 pens placed during 1948 and 1949. Release pens were constructed in locations where good cover was present and food and water conditions were suitable. Pens are built of chicken wire mesh with open tops that allow the ten weeks old pheasants to fly out whenever they desire. Prepared food is placed in the pens when the young birds are brought in from the game farm.

Purpose of the release pens is to provide food and shelter during the transition period from the protection of the game farm into the field. Pens may be used more than one time during the summer planting season. Studies have been made each summer on selected sites to determine survival in different areas, and to evaluate the reasons for varied survival. In general, the pens located in good surrounding cover areas have resulted in the best survival of birds until hunting season.

During 1950, the Fish and Game Commission approved a plan calling for participation of Idaho youth in rearing pheasants. Basically the plan allowed the department to supply day old pheasant chicks to youngsters in Scouts, 4-H Clubs, Future Farmers of America, and individuals who could be sponsored by a club or adults. The children had to make previous application and show suitable brooding and rearing facilities to complete the project. At eight to ten weeks of age the surviving birds were gathered by the game department, and released in the field. The children were paid \$1.00 each for the birds produced. The department felt this program had excellent educational value, was developing wildlife conservation principles in our youth, and provided additional birds for the field. Nearly 7,500 birds were reared under this plan. The project will be continued by the game department in 1951 and 1952.

GROUSE

Sage grouse populations had shown definite increase for several years immediately preceding 1948. In the fall of 1948 short hunting season on this species was established by the commission in the sage grouse areas of southern Idaho. Checking stations were placed to gather information regarding hunter numbers, hunter success and ratio of young birds to old. Hunter success was high on this hunt.

Careful field checks were carried on after each successive hunt held in 1948 and 1949. Census areas were established by the bird division on "booming" grounds where sage grouse collected each spring, and information carried forward for comparison to

FISH AND GAME DEPARTMENT

determined increase or decrease in adult numbers. Hatching success was evaluated each spring, and observation continued just before each hunting season. Hunts were held in mid September to take advantage of early fall rains and avoid excessive fire danger, and to allow the birds to move away from water holes and streams. Information collected each season showed increased hunting pressure each year, with individual success decreasing in proportion. Management plans for this species propose careful consideration of population trends from year to year, and allowing reasonable hunter harvest when sage grouse are near to top and at top of their population cycle.

Blue, Ruffed and Franklin grouse have been hunted in designated areas of the state for the past two years. A somewhat longer season has been established in north Idaho where populations were higher than in the south. Grouse seasons have usually been set to coincide with the opening of big game seasons in most areas. Bag limits on grouse has been set at two per day.

QUAIL

Idaho's three quail species—California, Valley and Bobwhite—have maintained a fairly constant population in Idaho. Hunting of these species has been allowed in most areas of south central and south western Idaho, and in north central regions. Hunting pressures on quail is relatively light. Improved habitat for quail is a necessity in many regions as farming practices in present day operations have removed much of the vital cover needed for this bird.

HUNGARIAN PARTRIDGE

Hungarian populations were on an upward trend until the severe winters of 1948 and 1949. In some areas the losses were not heavy, however. A history of hungarian partridge indicates rapid recovery from adverse conditions. The Idaho game department livetrapped hungarian partridge and released them in new areas for a four year period from 1939 to 1942. About that time and for several years thereafter these birds spread to many remote regions of the state. The summer of 1950 fairly good numbers of partridge were observed in most sections of Idaho. Hunting was allowed on this species during pheasant seasons in portions of the state during the biennium.

CHUKAR PARTRIDGE

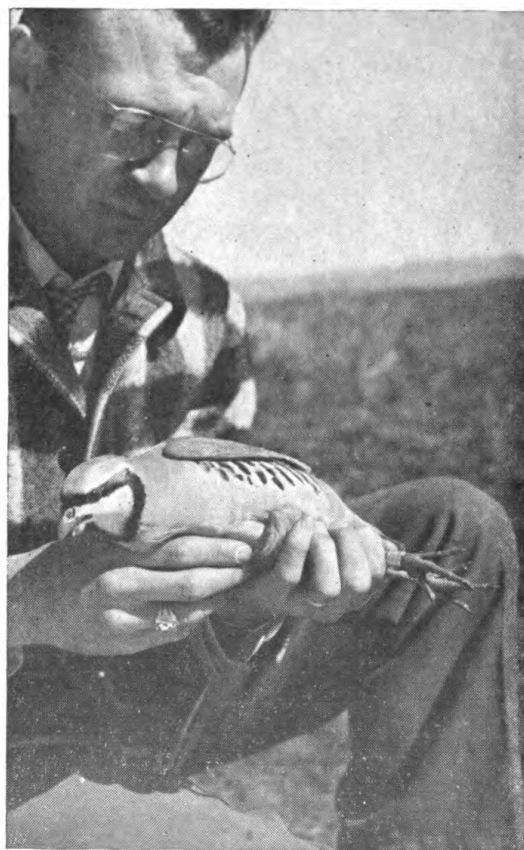
Emphasis is being placed upon increased production of Chukar partridge in Idaho at the present time. The game department has hatched and released Chukar partridge in relatively small numbers since 1939, and has experimented with planting

TWENTY-THIRD BIENNIAL REPORT

sites in 17 counties over the state. Planting records since 1939 show a total of 2,734 chukars released. Largest plant was in 1943 when 295 birds were released.

Present plans call for release of approximately 1200 chukars during 1950. Assistance has been provided by a game management agent from the State of Nevada who has worked with this species for some time. Knowledge accumulated by this technician will prove valuable to the Idaho program with regard to locating suitable planting sites. So far introductions have been successful in Nevada, California and Washington. Partial success has been experienced in Idaho, Wyoming and Colorado. Most successful, plants in Idaho have been near Emmett, along a portion of the Raft river drainage and north of Carey.

The average chukar weighs about 19 ounces, and is slightly



Bird Biologist Alvard Kiler holds a chukar just before release into new area. Birds are banded so that information may be derived at a later date. Chukars fly very rapidly, and live among rocks above watercourses. They eat cheatgrass seeds and other weed seeds.

FISH AND GAME DEPARTMENT

larger than the Hungarian partridge. Most striking marking is their black and white striped breast. Their plumage is pale greyish brown. Beak, eyelids and legs are bright red. They are fast runners and one of the fastest upland game birds on the wing. This bird should provide additional upland game hunting for Idaho within the next four years if suitable planting sites can be located, and their increase is normal for the species.

PHEASANT PRODUCTION RECORD

JEROME GAME FARM PLANTING RECORD

1949						1950					
	Spring Release	Brood Stock	10 - 12 Weeks	Day-Old & Eggs	Total	Spring Release	Brood Stock	5- 6 Week Birds	10 - 12 Weeks	Day-Old Chicks	Total
County—											
District No. 3:											
Ada									400	480	400
Adams Canyon			350		350	195			700		895
Elmore		200	810		1010				600	800	600
Owyhee	200	200	500		900	195			960	300	1155
Washington			650		650	210			900		1110
	<u>200</u>	<u>400</u>	<u>2310</u>		<u>2910</u>	<u>600</u>			<u>3560</u>	<u>1830</u>	<u>4160</u>
District No. 4:											
Blaine			325		325						
Butte		230	900		1130		200		475	250	675
Cassia	200	268	1275		1743			75	700		975
Custer		210	700		910		200		500		700
Gooding			87		87						
Jerome	139	20	650		809			150	250		400
Lemhi		210	400		610		200		500	50	700
Minidoka	210	328	1275	350	1813	222		75	400	625	697
Twin Falls	20	156	1450	40	1626	136		200	500		836
	<u>569</u>	<u>1422</u>	<u>7062</u>	<u>390</u>	<u>9053</u>	<u>558</u>	<u>600</u>	<u>500</u>	<u>3325</u>	<u>925</u>	<u>4983</u>
District No. 5:											
Bannock	275	215	1800	600	2290	172			450	2040	622
Bear Lake										40	
Bingham	352		1000		1352	7	200		270	200	477
Bonneville	378		700	2160	1078		200			2350	200
Caribou	270		1000		1270	80			450	300	530
Franklin	305	216	1100		1621	150			430		580
Fremont	228		200		428					1200	
Jefferson	160		685		845		200			1100	200
Madison	160		725		885		200			700	200
Oneida	305	216	920		1441	150			380		530
Power	200	210	1000		1410		200		450		650
	<u>2633</u>	<u>857</u>	<u>9130</u>	<u>2760</u>	<u>12620</u>	<u>559</u>	<u>1000</u>		<u>2430</u>	<u>7930</u>	<u>3989</u>
TOTALS	3402	2679	18502	3150	24583	1117	2200	500	9315	10685	13132
CHUKAR PARTRIDGE — 1949						1950					
Cassia					90	Gem					205
Gooding					12	Ada					235
					<u>102</u>	Gooding					170
											<u>610</u>

TWENTY-THIRD BIENNIAL REPORT

PHEASANT PRODUCTION RECORD

LAPWAI GAME FARM PLANTING FARM

	1949					1950				
	Spring Release	Brood Stock	Young Birds	Day-Old Chicks	Total	Spring Release	Brood Stock	Young Birds	Day-Old Chicks	Total
County										
District No. 1:										
Benewah	390	240	1800		2430	504		1500		2004
Bonner	300	120	1025	250	1445	200		1325	125	1525
Boundary	792	252	1950	750	2994	500		1825	3000	2325
Kootenai	705	144	1900	818	2749	730		1400	1520	2130
	<u>2187</u>	<u>756</u>	<u>6675</u>	<u>1818</u>	<u>9618</u>	<u>1934</u>		<u>6050</u>	<u>4645</u>	<u>7984</u>
District No. 2:										
Clearwater	150		600		750	266	224	500		990
Idaho		252	1800		2052	414	430	1250	850	2094
Latah	45	244	2650	100	2939	414	414	2150	385	2978
Lewis		252	1000		1252	266	224	775	150	1265
Nez Perce	715		2300		3015	374		1450		1824
	<u>910</u>	<u>748</u>	<u>8350</u>	<u>100</u>	<u>10008</u>	<u>1734</u>	<u>1292</u>	<u>6125</u>	<u>1385</u>	<u>9151</u>
TOTALS	3097	1504	15025	1918	19626	3668	1292	12175	6030	17135
Grand Total for 1949 and 1950:						36,761				

	1949	1950
Birds transferred to Coeur d'Alene Holding Pens for Spring Release	3,000	2,500
Birds held at Lapwai farm for broodstock and Spring Release	3,042	3,150



Chukar partridges are proving to be adaptable exotics in Idaho. Called "fire-eaters" in the blazing deserts of the southwest, the banded breasted birds have been introduced to arid sections of Idaho with success.

FISH AND GAME DEPARTMENT

BIG GAME DIVISION

The ultimate goal of the Big Game Division is to provide as many days of hunting as possible without depleting the necessary basic brood stock in areas of good habitat.

The limiting factor governing the number of big game animals in most areas of the state is available winter range. Big game herds must be kept in balance with the carrying capacity of the winter range so both range and game can be managed on a sustained yield basis.

Depredation by big game animals of cultivated crops is one of the major problems of this division. We are using every known method to prevent such damage by fencing, trapping and transplanting and by carrying a minimum number of animals in areas adjacent to cultivated crops.

Correlating management plans with federal land administrators for each individual management unit is progressing rapidly. At the present time we have several management plans in working order and are planning new ones as we go along. When management plans are completed for each management unit in the state we will be in a position to balance big game numbers against available range through adequate controlled harvest.

DEER

The following tabulations show the deer kill by districts for the 1948 and 1949 seasons:

District	1948	1949
I	2,978	1,494
II	2,269	1,693
III	6,107	6,083
IV	5,127	6,221
V	5,443	6,794
Total	21,924	22,285

It is readily seen by comparing the deer kill figures for 1948 and 1949 that the harvest is fairly well stabalized from year to year. It is thought that we may safely harvest approximately this number each year depending of course on climatic and range conditions.

TWENTY-THIRD BIENNIAL REPORT

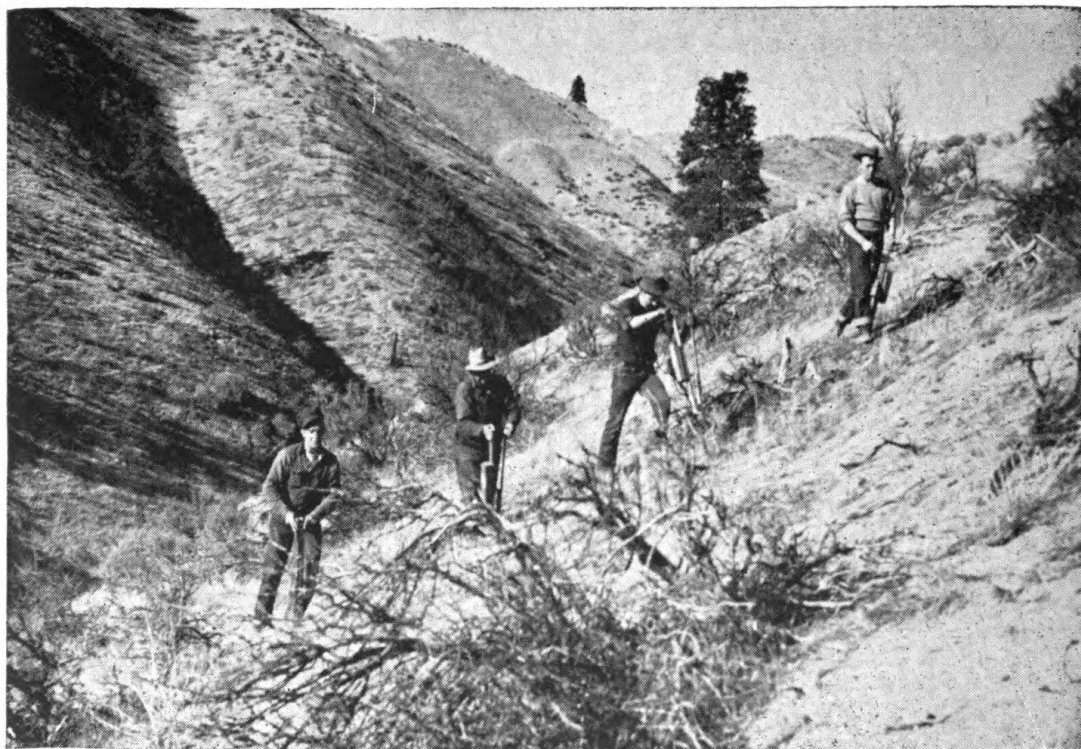
ELK

The following tabulations show the elk kill by districts for the 1948 and 1949 seasons:

District	1948	1949
I	497	1,027
II	3,899	2,287
III	662	1,288
IV	657	566
V	229	227
Total	5,944	5,395

The largest elk herd and kill is found in District II in the Selway-Lochsa-Clearwater areas. To obtain the proper harvest in these areas special hunts and closed areas have been used as a management tool.

Newly opened areas for elk hunting in Districts I, III and IV gave a more equitable distribution of hunters and somewhat relieved hunting pressure in areas which have been heavily hunted in the past.



Planting team with corn planters spaces bitterbrush properly on steep hillsides. Rehabilitation of range requires seeding of browse plants over a large area and protection of young plants from insects and disease.

FISH AND GAME DEPARTMENT

Black Bear

The black bear kill for the state was 531 in 1948 and 537 in 1949. There was no open season on grizzly bear during 1948 or 1949.

Black bear definitely increased in North Idaho during this period and furnished several man days hunting for nimrods.

Mountain Goat

During this period there was no open season or special hunts for the Rocky Mountain Goat.

A Federal aid project for scientific study of mountain goat has been authorized by the Commission. This is a three year study and the estimated cost is \$30,000. The study is statewide and it is expected the answer to Idaho's mountain goat problems will be found.

Bighorn Sheep

The last bighorn sheep hunt was held in 1947 when thirty-five permits were issued for the taking of mature rams only. The rules specified that rams with a three-fourths curl only be taken and limited the hunt to certain areas of the Middle Fork and Main Salmon River only.

The season was again closed in 1948 and has remained so since. The Commission recently approved a federal aid project for a scientific study by a trained biologist for the Rocky Mountain sheep. The study is set up for three years at an estimated cost \$26,287.87 and limited to sections of the Salmon River section only.

Pronghorn Antelope

The only antelope hunt conducted at the present time is on a herd in Central Idaho, which includes the Lost Rivers, Salmon River, and Birch Creek areas. This hunting area is subdivided into seven or eight units and permits issued according to population and range conditions. During the two years 1948 and 1949 a total of 1,000 permits were issued.

The antelope herd in Owyhee County has enjoyed a closed season the past few years but it is expected that a controlled hunt will be possible in the near future.

The department is cooperating with landowners by furnishing net wire fence on a 50-50 basis where antelope are damaging crops. The net wire prevents antelope from entering the fenced land. This program is proving very successful.

TWENTY-THIRD BIENNIAL REPORT



Antelope huddle together in Big Lost River trap waiting transfer to another range or tagging and release



Those to be moved struggle as they are loaded into trucks for trip to another section of the state.

FISH AND GAME DEPARTMENT

Salting

The salting of big game is a very valuable management tool. Salt is distributed by pack string, pickup, and airplane and is placed on the intermediate range to move animals from critical winter ranges at the earliest possible date. By such a movement the winter range enjoys a shorter use period. Salting also insures a more equitable distribution of big game animals, better use of forage plants and supplies the animals with minerals that are deficient in the soil.

In 1948 a total of 191 tons of game salt was placed in the state, while in 1949 approximately 200 tons were placed.

Supplementary Feeding

During severe winters when big game animals are forced to low country and natural feed is covered by deep snow the and concentrated protein cubes in strategic locations.

Supplementary feeding is attempted only in critical areas and department often supplements available forage by placing hay periods and is not routine each winter. It is a proven fact that emergency feeding is not satisfactory and is uneconomical.

During the severe winter of 1948-1949 a total of 511 tons of hay and 170 tons of protein cubes were fed at a cost of \$32,425.00. Extra labor and equipment, plus the cost of feed amounted to \$48,869.00. It is estimated that the cost that year was .07c per animal per day for approximately 40 days. A total of 15,000 deer and 1,750 elk were fed during this period with a heavy winter loss.

During the generally mild winter of 1947-1948 very little emergency feeding was done except in localized areas.

At the present time, we have stored at various locations throughout the state a total of 505 tons of hay and 185 tons of concentrated protein cubes. This will be fed only in the event an emergency arises.

TABULATION OF GAME KILL Known State Hunter Removal

Year	Deer	Elk	Antelope	Black Bear	Moose
1948	21,924	5,944	419	531	27
1949	22,285	5,395	383	537	27

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Removal by Game Department Districts
Season of 1948

District	Deer	Elk	Antelope	Black Bear	Moose
1	2,978	497	0	255	0
2	2,269	3,899	0	172	0
3	6,107	622	0	84	0
4	5,127	657	218	16	0
5	5,443	229	201	4	27

Removal by Game Department Districts
Season of 1949

District	Deer	Elk	Antelope	Black Bear	Moose
1	1,494	1,027	0		0
2	1,693	2,287	0		0
3	6,083	1,288	0 (537 incl.)		0
4	6,221	566	125		0
	227	258	275		6,794



Mule deer feed at a department feeding area set up during severe winter weather to tide them over until snow melts sufficiently to uncover natural browse.

FISH AND GAME DEPARTMENT

HUNTER TAKE ON SPECIAL HUNTS IN 1948

Deer

Number of Permits	HUNT	Kill
1,600.....	Cassia Division, Minidoka Forest	1,364
300.....	Sublett Division, Minidoka Forest	240
300.....	Black Pine Division, Minidoka Forest	177
450.....	Albion Division, Minidoka Forest	344
107.....	Albion Archery, So. Fk. Payette Game Pres... ..	9
200.....	Big Lost River Game Preserve	117
750.....	Soldier Mountain Deer	398
200.....	Ashton Big Game Refuge	47

Elk

1,000.....	Selway Game Preserve	344
250.....	Salmon River Game Preserve	53
450.....	Boise-Valley Counties	130
300.....	South Fork Payette Game Preserve.....	95
150.....	Elmore County	42
450.....	Soldier Mountain Game Preserve	185
100.....	Warm Springs Game Preserve	62
100.....	Swan Valley-Heise	52

Bull Moose

30.....	Bull Moose Hunt, Fremont County, Jefferson County and Clark County	27
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Pronghorn Antelope

500.....	Antelope Hunt in Central Idaho Counties	419
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HUNTER TAKE ON SPECIAL HUNTS IN 1949

Deer

3,000.....	Cassia Division, Minidoka Forest	1,993
100.....	Big Cedar, Dry Creek	40
100.....	Trapper Creek	45
600.....	Albion Division, Minidoka Forest	443
600.....	Sublett Division, Minidoka Forest	404
300.....	Black Pine Division, Minidoka Forest	159
200.....	Archery Hunt, So. Fk. Payette River	0
250.....	Big Lost River	115
750.....	Soldier Mountain Deer Unit I	162
150.....	Soldier Mountain Deer Unit II	75
300.....	Pocatello Game Preserve	192
100.....	Crooked Creek	63
200.....	Ashton	65

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Elk

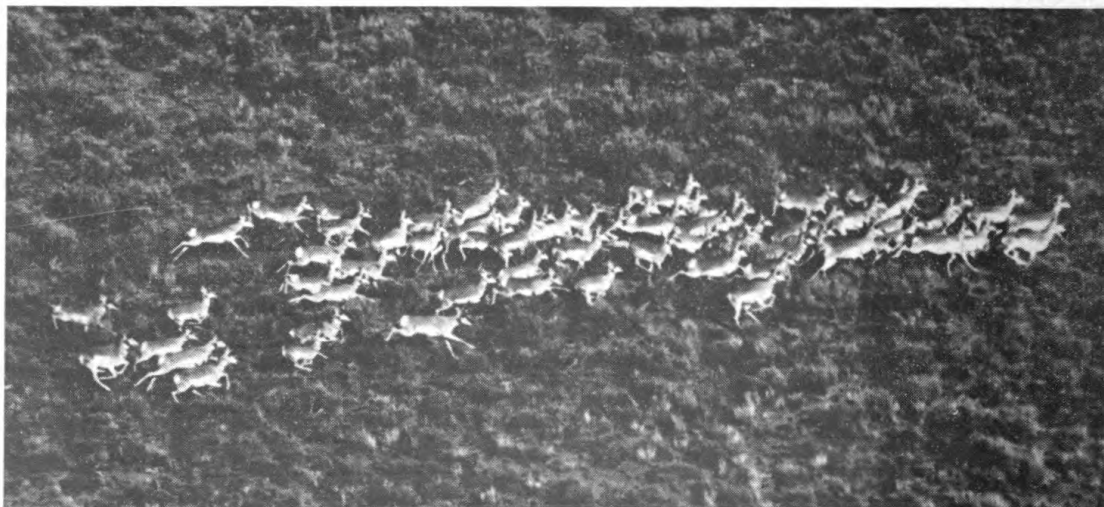
400.....	South Fork Payette River Game Preserve	65
1,000.....	Selway Game Preserve	274
250.....	Salmon River Game Preserve (Unit 1)	16
350.....	Soldier Mountain Game Preserve	75
75.....	Pocatello Game Preserve	65
150.....	Swan Valley	68
50.....	Heise Elk	26
25.....	Owyhee County (Bulls Only)	13

Bull Moose

30.....	Mature Bull Moose Hunt, Fremont County Jefferson County and Clark County	27
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Antelope

500.....	Antelope hunt in Central Idaho Counties....	383
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Fleet-footed pronghorns try vainly to escape, but the camera eye, aided by an airplane, catches them. Picture was taken during aerial population survey in 1949.

INFORMATION AND EDUCATION

The information and education division of the State Fish and Game Commission has four areas of concentration within which its efforts are centered: (1) conservation education both within the schools and among the general public; (2) the dissemination of information to the public through newspapers, radio, magazines and personal correspondence about the department of fish and game, its work and its purposes; (3) liaison work between the commission, sportsmen's groups and various clubs, lodges and civic organizations throughout the state; and (4) the publication of pamphlets and folders for use by sportsmen by which they may ascertain when and in which areas seasons on fish, big game, fur bearers and upland birds will be in effect.

CONSERVATION EDUCATION

Chief among the projects aimed at furthering conservation education within the state is the program entailing the publication of such booklets as the 24-page illustrated brochure "Your Game Department," published recently and distributed to fifth and sixth grade students throughout the state. A film library, containing several color and black and white films of 200, 400, 800 and 1200 foot lengths, is also made available to schools, sportsmen's groups and service clubs throughout the state. Its use is becoming an increasingly important part of the audio-visual educational school program of the state.

The department this year completed its first color movie "Fur for the Future," which is enjoying popularity among all groups. It emphasizes the value of conservation practices through the illustration of transplanting practices carried out by the fur division.

The division is also presently working on several new motion pictures dealing with birds, lake and stream improvement, big game salting, and habitat improvement. All original film is stored until necessary scenes can be completed, then edited through use of work prints for improved continuity and effectiveness.

Several requests have been received from other states for films in our library and they have been shown as far east as Chicago.

During early 1950, the department cooperated with the state wildlife federation in sponsoring a statewide conservation poster competition.

Open to school children in the fifth to eighth grades, the contest was held during early spring, ending during Wildlife Week in March. Prizes were sponsored by local and state clubs, first prize being \$100.00.

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Grade school small-fry pose for their picture just before the opening of the fishing derby in Julia Davis Park lagoon in Boise.

Over 2000 entries were received and the competition will be continued in 1951. The department feels that this is a good medium for making school children more conscious of conservation work.

At present an illustrated booklet on the upland game birds of Idaho is being compiled. Meant primarily for use in educational work along conservation lines, it is designed to answer inquiries received on the various species to be found within the state and provide a handy reference for students. Information to be included in the book will include geographical distribution, ecology, habitat and other technical and non-technical intelligence on the birds of the state, both native and introduced.

Present plans also include the appointment of a man to work in the field full-time presenting conservation education programs at schools and organization meetings throughout the state.

INFORMATION

During the 1948-50 biennium, the information and education division released 800-1000 news articles. The majority of these were mailed to radio stations, newspapers, wire services and individuals. Special requests from newspapers, magazines and free lance writers for information, photographs or features were also filled as fully as possible.

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Requests for information from sportsmen within the state and citizens of other states, including school children, are as far as possible filled through personal correspondence. Information furnished includes dates of various seasons, cost of licenses, specific information regarding various types of wild life, areas most likely to provide good fishing at various times of the year and clarification of certain aspects of the state's game laws, to name a few.

Included in information dissemination work is the publication of the bi-monthly department magazine, "Idaho Wildlife Review." The magazine has been increased in size during the past year from 12 to 16 pages. Two issues have contained 20 pages. The subscription list has been increased from about 3,000 in July 1949 to nearly 10,000 at the present time. The department prints 12,000 copies and supplies license vendors and fills individual requests from the additional copies.

Publishing costs for the magazine have averaged less than \$1000 per issue, including mailing, photographs, photoengraving and printing. Total publication cost for the past biennium has been approximately \$7500.

A book of maps, text and pictures illustrating and describing ten wilderness lake areas in the state's mountain areas is planned for publication in early 1951. Maps and locator guides have in most instances appeared in the "Idaho Wildlife Review." They will be available to the public through vendors and the Boise office of the fish and game department before fishing season arrives in 1951.

INFORMATION SERVICE

Requests for showing of films, talks on various phases of departmental work in all divisions, and help in setting up programs or discussion periods dealing with conservation practices are constantly being received by the department. It is the duty of the information and education division to either fill these requests through personal attendance or by arrangement with conservation officers or regional directors.

Included in the groups which have been served in this capacity are Parent-Teacher Association meetings, service clubs, school assembly and class groups, Four-H summer camp gatherings throughout the state and fraternal organizations.

Department personnel conducted daily classes at the Four-H summer camps during which the members were shown films, taken of field trips and given instruction in various phases of wildlife management, identification and other fields.

Through attendance at various sportsmen's meetings during the year, the information and education division gains an

TWENTY-THIRD BIENNIAL REPORT

insight into the desires and needs of these groups in the several areas of the state as regards seasons, closures, fees to be charged and other topics discussed by them. This information, when passed on to the commission proves valuable, for the groups in each locality being closer to the problems in their area can often point to shortcomings apparent in the rulings laid down by that group.

PAMPHLET PUBLICATION

Pamphlets graphically illustrating where and when big game animals, upland game birds and other of our wildlife resources may be hunted have been published and distributed through license vendors before opening of seasons. Big game pamphlets contain complete regulations plus maps of various areas within which special hunts are to be held. Closed seasons on certain species are clearly noted and dates during which others may be hunted printed in overlay on the maps. Separate statewide maps are included showing deer and elk hunt areas and those in which moose and antelope may be hunted.

Upland game bird maps include one for sage grouse, another for pheasant and a third for Blue, Ruffed and Franklin grouse, color overlays designating county areas by seasons in which the various birds may be hunted. Seasons, hunting regulations, shipping limitations, notice of checking station regulations and information relative to farm-game areas are included on the back cover.

Another of the services offered by the division is the publication of safety posters each year just before hunting season starts. Distributed to conservation officers in the field, about 2500 of these posters, urging caution while handling a gun, are placed in stores, service stations, in the field and other public places where they will be noticed in the hope that hunting deaths may be avoided,



The brig, which formerly held unruly gobs, may be used for district warehouse by the fish and game department. Huge cement-floored building is ideal for storage and equipment dispersal center. Future plans call for conversion of Farragut Base into public recreation area.

FISH AND GAME DEPARTMENT

THE DIVISION'S PROGRAM

Feeling that conservation of our natural resources is one of the most important facets of present-day education, the department is doing everything possible within its power to further education along these lines within the state. Programs presently underway in other states bear witness that this premise is gaining credence the country over.

Several sportsmen's groups have indicated their desire to participate in this effort by providing scholarship funds so that interested teachers may attend summer camps at which conservation education is stressed. Suggested methods for proper handling of this project within the local group have been prepared and are available to clubs upon request.

The department envisions the establishment of educator's summer camps or workshops in various sections of the state when sufficient interest has been generated through the work of the teachers, cooperating agencies and sportsmen. Travel costs under any system which required that those interested be transported from south or southeast Idaho to camps in the northern section of the state would, of course, hamper the program through small attendance.

DIVISION ACQUISITIONS

During the 1948-1950 biennium, the information and education division has acquired three new cameras for use in still and motion picture work; a Model 70-DA Bell and Howell 16 mm motion picture camera with half inch, one inch, two inch and four inch lenses capable of reproduction in either black-and-white or color; one 4x5 inch Speed Graphic press camera with flash equipment; and one Kodak Reflex (2¼x2¼ in.) camera.

Additions to motion picture projection equipment include two projection screens with stands.

A film storage cabinet and bookcase have also been added to office equipment.

A 3000-negative file has been set up to care for all still camera negatives presently owned by the division. Cross-reference indexes make location of specific negatives easy.

WILDLIFE RESTORATION DIVISION

FEDERAL AID PROJECTS

The Federal Aid in Wildlife Restoration Act provides that the federal government will finance seventy-five percent of approved wildlife improvement projects. Under this act the national congress appropriates annually funds received from revenue derived from a 10 percent excise tax on sporting arms and ammunition. The Idaho legislature passed an enabling act authorizing the fish and game department to participate in this program on March 4, 1939.

TYPES OF SUITABLE PROJECTS

The basic requirements are that all projects shall be substantial in character and design. Depending upon objectives, they embrace activities in five groups as follows:

1. **LAND PURCHASE** — Purchase of lands for the rehabilitation of wildlife.
2. **LAND DEVELOPMENT** — To make areas more suitable for wild mammals and birds, by environmental improvement with food and cover plantings, water impoundment and stabilization, release of game birds or mammals where seed stock is needed, and other activities necessary to accomplish this purpose.
3. **INVESTIGATIONS AND SURVEYS** — Research to solve pressing wildlife management problems that involve unknown factor in management, feeding habits, and the relationships of the various species to each other and to livestock and farming operations. These studies must be confined to procurement of factual information designed to improve the administration of the wildlife resources of the state.
4. **COORDINATION** — The coordination of projects necessary to efficient management affecting wildlife resources.
5. **MAINTENANCE** — To provide assistance in financing the upkeep and repair of structures and related restoration developments completed under Federal Aid projects.

FEDERAL FUNDS RECEIVED

Federal funds are allocated to the states half in the ratio that the area of each state bears to the total area of all the states and half in the ratio that the number of paid hunting license holders of each state in the preceeding fiscal year, as certified to the Secretary of the Interior by the State Fish and Game Department, bears to the total number of paid hunting license holders of all the states. No state shall receive less than one-half of one percent, nor more than 5 percent of the total amount apportioned to all the states. Since 1939 when the Idaho legislature pass-

FISH AND GAME DEPARTMENT

ed the Act enabling participation \$885,045.34 in federal apportionments has been allocated to the State of Idaho.

The following financial report is for the period July 1, 1948 to June 30, 1950.

Unobligated balance of Federal funds, July 1, 1948.	\$117,964.32
Apportionment Fiscal Year, 1949	222,195.51
Apportionment, Fiscal Year, 1950	205,083.35
Federal project funds which were obligated but not expended before completion of projects.	99,160.31
	526,439.17
Total Federal money available to finance approved projects for period July 1, 1948 to June 30, 1950	\$644,403.49

**WILDLIFE RESTORATION PROJECTS
INITIATED DURING BIENNIUM**

Name of Projects	Estimated Cost	% of Total Money Obligated
COORDINATION PROJECTS	\$ 28,129.82	4.6%
MAINTENANCE PROJECTS	36,626.31	5.9%
LAND ACQUISITION PROJECTS	200,744.43	32.6%
RESEARCH PROJECTS	72,494.81	11.8%
DEVELOPMENT PROJECTS	277,834.65	45.1%
	\$615,830.02	100.0%
Unobligated balance of Federal funds as of June 30, 1950—		—\$28,573.47

A brief resume of work carried on under approved Wildlife Restoration projects follows:

RESEARCH CONDUCTED

Research projects are designed to solve pressing wildlife management problems. We are presently collecting information necessary to formulate or improve management plans for our wildlife resources.

1. Idaho Management Study of Migratory Waterfowl
2. Idaho Game Population Census and Range Study
3. Coeur d'Alene Deer Management Study
4. Statewide Game Bird Survey and Investigation
5. Selway Wilderness Game Management Study
6. Management Study of the Rocky Mountain Goat
7. Management Study of the Rocky Mountain Sheep.

MAINTENANCE PROJECTS

Maintenance projects have provided for the upkeep and repair of all land improvements such as buildings, fences, roads, fire guards, irrigation systems, etc., for all refuge areas which have been acquired through participation of federal funds.

SALT PLACEMENT

Sixty-five tons of salt are placed annually, directly above critical big game winter ranges. This salt is used as a management tool to hasten early removal of game animals from the critical ranges. It also tends to retard fall migration onto these areas.

TRAPPING AND TRANSPLANTING

We have endeavored to trap big game animals for areas where suitable concentrations presently exist and to re-establish or introduce the species to the new ranges within the state where suitable habitat exist. During the biennium the following game animals have been transplanted or have been trapped, ear tagged, and released to furnish migration information for the herd.

Name of Animal	Ear tagged & Transplanted	Tagged and Released at trap to furnish migration information
Mule deer	729	138
White-tail deer.....	85	21
Antelope	487	158
Elk		115
Beaver	232	
Marten	39	
Muskrat	497	

EMERGENCY FEEDING

During the severe winter of 1948 and 1949, big game animals were forced by deep snow and sub zero weather from their normal winter range to the lower valley where available food was soon exhausted. Water fowl and upland game birds normal feeding areas were seriously reduced or eliminated by snow and ice, making it necessary to supplement their diet with artificial feeds to prevent starvation. The following table shows the approximate amount of food provided.

Name	Food	Amount
Big Game	Hay	511 tons
	Stock Cubes	1770 tons
Upland Game Birds	Grain	110 tons
Waterfowl	Grain	150 tons

FISH AND GAME DEPARTMENT

DEVELOPMENT

A deer tight 8-foot net wire enclosure fence was constructed enclosing some 800 acres in which twelve white-tailed deer were planted (3 bucks and 9 yearling does). From this known number, age, and sex of deer, the Wildlife Research Unit of the University of Idaho will study census methods, herd productivity, body measurements, forage utilization, competition with livestock, predation, parasites, etc. This information will be used to improve management plans of our white-tail deer herds.

DEVELOPMENT PROJECTS

Development projects have been initiated to construct boundary fences and improve irrigation systems on the following refuges:

1. Star Lake Wildlife Management Area
2. North Lake Wildlife Management Area
3. Hagerman Refuge
4. Sand Creek Refuge

RANGE IMPROVEMENT

Critical range deficiencies offer the greatest threat to game population. In order to improve game ranges which have been depleted by over utilization, fire, insect infestations, etc, we have experimented with the planting of some 60 browse species known to be acceptable to big game animals. The estimated 1600 acres have been planted to Bitter Brush, in the South Fork of the Payette River Drainage. Also, an estimated 2500 acres in the Middle Fork of the Salmon River Drainage to Bitter Brush, Balsam Root, Choke Cherry, and Sarvis Berry. Approximately 10,000 acres of deer winter range was treated with Chloradine to kill grasshopper infestations threatening this range. We are endeavoring to balance big game herds with forage available on their winter ranges.

FURBEARING ANIMALS

Furbearing animals continued to rank high in importance among the wildlife resources of the state during the 1948-50 biennium and livetrapping operations of beaver, marten and muskrat were expanded as transplanting to more suitable sites continued under the Pittman-Robertson federal aid project.

During the summer of 1949, 660 beaver were livetrapped and transplanted. 232 of these were planted under a Federal Aid Project. In Valley and Idaho counties, 64 beaver were planted from airplanes via special parachutes. The remaining 168 beaver under this project were planted by pickup truck in Clearwater, Custer, Butte, Blaine, Idaho and Valley counties. The total cost of this project was \$2405.82.

During 1950, 330 beaver were livetrapped and transplanted by Class "B" or Beaver Caretaker Trappers within allotments.

During 1949, in cooperation with Pittman-Robertson, 25 marten were planted by car in Adams, Boise, Valley and Caribou counties. Under this same project, 196 muskrat were planted by car in Valley, Camas, Owyhee and Twin Falls counties. The total cost of this Federal Aid Project was \$1085.29.

The 1941 session of the Idaho Legislature passed a bill providing for the protection of beaver. Under this act, two classes of beaver trapper or caretaker permits are granted by the state fish and game department. Class "A" permits are granted to farmers and land owners to trap and pelt troublesome beaver or take out beaver from their lands should they become too numerous for the feed available. Upon application by farmers or landowners, their farms are inspected by the local conservation officer who may recommend that a permit be issued to trap a certain number of beaver. This in turn is brought before the Idaho State Fish and Game Commission which authorizes the director to issue the permit.

The present system of caretaker trapper allotments was inaugurated Oct. 1, 1945. Beaver trapping allotments were established throughout the state, based in general on drainage areas and numbers of furbearers within the areas. Uniformity of beaver population within these allotments was taken into consideration in setting the beaver allotment districts up. Each is large enough that the trapper can pelt sufficient beaver to pay him to devote most of his time throughout the year to trapping all complaint beaver and those on streams where they are too numerous. The latter are planted on streams in his allotment where habitat and food conditions are favorable for population increase. The caretaker also patrols this allotment and protects the beaver thereon.

Each year the conservation officer within whose district the

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allotment lies recommends the number of beaver the caretaker should be allowed to take and where they are to be trapped. This recommendation is submitted to the fish and game commission, which authorizes the director to issue the permit. These beaver are taken from complaint areas or areas without sufficient feed to support the population. All trappers receive 75 per cent of the net proceeds received from sale of the pelts at public auction.

All caretaker allotments to be granted are advertised in a paper in the county in which a vacancy exists. Upon request, trappers are furnished applications to be submitted with three character references. When the applications are received and the references returned to the fish and game department, they are filed and graded. The trapper receiving the highest rank is given the vacant allotment.

Class "A" or landowner allotments, have the first right and if it is necessary that beaver be removed and the landowner wishes to do so, he is granted a permit, even though it is in the area granted to the caretaker trapper. Permits are issued only in areas where damage is apparent and no beaver are removed from headwaters of streams except where mountain roads,



Transplanted Idaho marten looks apprehensively out of temporary home in a powder box.

TWENTY-THIRD BIENNIAL REPORT

logging roads, trails are being damaged, or where the beaver are too numerous and it is necessary that they be thinned.

All beaver skins are shipped to the Boise office. There they are inspected to see if properly skinned, fleshed and stretched. They are tagged and a receipt is sent the trapper showing the condition of the skin and the tag number. After the skins are sold, receipts are sent the trapper showing the price received for each skin.

**RECEIPTS FROM SALE OF FURS
BEAVER**

	1949-50		1948-49
Total (8578)	\$128,058.00	Total (5917)	\$100,257.60
Trapper's Share (75%)		Trapper's share (75%)	
	\$ 95,988.53		\$ 75,175.38
State's Share (25%)		State's Share (25%)	
	\$ 32,069.47		\$25,082.22

OTHER FURS

· 1948-49—No season on Beaver, Mink, or Fisher. 1426 licenses sold with 1040 trappers reporting.

101,456 Muskrat sold for \$127,380.63 with 9814 unsold or no price reported.

426 Marten sold for \$5,173.30 with 206 unsold or no price reported.

5 Fox sold for \$5.00 with 5 unsold or no price reported.

45 Raccoon sold for \$42.30 with 13 unsold or no price reported.

5 Otter sold for \$64 with 7 unsold or no price reported.

(THROUGH STATE)

63 Mink sold for.....	\$358.05
6 Marten sold for	\$ 27.75
57 Muskrat sold for	\$ 38.58
2 Raccoon sold for	\$ 2.00
2 Otter sold for	\$ 15.00
3 Fox sold for.....	\$ 1.20

1949-50—No season on Beaver, Marten or Fisher. 1486 trapper's licenses sold with 1063 trappers reporting.

4748 Mink sold for \$75,008.57 with 391 unsold or no price reported.

121,563 Muskrat sold for \$102,214.48 with 9882 unsold or no price reported.

50 Otter sold for \$546.75 with 17 unsold or no price reported

62 Raccoon sold for \$59.40 with 36 unsold or no price reported

(THROUGH STATE)

40 Mink sold for	\$208.79
270 Muskrat sold for.....	\$190.10
2 Raccoon sold for.....	\$.87
3 Otter sold for	\$ 23.04

FISH AND GAME DEPARTMENT

FISHERIES DIVISION

FISH ERADICATION PROJECTS

In 1949 the Department of Fish and Game began an extensive lake improvement program by eradicating undesirable species of fish in lakes and reservoirs and restocking these waters with game species. This program followed an experimental project on Sublett Reservoir in Cassia County. In September 1948, Sublett Reservoir was treated with a fish-toxin and fishes killed. The Utah Chub was the dominant undesirable species and it was estimated that over 180,000 of this species were killed. The reservoir was re-stocked with rainbow trout in the spring of 1949 and opened to fishing June 4, 1950. On opening day 670 fishermen took 958 trout averaging three-quarters of a pound each. This 60-acre lake provided more fishing pleasure and more fish for the creel in this one day of fishing than it probably had in the previous 10-year period.

In 1949 a total of six lakes were treated and re-stocked with game fish, and in 1950 seven lakes, a Boise park lagoon, a farm pond, and two ponds or sloughs were treated. Tabulations of these waters is given in table I.

Undesirable species to be eradicated in these projects are generally rough or trash fish, some of which have been introduced into the waters by the use of live-bait minnows. The undesirable species might also be a stunted game fish such as largemouth black bass or bullhead catfish introduced into a lake which does not offer a suitable habitat for a warm-water species but which will produce trout fishing. These rough fish compete with desirable species for food, space, and cover, and in some cases are predacious upon the game fish.

The fish toxin used in these projects has rotenone as the killing agent and is dispersed through the water behind outboard motor boats or sprayed in the shallow areas. It is toxic only to cold-blooded animals, killing by suffocation. The dead fish are generally left in the treated water where they decompose and fertilize the lake.

Each water to be treated is surveyed for area and contoured for storage volume. The concentration of fish-toxin to be used depends upon the physical, chemical and biological characteristics of each lake. Temperature, pH, amount of aquatic vegetation, turbidity, presence of springs in lake bottom, amount of dissolved chemicals, and species of fish to be killed all are considered. The inlets to the lakes must also be treated so that the waters will not become recontaminated with undesirable fish. In some instances it is almost impossible to completely kill all of the trash fish because of unknown physical factors at the time of treat-

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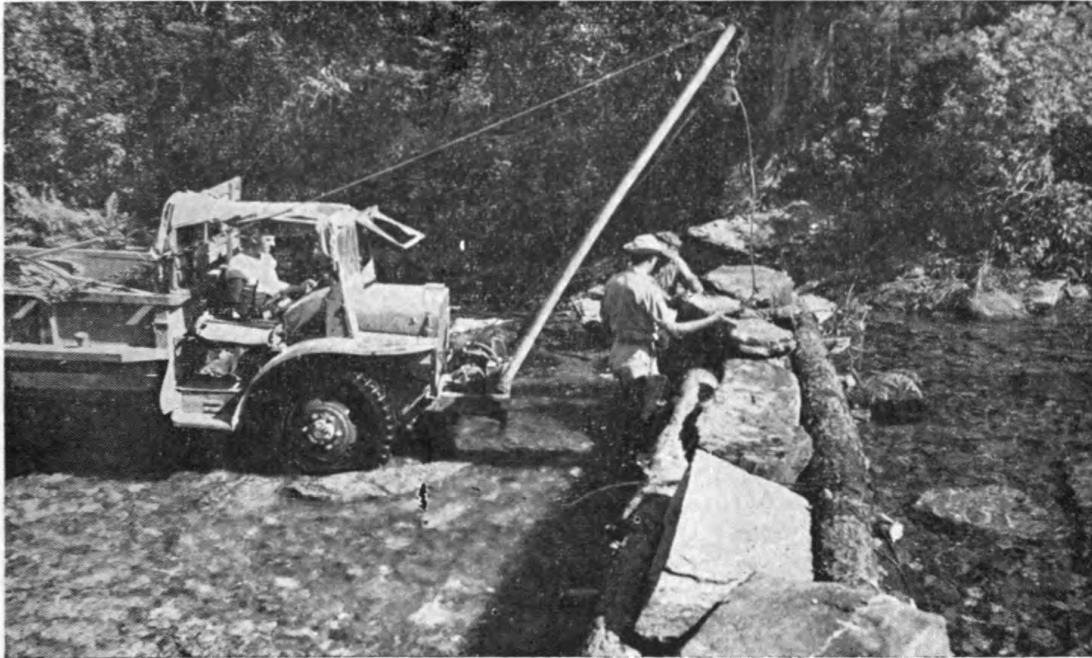
Trash fish removal is an unending job in many Idaho waters. Disposal of the fish is often the hardest part. Projects in the vicinity of St. Maries collected the fish in boats, transferred them to containers, and had them ground for fish feed.

ment. It then becomes necessary to re-treat these waters at a later date. They will, in the interim, provide enough fishing to pay for the cost of the treatment.

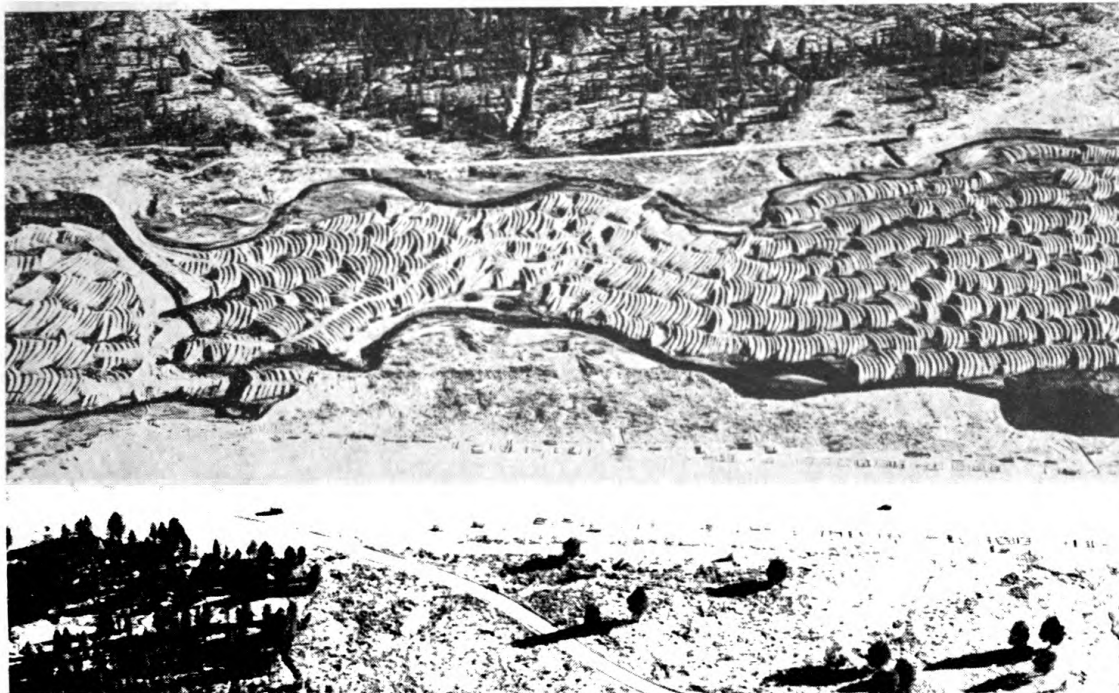
STREAM IMPROVEMENT

It has long been recognized that the pool structure of streams and rivers is the largest single factor in governing the population of fish in those waters. Several states have gone into rather extensive stream improvement projects. However, it was not until 1949 that such work was undertaken in Idaho. In that year stream improvement work was begun on the North Fork of the Coeur 'Alene River in Kootenai and Shoshone Counties and rehabilitation of some dredge ponds on Grimes Creek in Boise County was undertaken. In 1950 the work on Grimes Creek was continued and some brush shelters installed in the Buffalo River in Fremont County.

FISH AND GAME DEPARTMENT



A huge rock is lowered into log crib for stream improvement on North Fork of Coeur d'Alene river. Barrier will provide quiet hole for trout to grow to large size.



Aerial view of improvement area near New Centerville. New work appears lower left where channel was dug changing flow across tailings. Ridges left by dredge have left geometric pattern with water and shadow.

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The work on Grimes Creek consisted primarily of diverting fresh water into isolated dredge ponds. These ponds without a stream flow of fresh water became stagnant and would not support fish life in warm weather. The improved area was stocked with fish in 1950 and provided considerable fishing, thus relieving pressure on adjacent waters.

The Buffalo River at one time afforded some excellent trout fishing. However, during the period when the C.C.C.'s were in existence the river was cleared of all derbis which consisted mostly of fallen trees, and, as a result, the trout population decreased rapidly under fishing pressure. The rehabilitation work consisted of replacing brush shelters to provide cover for trout.

The work on the North Fork of the Coeur d'Alene River was aimed at placing certain types of deflectors in the stream in order to create additional pool space. Due, however, to the stream gradient and heavy spring run-off, it is deemed advisable to do further experimental work to develop more stable structures before any large program of stream improvement is undertaken.

CREEL CENSUS STUDIES

In 1949 a creel census study was begun on Spirit Lake, Kootenai County, to determine fisherman harvest and success on this water. This work was continued in 1950 and extended to include Twin Lakes and Hayden Lake, also in Kootenai County, and Henrys Lake and Island Park Reservoir, in Fremont County. An experimental voluntary census was also set up on Sublett Reservoir in Cassia County, the first of the rehabilitated lakes to open to fishing after a trash fish eradication project.

When harvest and success ratios are coupled with biological data gathered during the census period, an index to the carrying capacity and harvest potential of a water can be set up. Spot checks in the later years will give reasons for decline or improvement in fishing success and, if the former, help determine the need for modifying the stocking policy.

FISH TAGGING STUDIES

In 1950 fishery biologists of the department tagged 4100 trout in order to learn something of their migration in streams and lakes and the survival of hatchery-reared fish after being returned to a "wild" habitat. Tag returns from all of these studies have not yet been tabulated nor analyzed. The Wood River (Blaine County) tagging experiment, in which 650 tagged legal-size rainbow trout were planted along with some 20,000 other untagged trout in 1950, indicates that over 55 per cent of these hatchery-reared fish find their way into fishermen's creels in the first season.

FISH AND GAME DEPARTMENT



Left—

Trout are tagged to chart migration and growth

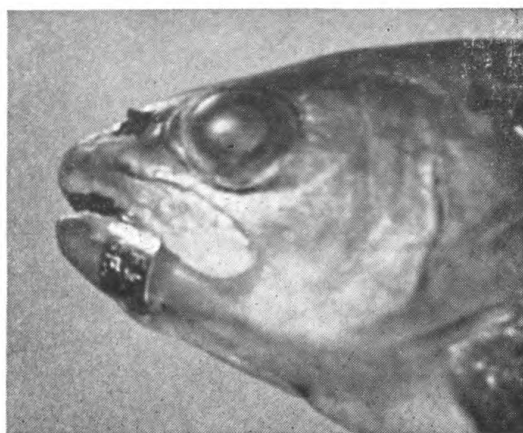
The tagging of adult brood fish in their native waters in Island Park Reservoir and Henry's Lake will help formulate management policies on these waters which will help insure annual return of spawning fish. In addition to giving survival rates and migration data of planted fish, tagging experiments will show the need to modify stocking policies for species, numbers, sites, and season of year; desirability of modifying fishing regulations, such as seasons, closed areas and limits.

The unknown factor in tagging studies is the question of just how many tags are returned to the department from the total number of tags recovered. This factor has been greatly reduced in some of the tagging experiments through the cooperation of sportsmen's organizations, which have given the studies wider publicity and have even offered cash and merchandise prizes for the return of the tag.

Tagging studies in 1950 included experiments on eight streams and five lakes. The program is set up to find answers to management questions and as these are learned the studies are completed, or as new questions arise which can be answered through the use of tagging, new studies will be instituted.

Right—

Jaw-tagged trout. Metal tag doesn't interfere with fish feeding, stays put on jaw better than on gill cover



FISH LADDERS

There has existed for some time the need to obtain some information concerning the run of anadromous fish in the Clearwater River in order that department personnel could deal more effectively with the program of proposed dam construction on the Columbia and Snake Rivers. The department also desired information to determine if the dumping of the effluent from the paper pulp mill at Lewiston into the Clearwater River will provide a block to upstream migration of fish, and to determine if any of the chinook salmon planted in the Clearwater River would return to spawn.

The fish ladders at the trap were racked to prevent fish from going beyond the last pool in the ladders. All game fish entering the ladders are picked up with dip nets and released above the dam. Participating in the program besides the department are the Washington Water Power Company and the Potlatch Forests, Incorporated. The actual counting operation began March 22, 1950. It is presently planned to continue the program throughout 1951.

TABLE II
FISH COUNT — LEWISTON FISH LADDER

	Steelhead	Chinook Salmon	Kokanee* Salmon	Smallmouth Bass
March	39			
April	1,219			
May	1,757			
June	152			65
July	28	6		130
August	2	2		101
September	5			65
October	390		29	43
Total	3,592	8	29	404

*No specimens were saved by the operator; therefore, positive identification as to whether the species was a kokanee or a sock-eye cannot be made.

It is interesting to note that eight chinook salmon were counted over the dam. The largest of these fish weighed three pounds, with the average two pounds. During the course of the operation of the trap, a large number of tagged steelhead were

FISH AND GAME DEPARTMENT

observed. The tags of several were removed and returned to the Oregon Fish Commission which had tagged them as they passed over Bonneville Dam. Information supplied by the Oregon Fish Commission showed that one fish took 250 days and another 284 days to migrate 320 miles.

The number of steelhead passing over the dam was very enlightening since the best estimates indicated that less than one thousands fish ever entered the Clearwater River to spawn.

FISH SCREENS

The Fish and Game Laws of Idaho require that owners of irrigation ditches and canals screen such ditches and canals when, in the opinion of the Director, such a need exists. It is well known that there is a loss of fish in many irrigation ditches and canals within the State. However, to date, the department has not required a screening program because a suitable design could not be recommended and there has been insufficient knowledge of the loss of fish in the canals throughout the State.

In 1948 the Fish and Game Commission authorized the installation of an experimental fish screen and appropriated \$6,000 to cover cost of installation. After considerable investigation a site was chosen on the Big Wood River drainage. A mechanical, revolving drum-type screen was chosen as suitable. However, delay in the installation was occasioned by the death of a member of the engineering staff who had been trained in fish screen design and installation. The construction and installation was, therefore, postponed until new personnel could be trained. The concrete foundation and forms for supporting the screen have been installed and the screen is under construction and will be in operation in 1951. Should the operation of the screen prove successful, the legislature may be requested to make some changes in the present screening law.

FARM PONDS

The number of ponds constructed throughout the State during the biennium was less than the preceding biennium.

The department, upon receipt of an application for fish from the pond owner, investigates the pond and recommends the species of fish which should be planted. If desired by the land owner, the department will stock the pond with the stipulation that the anglers who fish the pond purchase licenses to fish and abide by seasons and bag limits as established by the Commission.

The farm pond program is worth while since most of the ponds are built in sections of the State where there is little or no suitable fishing water.

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FEDERAL AID TO FISHERIES

The President of the United States signed into law during 1950 a bill giving federal aid to fisheries. Under provisions of the bill, appropriations to the States will be available July 1, 1951. Inasmuch as the rules governing the types of projects permissible under the provisions of the law have not been set forth, little or no planning has been done in the way of setting up projects. However, as soon as the regulations are received by the State, projects will be set up for Idaho participation.

BROWN TROUT

For the past three years the department has attempted to establish brown trout in the Portneuf River below Lava, in the Snake River near Burley and in the lower Weiser River. In the Portneuf and Snake River, the species appears to have become established and, at the present time, is furnishing some very fine fishing. However, the Weiser plants have not proven successful and, as a result, will be discontinued. Other sections of the Snake River are under observation at the present time to determine if they are suitable for the stocking of brown trout.

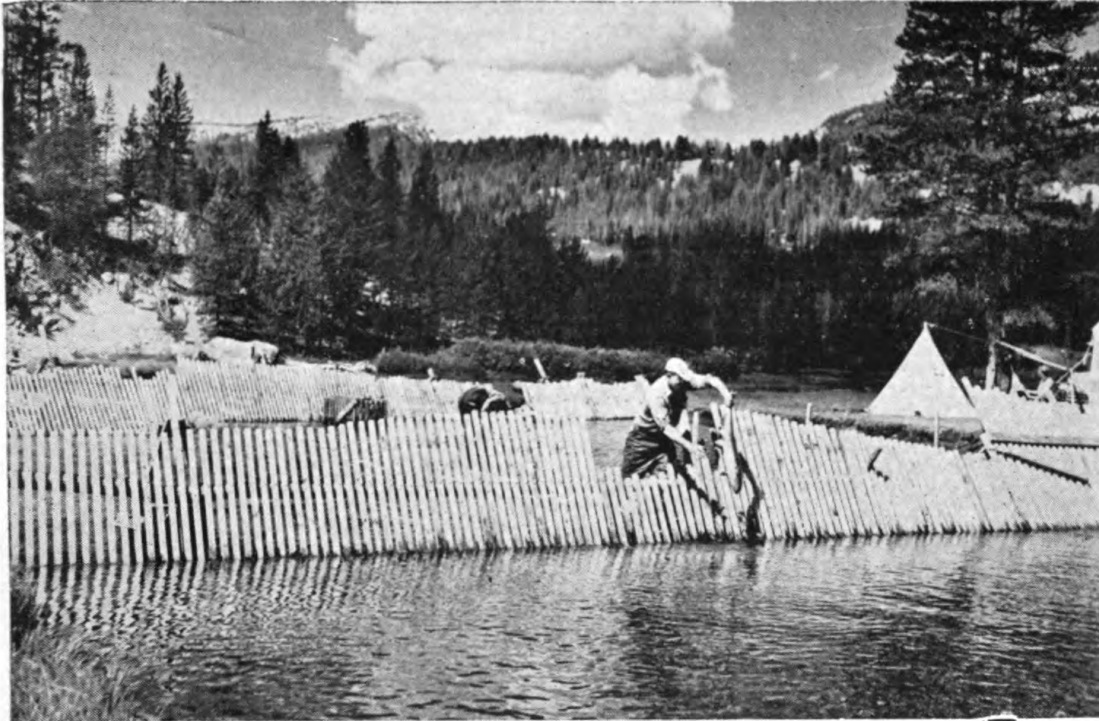
SPAWNING

The bulk of the trout eggs hatched in the state hatcheries is taken by the department from wild fish or from domestic stock. All cutthroat eggs handled by the department are taken from wild fish since this species does not lend itself to domestication. The principal spawning station for this species is Henry's Lake. Every effort possible is being made to retain and build up the native strain of cutthroat in the lake. Fish from past introductions of Yellowstone blackspots are showing up in the spawning traps. However, eggs from these fish are never held for re-stocking the lake.

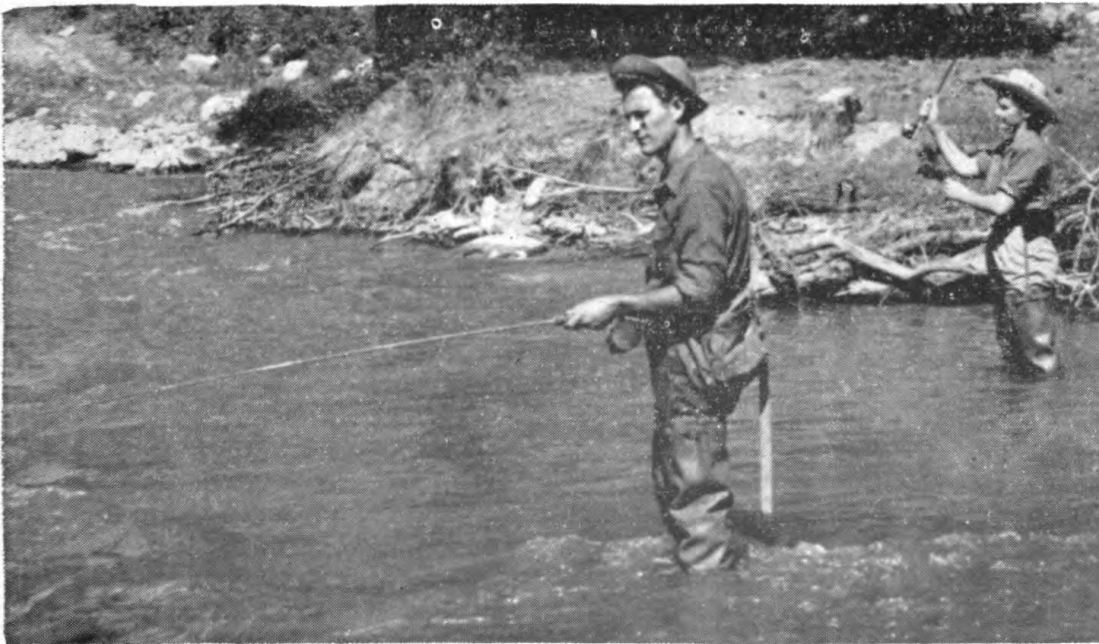
A spawning trap on St. Charles Creek, a tributary of Bear Lake, has been operating the past two years. The main objective in operating this trap has been to prevent upstream migration of spawning fish since all of the water in the creek is diverted for irrigation purposes before the fish return to the lake and, as a result, the trout migrate into ditches and are lost. The project is carried on in cooperation with the Rainbow Rod and Gun Club of Bear Lake County.

Only a few of the brook trout eggs hatched in the state hatcheries are taken by state spawning crews. The availability of eggs of this species and the relatively low cost per thousand eggs make it advisable to purchase eggs from other agencies rather than to procure eggs from wild fish by state spawning crews.

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A "green" salmon, not ready to spawn, is released above the game department's trap on Marsh Creek, to continue upstream to natural spawning grounds.



Husband - wife fishing for salmon, trout and other species is among the more popular of the state's sports. Idaho's great out-of-doors draws more sportsmen and women yearly.

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The department has on hand at American Falls and Hayspur sufficient fall-spawning brood stock to furnish the required number of high-quality eggs for all of the hatcheries of the state. Both of these stations have ponds which are suitable only for holding brood stock. Also, brood stock can be fed meat products that are not suitable for feeding smaller fish, thereby materially reducing the cost of maintaining brood stock. By following practices of culling and selective breeding, the state can always be assured of fall-rainbow eggs of high quality. Eggs from brood stock held at state hatcheries can be obtained at approximately one-half the cost of eggs of the same quality offered for sale by commercial concerns.

In view of the fact that kokanee or blueback salmon die after spawning, the department salvages a large number of pounds of these fish each year as they ascend the creeks and rivers from Pend Oreille Lake to spawn. The eggs are taken from the "ripe" fish and eyed-up in the state hatcheries. They are then transported to other sections of the state for hatching and distributing into other waters. On occasion, a greater number of eggs are taken than are required for our own operations. When this happens the eggs are traded to other agencies for eggs of different species.

For further information refer to Table 3.

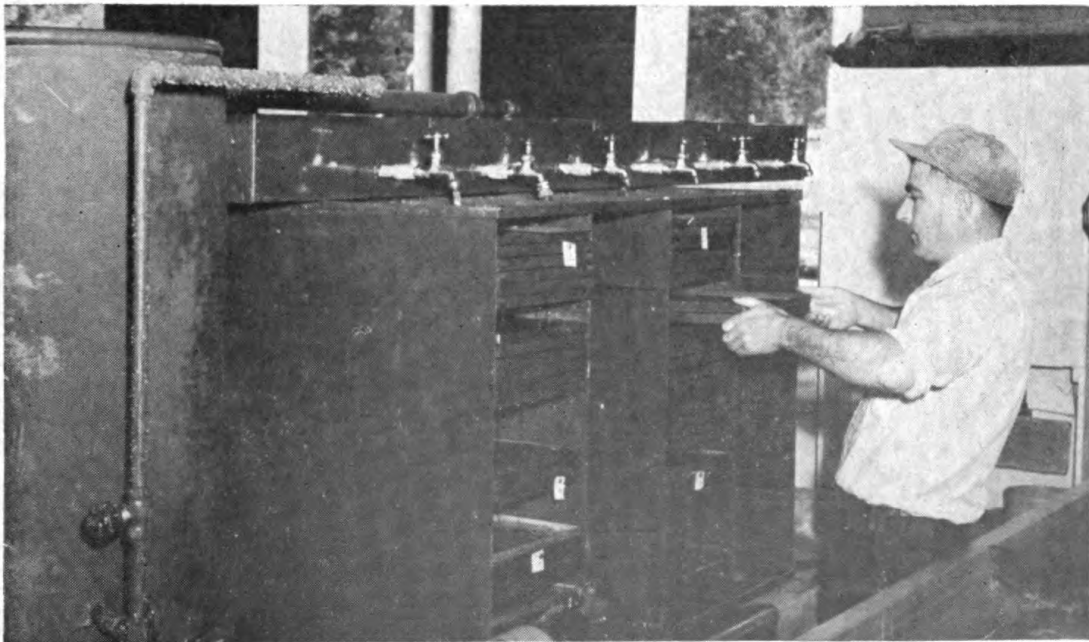
HATCHERY PRODUCTION

During 1950 fishermen began reaping the benefits of the department's expanded fish hatchery program. To reach the point where state hatcheries could be expanded to turn out a greater poundage of fish has required a great deal of planning. Following the planning stage considerable time was consumed in the actual construction of the improvements. In this expanded fish hatchery program, importance has been placed on improvements which would enable the department to increase the size rather than the number of fish. This does not call for a decrease in the number of fish to be planted, but places emphasis on growing fish to a larger size so that more of them will be returned to the fisherman. It is well known among members of the fisheries division that if we could grow to legal size under natural conditions the majority of the small fish we were planting there would be a sufficient number of fish to satisfy the majority of fishermen. However, such was not the case and, as a result, anglers were continually demanding that more fish be planted. Further, it was appreciated by members of the division that many streams were literally fished out soon after the season opened. To plant these waters with an increased number of

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Huge tanker carries 1200 pounds of fish per load. Two of these transport units haul fish from Hagerman hatchery to northern sections of the state. Pumps at right keep water circulating in fine spray to provide fish with oxygen during their long road trip. Fish are rested for a day at McCall hatchery enroute north.



Fish hatchery superintendent Walt Bethke, Mullan, is showing putting a tray of eggs into one of the game department's new dripolators. Eyeing out time for eggs is shortened by warming of water going through drip box. Two million eggs can be placed in drip at one loading.

IDAHO DEPARTMENT OF FISH AND GAME

small fish would not and could not improve fishing because of physical and biological conditions of the waters. Therefore, only one solution remained—it was necessary that the department grow fish to catchable size for planting in those waters adjacent to improved roads which were incapable of carrying the number of fish demanded of it by the fishing load.

Rainbow trout are much more adaptable to hatchery propagation and rearing than are other species of trout. That, coupled with the demand of the fishermen for the species and the adaptability of the species to a wide range of environment conditions, accounts for the fact that 79 per cent of the poundage of fish raised was rainbow trout.

From an examination of Table 6 it can be seen that hatchery production in poundage during 1950 more than doubled that of 1949, and was 148,934 pounds greater than in 1948. The number of catchable-size fish or fish 6 to 16 inches in length from 317,418 in 1949 to 881,946 in 1950.

With the completion of the Whiskey Creek Hatchery pond system it can be anticipated that the 1951 hatchery production will be even greater than that for 1950. Expansion of the American Falls, Eagle and Mackay Fish Hatcheries to full carrying capacity has been authorized by the Commission. It is expected that this work, providing funds and materials are available, will be completed during 1951 and these stations will be in peak production by 1952.

DISTRIBUTION.

The program of fish hatchery expansion to facilitate the rearing of a greater number of legal-size fish has made it necessary to improve our distribution equipment. To do this, new, larger equipment had to be designed and purchased. During the biennium the following units have been added to the fleet: ten 250-gallon tanks, three 400-gallon tanks, and one 1500-gallon transport tank. During the coming biennium it is planned to add another 1500-gallon transport unit and one or more 400-gallon tanks to the present fleet.

During 1950 it was demonstrated that fish can be produced at Hagerman and moved to northern Idaho for restocking purposes. The construction of the Lapwai and Powell holding ponds has aided materially in the redistribution of fish produced at other hatcheries.

FISH FOOD

An increase in the demand for fish food products and a decrease in the availability of red meat items such as liver, spleen, horse meat, and others, makes it necessary that we start exploring the possibilities of using other products, the principal one

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of which is trash fish. In 1950 the department purchased a machine which is adaptable for the processing of carp and suckers. To date only a limited amount of fish have been processed through the machine. However, it appears that it will work satisfactorily. The purchase of two additional machines is contemplated.

The consumption of meals, the principal ingredient of which is salmon meal, has increased considerably. The majority of hatcheries have had good luck feeding meal provided its protein content is held at approximately 35 percent.

Horse meat continues to be the main item of meat fed to fish. However, the supply is diminishing and competition for the available supply is increasing.

Fish food used at all hatcheries is listed under table 7.

PARASITES AND DISEASES

Hatchery diseases and parasites at state fish hatcheries were below normal for the biennium. An infestation of *Ichthyophthirius* among the rainbow trout held at Hagerman in 1948 caused considerable loss among the holdover fish before it was brought under control with formaldehyde. The parasite appeared again in the fall of 1949 but was brought under control by flushing with 1 to 4,000 formaldehyde for one hour followed by draining the ponds down to a depth of two to three inches and then flushing them with a strong salt solution. The formaldehyde apparently dislodge the parasites from the bodies of the fish and the salt penetrated into the soil and gravel and killed those parasites which had become dislodged and were living in the gravel and soil of the pond bottom.

Considerable loss among the cutthroat trout at Hagerman during 1948 & 1949 was experienced due to a bacterial blood parasite suspected as being *Cytophaga columnaris*. Treatment with sulfamethazine and sulfamerazine gave little or no relief. Another bacterial blood disease among the rainbow in one pond was brought under control with very little loss by treatment with sulfamethazine. Ulcer disease occurred in one pond of kamloop trout and was controlled quickly with sulfamethazine.

All stations receiving brook trout eggs in 1948, with the exception of Sandpoint, experienced some difficulty with a protozoan gill parasite soon after the fish started swimming. The parasite was brought under control by use of 1 to 4,000 formalin treatment for a period of one hour. At some stations the concentration had to be increased and the treatment continued until the fish showed distress.

A severe outbreak of *Octomitus salmonis*, a protozoan intestinal parasite occurred at the Boyd Creek Hatchery during 1950 causing a loss of nearly 70 percent of the fish before it was

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brought under control with carbarson. Several smaller outbreaks were experienced at other hatcheries, but were soon brought under control with resulting losses being kept to a minimum.

HAGERMAN FEDERAL HATCHERY

The Commission authorized the department to enter into an agreement with the United States Fish and Wildlife Service whereby the department would subsidize the operations at the Hagerman Federal hatchery. For the fiscal year July 1, 1949 to June 30, 1950, the sum of \$12,000 was allocated under the agreement. The following fiscal year the allocation was reduced to \$10,000. The allocations have been expended principally for fish food and salaries for men to assist in the hatchery operation.

Under the terms of the agreement, the Fish and Wildlife Service agreed to turn over to the State 75 per cent of the Hagerman Hatchery production and to be prorated at the rate of one dollar per pound. A breakdown on fish received under terms of the agreement is given under Table 9.



Fisheries personnel prepare gunny sack of fish to be towed behind motor boat in trash fish eradication work on Idaho lake. Spread through water, toxin causes suffocation of fish.

FISH AND GAME DEPARTMENT

FISH SALVAGE

Salvage of fish from irrigation canals continued throughout the biennium. Of particular value to the fishermen is the salvage of fish from the Richfield Canal in Blaine and Lincoln Counties. Each year when the water is turned off hundreds of trout ranging from one to ten pounds are left stranded in the pools of the canal. Because of the weeds and boulders present in the canal, seining is impractical. Therefore, in order to salvage the fish a system had to be developed whereby a current of electricity could be induced through the water to stun the fish temporarily. The current is supplied by a gasoline-driven 500 watt A. C. generator. Recoveries for the biennium were 2,524 trout. Further information on fish salvage is to be found in Table 10.

COMMERCIAL FISHING

Commercial fishing in Idaho is divided into two categories: (1) fishermen who fish for whitefish and blueback salmon in Priest and Pend Oreille Lakes, and (2) fishermen who fish for trash fish, the most common species of which are carp and two species of suckers. Whitefish fisherman must purchase annually a commercial license for the sum of \$10.00. Inasmuch as license holders are not required to make a report of fish taken, no record is available on the total catch and the value of the resource.

Trash-fish fishermen operate under a permit system. The permits are issued annually from the Boise office. The department receives a royalty in the amount of 45 cents per hundred pounds on all trash fish marketed by these fishermen, who are required to post a thousand dollar bond to insure the payment of all royalties and the faithful execution of the terms of the permit.

During the biennium the department employed some fishermen to trap and remove tench and squawfish from several of the lakes of northern Idaho. A complete breakdown of trash fish of all species is given under Table 11..

TABLE I
SUMMARY OF FISH ERADICATION PROJECTS, 1949 - 50
LAKE IMPROVEMENT PROGRAM

YR.	NAME	COUNTY	AREA, ACRES	STORAGE, AF	MAX DEPTH	TOXICANT CONC. PPM	TOTAL COST	UNDESIRABLE SPECIES KILLED
1949	Soloman Lake	Boundary	9.3	161	35'	0.5	\$ 220.00	Squawfish, chubs, shiners
	Antelope Lake	Bonner	15.	320	35'	0.5	266.00	Stunted largemouth bass
	Twenty-four Mile Res.	Caribou	23.6	131.4	19'	1.1	210.00	Chubs
	Glendale Res.	Franklin	12.3	48.6	9'	3	99.60	"
	Lamont Res.	Franklin	24.4	190.	19'	2	330.00	"
	Jewell Lake	Bonner	39.7	593	24'	1.8	1,048.00	Squawfish, stunted bass
1950	Stone Res.	Oneida	59.8	160	7'	2	564.00	Carp, suckers, chubs, shiners
	Brush Lake	Boundary	29.2	367.4	23'	1	459.00	Suckers, shiners
	Smith Lake	Boundary	29.3	506	34'	1	565.00	Stunted bass
	Elk Creek Res.	Clearwater	46.1	210.8	12'		913.00	Bullheads, shiners
	Oakley Res.	Cassia (down to channel)					109.00	Chubs, suckers
	Portneuf Res.	Caribou	17.8	57	7'	2	784.00	Chubs
	Soloman Lake	Boundary	9.3	161	35'	1	344.00	Squawfish
	Julia Davis Lagoon	Ada	8.5	21.3	3'	2	107.50	Carp, suckers
	Parkinson Pond	Ada	2.6	6.7	6.5'	2	52.00	Carp
	Musser Slough	Canyon	3.3	7.1	4.5'	2	33.10	Carp, squawfish
	Hardin Slough	Gem	5.	10	3.5'	2	101.40	Carp, suckers

*SOME ERADICATION WORK WAS CARRIED ON AFTER THE RESERVOIR WAS DRAINED TO INSURE A COMPLETE KILL OF TRASH FISH.

*ARROWTOCK

FISH AND GAME DEPARTMENT

TABLE 3
EGGS TAKEN BY STATE - 1949 - 50
 (NOVEMBER 1, 1948 — OCTOBER 31, 1950)

STATION	YR.	SPECIES	NO. GREEN EGGS	% EYE-UP	TOTAL EYED EGGS
American Falls	'49	Rainbow	1,746,532	79	1,377,202
	'50	Rainbow	3,512,055	92	3,228,966
Clark Fork	'49	Kamloops	118,272	78	92,272
	'50	Kamloops	290,360	72	209,059
Coffee Pot	'49	Rainbow	6,083,732	82	4,988,660
	'50	Rainbow	5,410,152	92	5,022,249
Granite Creek	'49	Kokanee	1,517,500	98	1,487,150
	'50	Kokanee	2,020,288	98	1,979,882
Hayspur	'49	Rainbow	1,037,807	80	830,046
	'50	Rainbow	1,001,707	85	851,451
Henrys Lake	'49	Cutthroat	11,601,202	88	10,209,057
	'50	Cutthroat	11,291,226	94	10,590,302
	'49	*E. Brook	163,278	.	.
	'50	E. Brook	271,566	75	203,650
L. Blackfoot River	'50	Rainbow	55,800	65	36,000
Mackay	'49	Rainbow	1,388,416	96	1,282,376
	'50	Rainbow	793,548	95	753,920
Marsh Creek	'49	Chinook	122,000	78	95,760
	'50	Chinook	117,540	87	102,780
Mullan	'49	Rainbow	622,266	74	460,936
	'50	Rainbow	719,684	88	633,322
St. Charles Creek	'49	Rainbow	295,476	80	236,380
	'50	Rainbow	193,380	60	116,028
	'49	Cutthroat	517,724	86	446,912
	'50	Cutthroat	276,192	57	157,429
Williams Lake	'49	Rainbow	1,800,608	95	1,620,578
	'50	Rainbow	2,903,766	96	2,782,969
Wolf Lodge	'49	Cutthroat	1,681,152	90	1,533,066
	'50	Cutthroat	1,183,223	66	780,927
Total	'49		28,482,687 (AV.)	86.7	24,660,395
	'50		30,040,487 (AV.)	91.4	27,428,934
Total, biennius			58,523,174		52,089,329

*Shown in 1948 biennial report for calendar year, not included in totals in this tabulation.

TWENTY-THIRD BIENNIAL REPORT

IDAHO DEPARTMENT OF FISH AND GAME

TABLE 6
HATCHERY PRODUCTION 1949 - 1950

Station	Yr.	Rainbow		Cutthroat		Eastern Brook		German Brown	
		No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.
American Falls ¹	'49	1,097,740	29,311.5	441,724	958	33,196	193	90,272	1,400
	'50	745,036	22,441	538,713	5,656	50,983	342	64,844	3,503
Ashton	'49	1,173,845	7,402	884,473	806	162,550	1,598		
	'50	881,853	10,017	990,700	912	53,760	384		
Boyd Creek	'49			504,408	228.5				
	'50			187,459	77.5				
Clark Fork ²	'49	329,738	3,837.25	830,692	1,139	164,145	1,183		
	'50	208,023	2,622	599,392	1,249	104,353	2,347		
Coeur d'Alene ³	'49	162,000	90	655,435	520				
	'50	224,050	125.5	759,492	300				
Eagle ⁴	'49	849,668	6,547	107,244	204.5	52,074	1,328	51,060	330
	'50	669,747	14,296.5	146,800	75.5	33,678	271	64,544	1,727
Grangeville	'49	93,830	36	410,015	194				
	'50	87,746	40	431,219	161.5				
Hagerman	'49	147,568	5,840	17,710	760	17,408	1,400	15,075	1,300
	'50	902,291	101,915	214,100	6,300	38,800	2,600	18,160	1,640
Hayspur ⁵	'49	716,213	8,259	482,934	166.5	92,416	856		
	'50	443,441	12,557	472,302	2,231.75	93,700	1,385		
Henry's Lake	'49			722,000	236.75				
	'50			772,370	275				
Lapwai	'49								
	'50	2,310	55						
Mackay	'49	835,823	6,904	409,715	287.75	102,516	509.5		
	'50	1,058,484	6,054	571,170	288.5	154,545	350		
McCall ⁶	'49	436,430	292	384,600	263	97,945	1,040		
	'50	334,475	172.5	414,425	232.25	170,000	1,785		
Mullan	'49	443,782	1,894	558,964	438				
	'50	406,911	2,220	463,110	373				
Sandpoint ⁷	'49	198,000	66	937,400	300	158,100	1,785		
	'50	445,540	587	539,620	346.5	158,980	1,610		
Twin Falls ⁸	'49	631,253	3,740			58,320	1,445	42,192	242
	'50	462,907	11,149			103,700	780	76,250	305
Whiskey Creek	'49	309,386	3,265.33	323,476	253.33	109,343	1,522		
	'50	475,228	7,128.75	621,948	434.1	103,096	1,542		
TOTAL	'49	7,425,276	77,484.08	7,670,790	6,755.33	1,048,013	12,859.5	198,599	3,272
	'50	7,348,042	191,380.25	7,722,820	18,912.6	1,065,595	13,396	223,798	7,175
Total, Biennium		14,773,318	268,864.33	15,393,610	25,667.93	2,113,608	26,255.5	422,397	10,447

1. 1949 RB includes 13,283 fish (22,137 lbs.) cull brood stock planted. 1950 RB includes 97,030 fish (1,570 lbs) to Whiskey Creek. 1950 CT includes 132,384 fish (197 lbs.) to Whiskey Creek.
2. 1950 Kamloops include 128,350 fish (66½ lbs.) to Sandpoint. 1950 EBT includes 11,600 fish (200 lbs.) to Fernwood ponds.
3. 1950 CT includes 40,500 fish (46½ lbs.) to Clark Fork.
4. 1949 EBT includes 26,038 fish (1,097 lbs.) to McCall. 1950 Ger. bwn. includes 19,778 fish (341 lbs.) to Hagerman. 1950 EBT includes 14,000 fish (140 lbs.) to McCall.

FISH AND GAME DEPARTMENT

IDAHO DEPARTMENT OF FISH AND GAME

TABLE 6
HATCHERY PRODUCTION 1949 - 1950

Mackinaw		Kamloops		Kokanees		Chinook		S. M. Bass		Total all Species	
No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.
										1,662,932	31,862.5
										1,399,576	31,942
										2,220,868	9,806
										1,926,313	11,313
										504,408	228.5
										187,459	77.5
		7,662	298							1,332,237	6,457.25
		153,489	7,573.5	85,000	34					1,150,257	13,825.5
										817,435	610
										983,542	425.5
										1,060,046	8,409.5
										914,769	16,370
										503,845	230
										518,965	201.5
		15,367	1,135					5,480	98	218,608	10,533
		4,500	1,200	3,465	13.75			2,070	23	1,183,386	113,691.75
				146,948	222					1,438,511	9,503.5
										1,009,443	16,173.75
										722,000	236.75
										772,370	275
										2,310	55
										1,348,054	7,701.25
										1,784,199	6,692.5
				42,000	12					960,975	1,607
				190,200	63					1,109,100	2,252.75
				29,150	11	46,560	48			1,078,456	2,391
						56,700	45			926,721	2,638
		24,500	7	492,000	124					1,810,000	2,282
				235,988	70					1,380,128	2,613.5
				49,000	245					731,765	5,427
										691,857	12,479
1,488	248									743,693	5,288.66
										1,200,272	9,104.85
1,488	248	47,529	1,440	710,098	369	46,560	48	5,480	98	17,153,833	102,573.91
		157,989	8,773.5	563,653	425.75	56,700	45	2,070	23	17,140,667	240,131.1
1,488	248	205,518	10,213.5	1,273,751	794.75	103,260	93	7,550	121	34,294,500	342,705.01

5. 1949 RB includes 201,600 fish (210 lbs.) to Hagerman.

6. 1949 CT includes 65,000 fish (65 lbs.) to Hagerman.

7. 1949 Kamloops include 24,500 fish (7 lbs.) to Clark Fork.

8. 1949 Ger. Bwn. includes 20,000 fish (90 lbs.) to Hagerman

(2,042 lbs.) to Hagerman.

1950 EBT includes 116,000 fish

1950 RB includes 195,840 fish

1950 RB includes 66,657 fish

TABLE 4
EGGS RECEIVED BY PURCHASE OR EXCHANGE
FROM OTHER AGENCIES

NOVEMBER 1, 1948 — OCTOBER 31, 1950

SPECIES	YR.	NUMBER
Rainbow	'49	1,074,481
	'50	85,588
Yellowstone blackspots	'49	603,766
	'50	504,440
Eastern brook	'49	2,319,340
	'50	2,009,386
Brown trout	'49	246,468
	'50	267,824
Kamloops	'49	
	'50	106,656
Total	'49	4,244,055
	'50	2,973,894
Total for biennium		7,217,949

TABLE 5
STATE EGGS EXCHANGED WITH
OTHER AGENCIES

NOVEMBER 1, 1948 — OCTOBER 31, 1950

SPECIES	YR.	NUMBER
Cutthroat	'49	409,452
	'50	106,848
Kokanee	'49	300,000
	'50	1,256,880
Rainbow	'49	
	'50	371,864
Total	'49	709,452
	'50	1,735,592
Total for biennium		2,445,044

FISH AND GAME DEPARTMENT

TABLE 7
FISH FOOD 1949 - 50*

	Year	Pounds	Cost
Liver	'49	136,821	\$ 17,262.09
	'50	160,636	19,232.26
Spleen	'49	59,747	3,447.16
	'50	72,118	3,640.67
Horsemeat	'49	182,753	12,534.79
	'50	540,467	35,028.41
Fish & fish viscera	'49	59,977	3,277.90
	'50	111,739	4,636.67
Meal	'49	29,639	2,600.64
	'50	86,893	7,883.37
Miscellaneous (Bone, Lungs, Lips, Cheeks, Brains, Blood, Offal, etc.)	'49	99,272	6,467.60
	'50	196,100	8,001.57
Total	'49	568,209	\$ 45,590.18
	'50	1,167,953	78,422.95
Total for biennium		1,736,162	\$124,013.13

*Fiscal year — November 1-October 31.

TABLE II
ROUGH FISH REMOVAL — SEINING PERMITS*

NOVEMBER 1, 1948 — OCTOBER 31, 1950

SPECIES	1949	1950	TOTAL
Carp	465,454	302,342	499,351
Suckers	262,573	236,788	499,351
Squawfish	2,649	3,596	6,245
Tench	110,237	195,572	305,809
Unidentified	95,350	192,270	287,620
TOTALS	936,263	930,558	1,866,821

*Includes rough fish taken in department-sponsored programs.

TABLE 8
FISH PLANTINGS BY SPECIES, SIZE — ALL AGENCIES
1949 - 50

NUMBERS OF EACH SPECIES PLANTED, BY SIZE

SPECIES	YRS.	1 - 3"	3 - 6"	6 - 16"	TOTAL	LBS.
Rainbow	'49	5,550,702	1,681,553	254,944	7,487,199	87,328
	'50	5,006,197	2,398,836	722,919	8,127,952	195,745.41
Cutthroat	'49	7,309,941	58,852	14,872	7,383,665	7,337.5
	'50	7,200,031	172,099	89,827	7,461,957	17,190.66
E. Brook	'49	505,877	518,097	19,680	1,043,654	12,203.5
	'50	518,174	366,251	32,942	917,367	12,798
G. Brown	'49	107,440	51,660	19,499	178,599	3,182
	'50	160,280	14,291	29,449	204,020	6,834
Kamloop	'49		7,662	6,875	14,537	918
	'50	106,412		6,809	113,221	8,363
Mackinaw	'49			1,548	1,548	248
	'50					
Kokanee	'49	720,098			720,098	369.5
	'50	478,653			478,653	391.75
Chinook	'49	46,560			46,560	48
	'50	20,740			20,740	34
S. M. Bass	'49		5,480		5,480	98
	'50		2,070		2,070	23
Totals	'49	14,240,618	2,323,304	317,418	16,881,340	111,732.5
	'50	13,490,487	2,953,547	881,946	17,325,980	241,388.82
Total Biennium		27,731,105	5,276,851	1,199,364	34,207,320	353,121.32

FISH AND GAME DEPARTMENT

TABLE 9
FISH PLANTINGS IN IDAHO BY OTHER AGENCIES
1949 - 1950

STATION	YR.	RAINBOW		CUTTHROAT		EAST. BROOK		TOTALS	
		No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.
U. S. Hagerman †	'49	319,846	10,213			17,550	450	337,396	10,663
	'50	1,191,169	30,574					1,191,169	30,574
U. S. Warm River	'49			414,570	631			414,570	631
	'50								
Western Wyoming ‡	'49			45,000	70			45,000	70
	'50			11,330	207			11,330	207
TOTAL		319,846	10,213	459,570	701	17,550	450	796,966	11,364
		1,191,169	30,574	11,330	207			1,202,499	30,781
Total for Biennium		1,511,015	40,787	470,900	908	17,550	450	1,999,465	42,145
† U.S. Hagerman also transferred to Hagerman in 1949: 17,324 (526 lbs.) EBT. and 125,139 (3,353 lbs.) RB.									
‡ Includes ('49) 43,200 CT. planted in 1948 but not tabulated that year.									

TABLE 10
FISH SALVAGED AND PLANTED 1949-50

STATION	YR.	Trout	L.M.Bass	Bullheads	Crappie	Bluegills	Perch	TOTAL
American Falls	'49						8,968	8,968
	'50							
Ashton	'49	2,500						2,500
	'50	800						800
Eagle	'49	700	2,040	32,450	213,300		67,500	315,990
	'50	600	5,416	7,100	13,258	150	7,500	35,524*
Grangeville	'49	1,531						1,531
	'50	993						993
Hagerman	'49		28	432		485	40,000	40,945
	'50		18	12		530		560
Hayspur	'49						10,000	10,000
	'50							
Twin Falls	'49						6,000	6,000
	'50						5,250	5,250
Sandpoint	'49		1,241	5,000	5	5,787	90	12,123
	'50		243			50		293
Total	'49	4,731	3,309	37,882	213,305	6,272	132,558	398,057
	'50	2,393	7,977	7,112	13,258	730	12,750	45,720*
Biennium Total		7,124	11,286	44,994	226,563	7,002	145,308	443,777

*Inc. 1,500 perch, crappie, bluegills and bass.

CO-OPERATIVE RESEARCH UNIT

The Idaho Co-operative Research Unit was established in 1947 with headquarters at the University of Idaho. The unit is sponsored by the University of Idaho, U. S. Fish and Wildlife Service, the Wildlife Management Institute and the Idaho State Fish and Game Commission.

Dr. Paul D. Dalke is unit leader. Dr. Dalke was appointed when the unit started, and has outlined the research projects, supervised the field work and arranged for progress reports.

At the present time six projects are in operation. Twelve re-search study projects have been established since the unit started operation. Several of the students who worked on research projects under the unit have been hired by the Idaho game department, and continuation of the projects has been approved under Federal Aid to Wildlife Restoration.

Studies have been made on ruffed grouse, mountain goat and mountain sheep, migratory waterfowl and muskrats, pheasants, blue grouse, mourning doves and other birds.

LAW ENFORCEMENT

Idaho conservation officers made 2,326 arrests for violation of fish and game laws during the two year period July 1, 1948 to June 30, 1950.

During the first period 1,300 arrests were reported with 1,026 filed during the final period.

Department receipts from fines for the 1948-1949 period were \$37,166.50. Revenues received from fines from July 1, 1949 to June 30, 1950 amounted to \$27,519.68.

FISH AND GAME DEPARTMENT

FINANCIAL REPORT JULY 1, 1948 TO JUNE 30, 1950

Revenue and disbursements of the state fish and game department again reached a new high during the 1948-50 biennium. Much of the increase in revenue may be attributed to the increased number of licenses of all categories sold during the period as more and more residents took to the fields and streams and tourist trade, with its resulting increase in out-of-state sportsmen, continued the postwar climb.

Receipts for the 12-month period from July 1, 1948 to June 30, 1949 were \$1,203,464.02; for the year from July 1, 1949 through June 30, 1950 they amounted to \$1,346,252.56, or a total for the two year period of \$2,549,716.58. Disbursements during the first year of the biennium totalled \$1,327,343.18; during the second year \$1,555,513.12, or a total of \$2,882,856.30.

Operating capital on hand as of July 1, 1948 was \$815,284.26. On June 30, 1950, this capital had been reduced to \$482,144.54, a decrease of \$333,139.72. The major portion of this operating capital had been built up during the World War II years and is now being used for fish hatchery and game farm improvement and expansion in an effort to meet some of the ever-increasing demand by sportsmen for more fish and game. It is expected that within the next two years, operating capital will have been further reduced and should be stabilized at an amount sufficient to carry on department operations during periods of reduced income. During spring months very few licenses are sold and income is small. Therefore, it is necessary that a reserve amount of capital be retained to carry on during this period.

During the two years covered by this report, 403,995 resident hunting and fishing licenses were sold, an increase over the two previous years of 48,343. Non-resident hunters and fishermen bought 82,577 licenses, an increase of 4063. Thirty-seven alien fishing and hunting licenses were sold. The combined report for both years on tag sales shows 171,894 deer tags sold; 55,928 elk tags; 996 antelope tags; and 60 moose tags, an overall increase on tags of 16,163. No goat or sheep tags were sold during this period, as the season was closed on these two animals. Non-residents also purchased 747 trophy, or extra-species licenses during the period, an increase of 329.

The department received a revenue of \$63,668.43 derived as a result of 2055 fines and 103 confiscations during the period.

\$300,267.25 was received from the Fish and Wildlife Service as the state's allocation of federal tax monies received by that service and allotted to the State of Idaho for wildlife restoration and rehabilitation.

IDAHO DEPARTMENT OF FISH AND GAME

14,631 beaver were trapped by caretaker and landowner trappers. The state's share (25 per cent of gross) from this operation was \$61,115.50. \$181,717.22 is to be turned over to the trappers.

Operating expenses, purchases of equipment, land and building accounted for an outlay of \$2,112,370.74. Funds expended for predator control amounted to \$84,334.05, of which \$21,413.88 was paid out in bounties on magpie heads, and \$5,200 in bounties on 104 cougar at \$50 each. Wildlife restoration work under the Pittman-Robertson program accounted for another \$504,599.52. Approximately \$300.00 of this amount was refunded by the Fish and Wildlife Service. Beaver trappers were paid \$181,551.99.

Department expenditures are controlled by the State Legislature. The budget approved by the legislature every two years permits the department to spend a specified amount during the biennium. No more than the amount approved may be expended. Twenty-five per cent of the budget fund must remain in the fish and game fund for use during the last quarter of the biennium. Expected expenditures are set up in a budget broken down into four quarters of six months each. An allotment request is forwarded to the Budget Director each quarter requesting funds for that period.

PREDATOR CONTROL

Cooperative predator control operations during the biennium were generally successful with coyotes being reduced to the lowest point in numbers since the inception of control work. Antelope and sagehens have shown a marked increase on ranges where coyotes have been largely eliminated. A total of \$57,720.17 was expended for controlling coyotes and bobcats.

Bounty was paid on 104 cougars at the rate of \$50.00 per animal, for a total of \$5,200.00. Bounty payments on cougar were discontinued in that part of the state lying south of the Salmon River after July 1, 1949.

Bounty was paid on magpies in the amount of \$21,413.88. Bounty payments were discontinued as of May 1, 1950.

It is planned to control magpies by use of trained personnel in taking adult birds by means of traps, control stations and other devices on the principal game bird nesting areas.

Coyotes and bobcats must be kept under rigid control on all game ranges as a means of helping to maintain a high rate of increase of beneficial wildlife.

FISH AND GAME DEPARTMENT

IDAHO DEPARTMENT OF FISH AND GAME DETAIL OF DISBURSEMENTS

July 1, 1948 to June 30, 1950

FISH & GAME FUND No. 6

Salaries & Wages.....	\$ 372,742.70	\$ 377,718.03	\$ 750,460.73
Travel	29,861.48	32,166.17	62,027.65
Operating Expense	310,006.67	299,264.99	609,271.66
Capital Outlay	263,561.81	342,280.55	605,842.36
Refunds	106.95	253.65	360.60
Special Audit Fees	784.80	927.60	1,712.40
Emergency feeding fund ..	72,051.74	10,983.40	83,035.14
Less Cancelled Warrants..	— 339.80		—339.80
Total Fund No. 6.....	\$1,048,776.35	\$1,063,594.39	\$2,112,370.74

PREDATOR ANIMAL FUND NO. 60

Salaries	\$ 22,034.78	\$ 20,438.14	\$ 42,472.92
Travel	2,680.43	1,877.60	4,558.03
Operating Expense	6,600.15	4,089.07	10,689.22
Bounties (Magpies)	17,341.81	4,072.07	21,413.88
Bounties (Cougars)	2,950.00	2,250.00	5,200.00
Total Fund No. 60	\$ 51,607.17	\$ 32,726.88	\$ 84,334.05

WILDLIFE RESTORATION FUND NO. 61

Salaries	\$ 29,094.35	\$ 85,510.56	\$ 114,604.91
Travel	5,677.05	15,624.52	21,301.57
Operating Expenses	19,981.57	61,140.21	81,121.78
Capital Outlay	83,351.78	204,219.48	387,571.26
Total Fund No. 61	\$ 138,104.75	366,494.77	504,599.52

BEAVER SUSPENSE FUND No. 149

Claims paid to trappers...	\$ 88,854.91	\$ 92,697.08	\$ 181,551.99
TOTAL OF ALL FUNDS	\$1,327,343.18	\$1,555,513.12	\$2,882,856.30

IDAHO DEPARTMENT OF FISH AND GAME DETAIL OF CASH RECEIPTS

JULY 1, 1948 TO JUNE 30, 1950, INCLUSIVE

FISH & GAME FUND NO. 6	7-1-48 to 6-30-49		7-1-49 to 6-30-50		TWO YEAR TOTAL	
	No.	Amount	No.	Amount	No.	Amount
Resident Hunting & Fishing.....	126,323	\$ 360,020.55	118,006	\$ 336,317.10	244,329	\$ 696,337.65
Resident Hunting	38,935	73,976.50	42,574	80,890.60	81,509	154,867.10
Resident Fishing	38,383	72,927.70	39,774	75,570.60	78,157	148,498.30
Non-Resident Hunting & Fishing....	1,611	76,522.50	1,347	63,982.50	2,958	140,505.00
Non-Resident Bird	1,262	23,978.00	986	18,734.00	2,248	42,712.00
Non-Resident Fishing	9,264	88,008.00	9,278	88,141.00	18,542	176,149.00
Non-Resident 5-Day Fishing.....	29,208	83,242.80	29,621	84,419.85	58,829	167,662.65
Alien Fishing	26	617.50	7	166.25	33	783.75
Alien Bird	2	47.50	2	47.50	4	95.00
Non-Resident Gun	104	197.60	55	104.50	159	302.10
Resident Trapper	1,412	6,707.00	1,531	7,272.25	2,943	13,979.25
Non-Resident Trapper	6	427.50	4	285.00	10	712.50
Shipping Permits	3,760	1,504.00	1,991	796.40	5,751	2,300.40
Deer Tags	88,268	83,854.60	83,626	79,444.70	171,894	163,299.30
Elk Tags	24,751	47,026.90	31,177	59,236.30	55,928	106,263.30
Antelope Tags	500	475.00	496	471.20	996	946.20
Moose Tags	30	285.00	30	285.00	60	570.00
Trophy License	390	9,262.50	357	8,478.75	747	17,741.25
Resident Fur Buyers	71	355.00	63	315.00	134	670.00
Non-Resident Fur Buyers	2	40.00	3	60.00	5	200.00
Taxidermists Licenses	11	110.00	15	150.00	26	260.00

Private Pond Permits	24	240.00	38	380.00	62	620.00
Whitefish & Bluejack Salmon	44	440.00	43	430.00	87	870.00
Archery Deer Permits	124	372.00			124	372.00
Deer Permits	3,800	11,400.00			3,800	11,400.00
Elk Permits	2,800	14,000.00			2,800	14,000.00
Antelope Permits	500	1,500.00			500	1,500.00
Moose Permits	30	600.00			30	600.00
Commission Saved		738.45		639.65		1,378.10
Sale of Beaver Skins (State Share)	6,249	29,936.71	8,382	31,178.79	14,631	61,115.50
Miscellaneous		32,743.14		32,155.91		64,899.05
Fines	1,210	37,166.50	845	27,519.68	2,055	64,686.18
Confiscations	88	900.75	15	117.00	103	1,017.75
Royalty Non-Game Fish		4,063.87		3,899.55		7,963.42
Refunds		2,499.65		55.81		2,555.46
Total Fish & Game Fund No. 6		\$1,066,187.22		\$1,001,544.89		\$2,067,732.11
WILDLIFE RESTORATION FUND NO. 61						
Federal Funds		48,185.52		251,874.43		300,059.95
Misc. Sales		40.00		167.30		207.30
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BEAVER SUSPENSE FUND NO. 149						
Beaver Skins (Trappers Share)		89,051.28		92,665.94		181,717.22
TOTALS		\$1,203,464.02		\$1,346,252.56		\$2,549,716.58

IDAHO DEPARTMENT OF FISH AND GAME OPERATION IN FUNDS

JULY 1, 1948 to JUNE 30, 1950, INCLUSIVE
July 1, 1948 - June 30, 1949

Balance	Receipts	Disbursements	Balance
7-1-48	Cash	Cash	6-30-49
	Transfer	Transfer	
Fish & Game Fund No. 6.....	\$1,066,187.22	1,048,776.35	\$628,097.67
Predator General Fund No. 60.....	\$ 2,000.00	51,607.17	325.61
Wildlife Restoration Fund No. 61.....	48,225.52	138,104.75	61,694.90
Beaver Suspense Fund No. 149.....	89,051.28	88,854.91	286.92
Revolving Fund	1,000.00		1,000.00
	\$815,284.26	\$1,203,464.02	\$691,405.10

Balance	Receipts	Disbursements	Balance
7-1-49	Cash	Cash	6-30-50
	Transfer	Transfer	
Fish & Game Fund No. 6.....	\$1,001,544.89	\$1,063,594.39	\$421,048.17
Predator Animal Fund No. 60.....	\$ 55,000.00	32,726.88	22,598.73
Wildlife Restoration Fund No. 61.....	252,041.73	366,494.77	37,241.86
Beaver Suspense Fund No. 149.....	92,665.94	92,697.08	255.78
Revolving Fund	1,000.00		1,000.00
	\$691,405.10	\$1,346,252.56	\$482,144.54

Balance	Receipts	Disbursements	Balance
7-1-48	Cash	Cash	6-30-50
	Transfer	Transfer	
Fish & Game Fund No. 6.....	\$2,067,732.11	\$2,112,370.74	\$421,048.17
Predator Animal Fund No. 60.....	\$ 57,000.00	84,334.05	22,598.73
Wildlife Restoration Fund No. 61.....	300,267.25	504,599.52	37,241.86
Beaver Suspense Fund No. 149.....	181,717.22	181,551.99	255.78
Revolving Fund	1,000.00		1,000.00
	\$815,284.26	\$2,549,716.58	\$482,144.54

RECONCILIATION

State Auditor's Balance	\$ 482,144.54
Fish and Game Department Balance	\$ 482,144.54