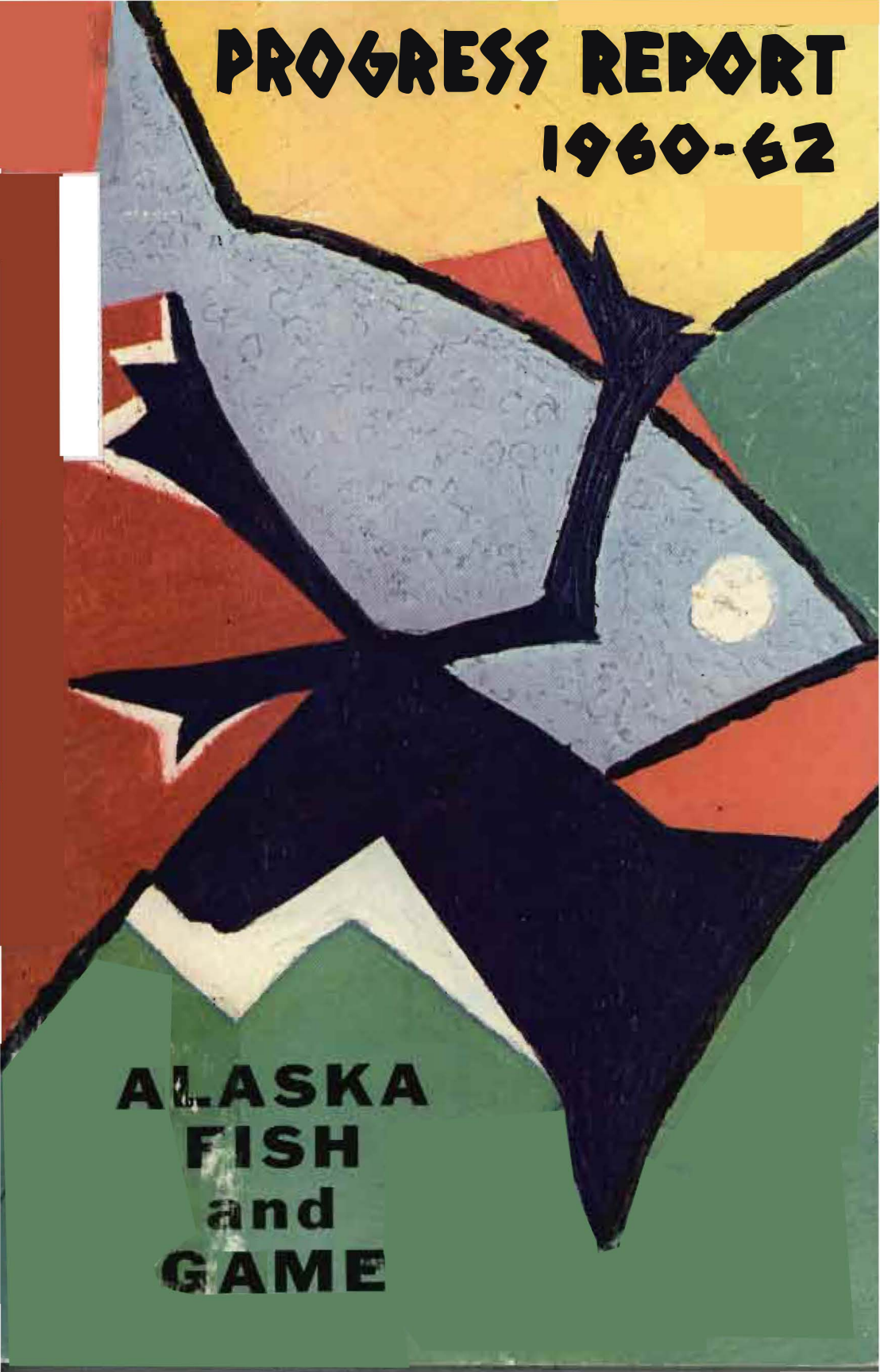
PROGRESS REPORT
1960-62



ALASKA FISH and GAME

PROGRESS REPORT

FOR THE YEARS

1960 - 1961 - 1962

STATE OF ALASKA

WILLIAM A. EGAN, Governor

ALASKA BOARD OF FISH AND GAME

Roy Selfridge
Chairman

ALASKA DEPARTMENT OF FISH AND GAME

Walter Kirkness
Commissioner

REPORT NO. 12

JUNEAU, ALASKA

THIS REPORT IS A CONTINUATION OF THE "ANNUAL REPORT" SERIES PUBLISHED FROM 1949 TO 1959 INCLUSIVE, BUT COVERS A THREE-YEAR PERIOD

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CREDITS

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PROGRESS REPORT FOR THE YEARS

1960 - 1961 - 1962

FOREWORD

On January 1, 1960, the people of Alaska assumed responsibility for managing their state's fish and game resources. Through elected representatives, they had already set up an organization to handle this responsibility for them—the Alaska Department of Fish and Game.

This Department had its origin in the Alaska Department of Fisheries created by the 1949 Territorial Legislature; it became the Department of Fish and Game in 1957, and was reorganized into its present form by the State Organization Act of 1959. In most respects the Department was ready to assume its responsibilities.

The magnitude and scope of these responsibilities required an expansion of the nucleus staff employed by the Territorial Government. Many staff members have had to be recruited and familiarized with both Alaska's fish and game and the needs and desires of Alaskans. Numerous gaps in existing knowledge had to be filled hurriedly in order to manage the resources properly. These are the main reasons this report covers a three-year period; the writing of anual reports, as had been done in the past, had to be relegated to a position of secondary importance. Acquisition of knowledge and development of a modern management program came first.

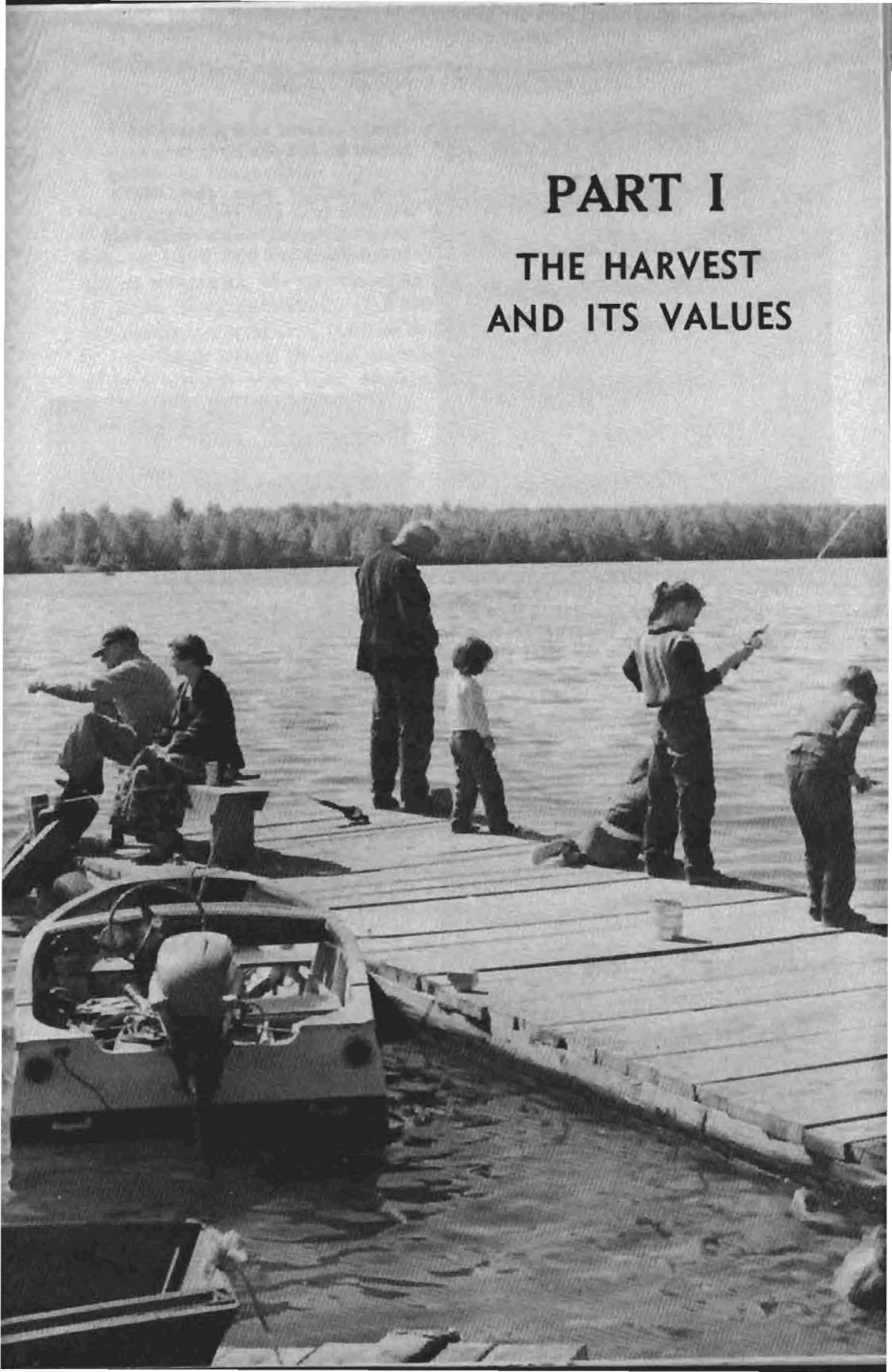
The Department of Fish and Game has now reached a point where it is possible—and necessary—to look back over the three years since statehood; a point from which the accomplishments and travails of this period can be examined and recounted, serving as a basis for plotting the future course of fish and game management in Alaska. This report summarizes the aims and accomplishments of the Department during the first three years of state control of its fish and game.

Walter Kirkness

WALTER KIRKNESS, Commissioner

PART I

THE HARVEST AND ITS VALUES



Every brown and grizzly bear taken in Alaska by a non-resident is estimated to bring over $2,000 into the State. Hunter (rt.) and guide appear well satisfied with this big brownie.

No one has attempted to measure the dollar value of a catch like this. Doing so would be like trying to put a dollar value on that pleased smile the fisherman is wearing.

This fine lot of furs does have a dollar value, and to people in remote areas dollars so obtained are precious indeed, as there are few other sources of income.

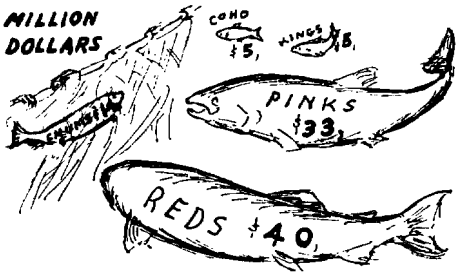
IN THE THREE YEARS since Alaska acquired the right to manage her own resources, over 350 million dollars worth of fishery products have been harvested from the sea. Hunting and angling have had an economic impact more difficult to measure, but as examples we can point to an estimated $15 million worth of game meat consumed, and $70 million spent by resident and non-resident sportsmen. Add to this the esthetic value—$18 million in the three years by one method of reckoning—and some $5.5 million income from furs; clearly, these renewable resources are of major importance to the State's economy.

Figures, however do not tell the full story, for who can measure in dollars the economic impact—indicated by increased work efficiency—of a day's relaxation with a fly rod? What is the value of a walrus skin used in building a boat, when no other materials are available and the boat builders couldn't afford them if they were? The impact of 100 pounds of caribou meat or whitefish is measured in terms of human dignity or even life itself—

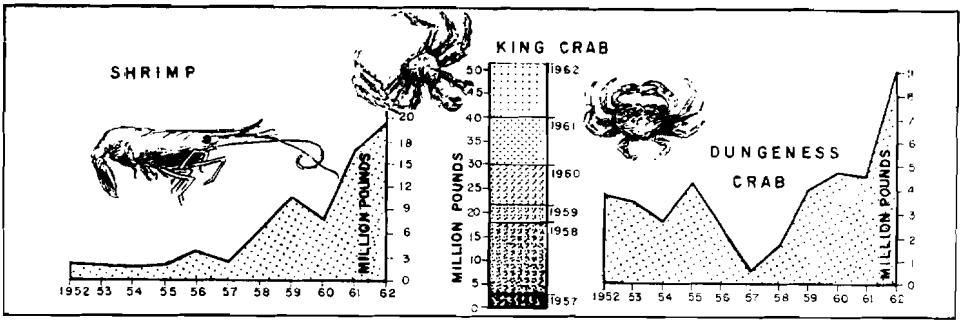
not money—when there is no other meat to be had. One hundred and fifty thousand dollars annual income from carved ivory may be a small amount compared to $100 million annually from commercial fishing, but when the $150,000 is the **only** income for 100 or 1,000 people, that is something else again. In Alaska these things must be reckoned, and in the reckoning they make Alaska's fish and game valuable beyond the ability of a mere dollar sign to indicate.

With these total values—direct income, recreation, esthetic value, and subsistence—in mind, those most easily measured in terms of dollars can be examined without danger of losing sight of the others. The most easily measured is, of course, commercial utilization, which produces immediate dollar income.

In Alaska the bulk of this income presently comes from commercial fishing and from trapping. There is promise, for the future, in fur processing, fur farming, utilization of sea lion meat for fish hatchery and pet food, and other developments.



The salmon remains the highest income producer among the fisheries. Since statehood, an average of over $97,500,000 worth annually of the five Alaskan species has been harvested, and the trend is toward larger and more valuable catches following the lows of the late 1950's. Among recent increases was the 1962 pink salmon pack of 1,842,000 cases, more than 2.5 times the 1960 parent year's 731,000 cases; this remarkable increase is one of several measurable indications of the results of state management.



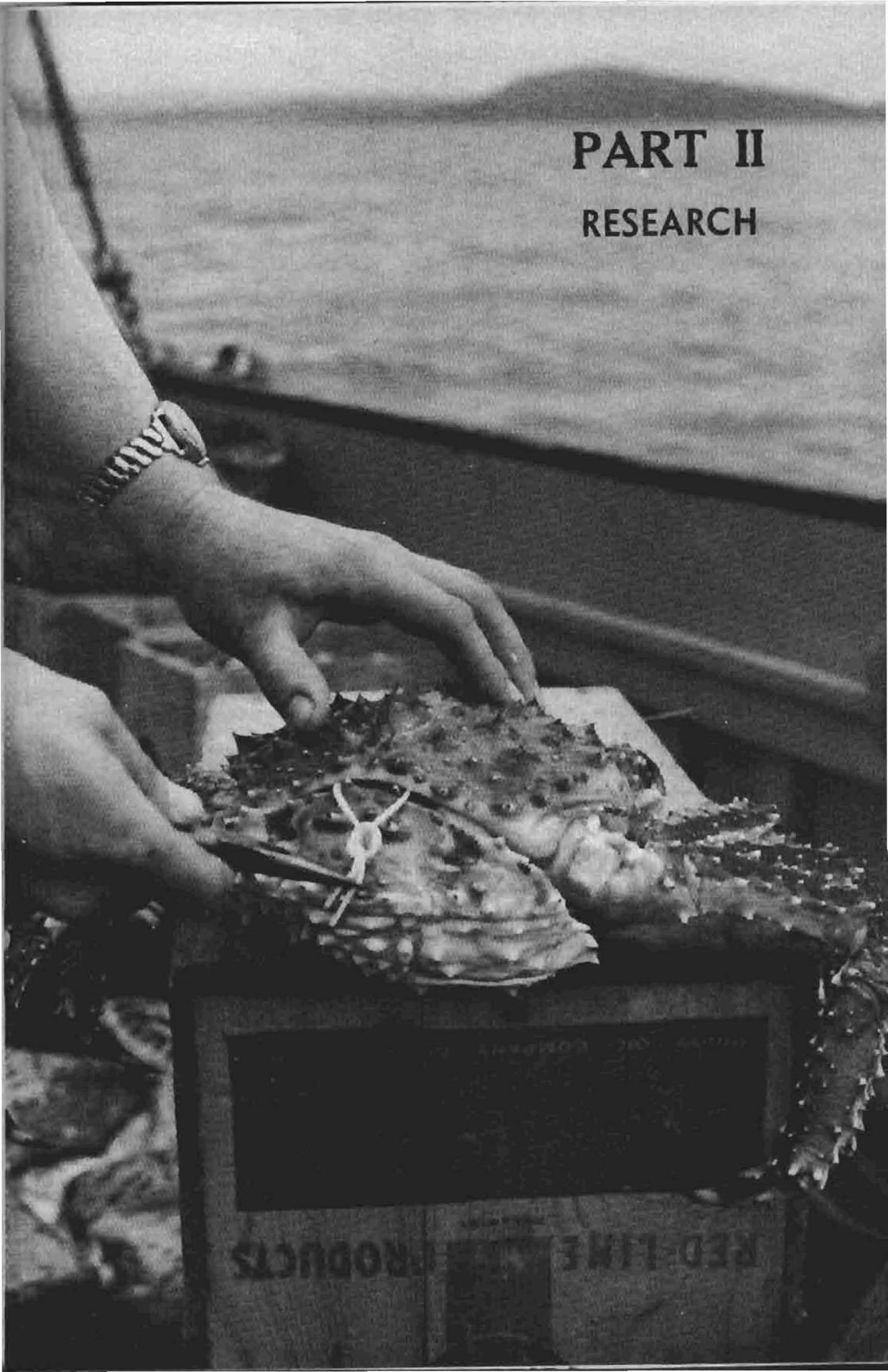
The most spectacular income gains, however, have come from shellfish — primarily crab and shrimp — for these species were little utilized until recent years. They are particularly important because they offer winter employment to the fishing fleet.

Income from the State's fur resource is small in comparison with that from commercial fisheries. Trapping, however, provides the only cash income for many people in remote areas.

Weather and economic conditions during the 1961-1962 trapping season caused a decline in fur harvest as compared with the previous two seasons; in the first two years following statehood trapping income was over $1 million annually, while in 1962 income fell below that figure.

Beaver, mink, and land otter are consistently the most important of Alaska's 12 commonly trapped fur animals. In some years—the 1960-1961 trapping season was an example—arctic fox brings an excellent income to northwest coastal residents. Muskrats, though bringing a low individual price, are widely distributed and are used in some places for food: these factors together somewhat overshadow their dollar value of approximately $50,000 to $100,000 per year.

In addition to individual income from trapping, the State has received $2.6 million as its share of fur seal proceeds since 1960. Alaska annually receives 70 per cent of the net proceeds of the Pribilof Islands harvest of this species.



PART II

RESEARCH

A strange way to clean a fish? He's not: a scale sample from this specimen will reveal its age and even tell the biologist something about the fish's environment.

Every two inches along the tape this biologist identifies and records the species and density of the vegetation. Fenced off against caribou, this range quadrat will provide clues to the effects these animals have on their food supply. A companion, unfenced plot nearby, provides a comparison.

What fish scales don't say about the environment, instruments do. The temperature at various depths, and the locations of the "thermoclines"—sharp divisions between one temperature range and another—are important to a fish. This electronic thermometer helps pinpoint these areas.

These moose jaws are the game biologists' equivalent of a fish scale, but more difficult to "read". Age is determined by tooth eruption and wear.

OPEN SEASONS on most fur animals in Alaska begin in November and December. Beaver seasons, on the other hand, do not open until February (except in areas where they are overabundant.) Why? Because research has shown that beaver pelts become prime later than the skins of other fur animals: trappers wouldn't receive full value for beaver taken in November and December.

In 1963 a major effort at lake rehabilitation will be initiated in the Resurrection Bay area, which will allow the highly important silver salmon sport fishery there to support increasing fishing effort. How was it determined that specific development work here would lead to increasing yields? Through research. How will the effects of the development work be assessed? Through research. Will additional development work increase silver salmon stocks still more? Perhaps: again, research will be needed to find out. Some people, unable to see any immediate benefit from a particular course of research, are prone to regard it as "ivory tower stuff." Is it? Not in the Department of Fish and Game. It's a search for facts, without which good resource management is impossible.

The Department, at the end of 1962, was conducting well over 200 separate (though often interrelated) investigations. Describing the purpose, methods, and current findings of each would fill many volumes. Most of them, however, fit conveniently, for descriptive purposes, into one or more of six general categories.

All of the Department's research projects have one thing in common: they are designed to lead to improved management of Alaska's fish and game by bringing to light the things that must be done to assure maximum sustained yield. Research is insurance for the future.

The six categories into which most of the Department's research projects fit are:

(1)
INVENTORY

(2)
LIFE HISTORY STUDIES

(3)
HABITAT ANALYSIS

(4)
DEVELOPMENT STUDIES

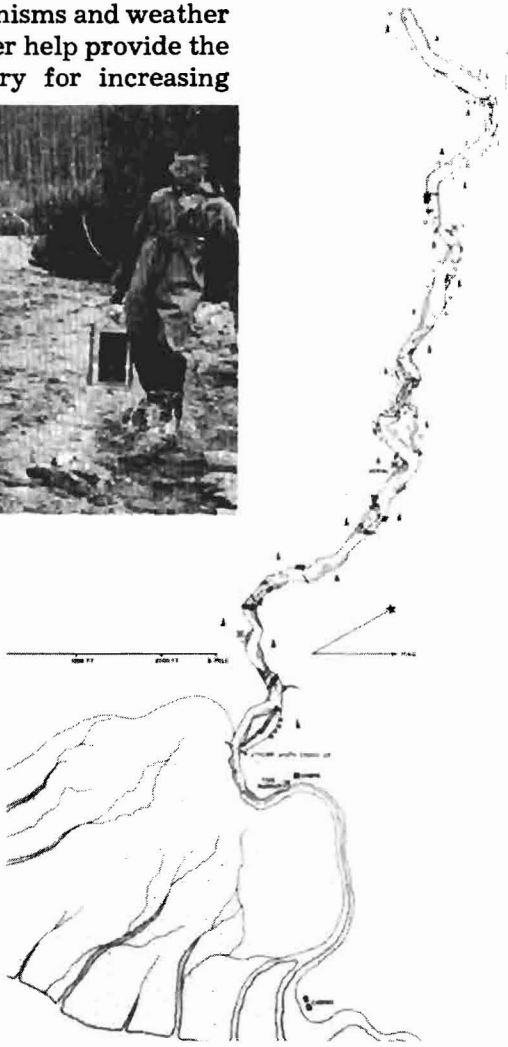
(5)
TECHNIQUE STUDIES

(6)
REGULATION ANALYSIS

• INVENTORY

Inventory studies—determining what's where, and when — are made not only in regard to animals but of their environment as well. The general distribution and abundance of a species may be known, but the habitat must be examined to determine **why** this species occurs where it does and why it is more numerous in some areas than in others. Why does one mountain support many sheep while another, apparently similar mountain have none? Why do salmon spawn in one stream and not in another that, superficially at least, looks the same? Why does one lake have a good population of trout while another contains only sticklebacks? Range inventories, stream and lake inventories, measurement of plants and food organisms and weather and the amount of oxygen in the water help provide the answers: answers that are necessary for increasing

production to meet increasing demand. Inventory studies usually consist of a preliminary look at such factors: more detailed examinations of habitat or life history are carried out when inventory shows a need for them. The purpose of the inventory is usually to determine what must be studied in more detail. Not infrequently, however, the inventory itself will lead to a discovery which will immediately point to an obvious way of increasing production.



Stream and lake inventories often lead to such discoveries: a log jam or other obstruction will be found to be blocking salmon from good spawning gravel, or a lake may contain so many "worthless" fish that there is no food for more desirable species. Removal of the log jam or the competing species can then provide an almost immediate gain in production.

The Division of Commercial Fisheries is compiling catalogues for the salmon-producing stream and lake systems of the state. By the end of 1962 approximately 2,000 streams and lakes had been entered in these inventory catalogues. When this inventory work discloses water systems capable of supporting salmon but having migration barriers, the systems are surveyed in more detail and a priority list established to remove or circumvent the obstacles. Some of the blocks can be removed immediately: in 1962, for example, 32 beaver dams were removed from Cook Inlet streams after inventory work had disclosed their presence. Experiments with installing flumes through beaver dams, to permit salmon to pass through without destroying the often-valuable beaver pond habitat, have shown promise and may be used extensively in the future. Properly constructed flumes also have the advantage of providing longer-lasting salmon passage than removal of dams, which the beaver often rebuild in a few days.

The kinds, number, and sizes (rt.) of fish present in streams and lakes are important criteria in evaluating potential. The fish shocking device being used at left is one of the few feasible methods of inventorying a fish population in a stream. Results are entered on an inventory map.

The Sport Fish Division, conducting somewhat more detailed inventories—devoting major attention to those waters which are most accessible to anglers or are likely to become so in the immediate future—had inventoried 367 lakes and streams by the end of 1962. This program has led directly to rehabilitation of 15 lakes, acquisition of 132 public access sites, and the stocking of 57 separate areas, as well as the plan for a major rehabilitation project in Resurrection Bay mentioned previously.

Inventorying of game animals and their habitats is in some respects simpler than when dealing with less-visible fish, though subsequent habitat studies may be more complex. Even so, however, only in the past three years has the Division of Game been able to map the specific distribution of mountain goats (though of course their general range was known) and not until 1961 was a project initiated to determine — among other things—whether caribou north of the Brooks Range were all members of one large herd or separate smaller herds. Terrestrial habitats are more likely to change radically than are aquatic habitats, leading to such things as the complete disappearance of caribou from the Kenai Peninsula and the subsequent rise of moose populations there, or the shrinkage of bison range in the Delta area through homesteading and plant succession. Game inventories, therefore, must often be repeated, and are likely to be continued indefinitely.

• LIFE HISTORY STUDIES

Every phase in the life history of a species has a direct bearing on the numbers of that species available to hunters, anglers, trappers, and commercial fishermen. At what age does the species first breed? How many young does a female produce annually? How soon can the young fend for themselves, and how many survive the first hard year of life? How do disease, accidents, weather and predation affect the population? What factors contribute to the periodic fluctuations in numbers common to so many species? How do the numbers of animals affect the food supply? The life history type of study supplies answers to these and many similar questions.

Today's fish and game biologists, often working on a foundation provided by the "naturalists" of 25 or more years ago, must dig far deeper than the naturalists did. Where the naturalist observed a few animals and described what he saw, the modern biologist often works with large numbers, measuring and analyzing. While it was once sufficient to say, for example, "moose bear one, frequently two, and rarely three young" it is now necessary to know how often twins are born, and why. It's not enough to know simply what causes mortality in the first critical weeks or months of life; the biologist must find out how many young succumb to those causes. Only by digging up these and other facts can the fish and game manager hope to influence the numbers of animals available in the future.

Most life history studies conducted by the Department are designed to obtain knowledge of a particular phase in the life of a species, rather than being broad general studies of the entire life cycle. At a particular time one man may be analyzing and measuring mortality from disease, predation, parasites, or other causes, while another is studying growth or movements and a third is examining the animal's food habits or the nutritional values of the plants it eats. Some facts obtained from these studies may be utilized in management immediately, while others may not be usable until analyzed in the light of other knowledge.

Among studies conducted during the past three years by the Department which fall into the "life-history" classification were:

1 **Productivity studies** of deer, moose, caribou, elk, sheep and goat. Most of these studies consist of aerial surveys made during and immediately after young are born in the spring. Similar studies are made periodically on most other big game species. Such research can reveal other facts besides a simple determination of the number of young produced: a decreasing incidence of twin births, for example, may indicate a drop in the quality of forage on the range.

2 **Parasite and disease investigations** on all major fish and game species. Knowledge of the diseases and parasites harbored by each species is important even though the animals may not presently be greatly affected, for conditions can develop which allow these organisms to have considerable influence on fish or game production.

3 **Mortality studies** of most of the major fish and game species. Sometimes, as in the case of salmon, these are referred to as "survival studies." A major project of the Division of Biological Research is the study of factors which affect the survival of pink salmon (the results of which may also be applied to other species). A spawning pink salmon may lay 1,500 or more eggs: if one million eggs are laid in a single stream and survival studies result in **one per cent** more fry reaching maturity than under natural conditions, there would be 10,000 more fish available—from a single stream! The importance of such research is obvious.

4 **Growth studies.** The best example of benefits to be gained from this type of research is the work done on king crab in the past three years. Growth studies showed that males gain a full pound between the time they measure 6½ inches and their growth to 7 inches across the shell. Tagging studies revealed that mortality is quite low during this period. By increasing the minimum legal size at which crab can be taken from 6½ to 7 inches—as was done in 1962—a considerable gain in weight landed will be realized from the crab populations involved.

5 **Movement studies.** Most king crab inhabit deep ocean waters in summer and fall, shallow inland waters in winter and spring. This knowledge has been of direct benefit to crab fishermen. Another example of direct public benefit from movement studies is the timing of the Taylor Highway crossing of the Steese-Fortymile caribou herd: by making known the fact that these animals generally become available near the road about October 15, the Division of Game has aided many people in planning hunting trips.

Studies of movements and the factors which influence them are often important primarily in relation to other investigations. For example, many moose spend the summer in the hills and winter in the valleys. If this were not known, much time and money could be wasted conducting aerial moose surveys in the wrong place. An erroneous conclusion about the current size of the moose population could conceivably result, leading to needless restrictions in hunting seasons.

6 **Food habits research.** The productivity of a wildlife species may be affected by the food supply, especially if the animal has a limited choice of food species. Research has shown, for instance, that moose depend heavily on willow and birch twigs in winter, and are unable to survive on alder. This is important knowledge when evaluating the possibilities of transplanting moose to unoccupied habitat.

THE ALASKA MOOSE is the world's largest member of the deer family. Only by becoming thoroughly familiar with this magnificent animal's life history can the game manager help assure perpetuation of the species.

A general knowledge, at least, of the food habits of all Alaska's major wildlife species is indispensible. Special circumstances often require more detailed information.

Many other aspects of an animal's life are subjected to some degree of investigation as circumstances dictate. It may be important to know how long a brown bear cub is dependent on its mother, how deep a sea otter can dive for food, or the degree to which trout are influenced by availability of cover or favorable current eddies. A factor once judged of little importance may be found, in the light of new knowledge, to exert a major influence on productivity and the availability of harvestable surpluses.

• HABITAT ANALYSIS

Lake analysis is a primary tool of the Sport Fish Division, and includes such things as chemical analysis of the water, mapping the bottom contours, measurements of dissolved

oxygen at various depths and different times of year, and many other measurements and observations of even greater complexity. There is no point in stocking a lake if the water contains no free oxygen during the winter. Likewise if there is no spawning gravel in a stream, attempting to establish a salmon run there would be a waste of money, as would be an attempt to transplant moose to an area which grows lots of unpalatable alder but no willows.

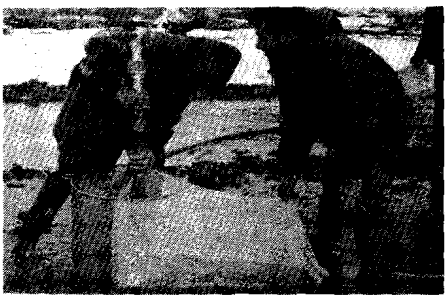
Habitat analysis is also a prerequisite to **habitat improvement.** In the future, moose habitat may be increased through controlled burning or other methods, producing good food plants on an area presently occupied by non-nutritious conifers or by tall birch and popular which has grown out of reach of moose. Much effort and money could be wasted on such projects if, for example, the soil won't support more desirable plants: habitat analysis will prevent such waste, though it conceivably may not provide **immediately** useable knowledge.

The Division of Game began a comprehensive analysis of a representative sheep habitat in 1961, and is currently analyzing preliminary re-

Mapping the bottom contours of a lake, a major step in fish habitat analysis.

These shrubs have been severely browsed by elk. Excessive browsing will eventually kill desireable plants and allow unpallatable species to take over: the elk will have changed its own habitat.

sults of a similar study of caribou habitat which was initiated before statehood. The abundance and distribution of all important plant species are determined, and examinations and measurements of the many factors which influence these—precipitation, soil chemistry, plant competition, extent and duration of snow cover, altitude, exposure, wind, and many others—are being or have been made. Since many of these factors are highly variable, the studies must be continued over a long period.



The hydraulic fish egg pump provides a new technique saving untold hours in inventorying streams.

Plastic bags now replace heavy, complicated tanks for transporting fish fry on short hauls.

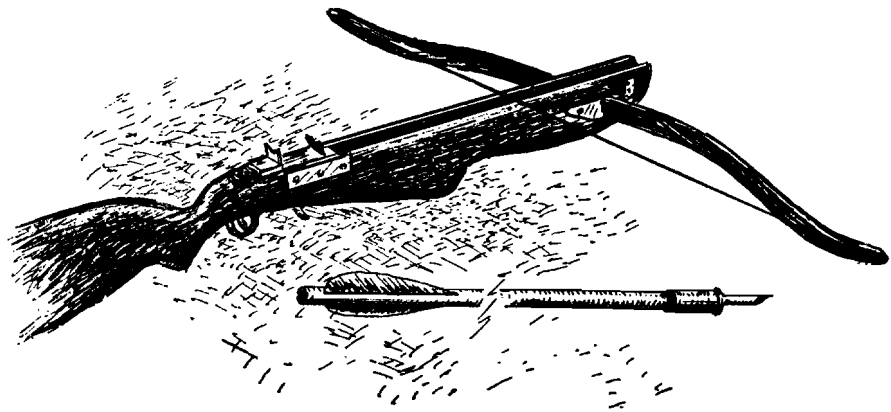
• TECHNIQUE STUDIES

DEVELOPMENT AND TESTING of techniques are an important part of the Department's research program. Such studies are necessary if research is to be conducted in the most economical manner. Not infrequently, certain information can't be obtained at all until a suitable technique is developed.

In southeastern Alaska small areas, easy to get to, are heavily hunted while less-accesible surrounding areas receive only light hunting pressure. When many deer are taken from the easy-access places, do animals move in from adjacent areas? If so, there is no need to curtail seasons in the heavily hunted spots. The only way to determine whether such movements take place is to mark deer in the surrounding areas. Obviously, one doesn't go out and ask the deer to line up to have a tag applied: a technique must be developed for capturing them. The technique should allow many deer to be marked without undue waste of time and effort.

A Division of Game biologist in Petersburg has been developing such a technique. Thanks to studies made elsewhere, he was able to choose a suitable immobilizing drug (succinylcholine chloride). An air gun designed by other investigators to shoot a drug-carrying dart was, however, found to be almost useless in cold weather. Some other way to fire the dart had to be found, for the best time to apply the technique on southeastern deer is in late winter, when the animals congregate on the beaches and are readily available.

After considerable experimenting with various weapons, a crossbow proved to be the best solution. Even this weapon had a drawback at first: it hit too hard at short range, causing the body of the syringe as well as the needle to penetrate the deer's hide. Further experimenting eliminated this through a double trigger arrangement. A more economical syringe was also designed and tested, refining one developed elsewhere: made from a .357 magnum pistol shell, it costs far less than the five-dollar syringe previously used. As a result of this study deer can now be economically tagged in large enough numbers to provide significant information on movements. The new technique and equipment will also be useful in other studies.



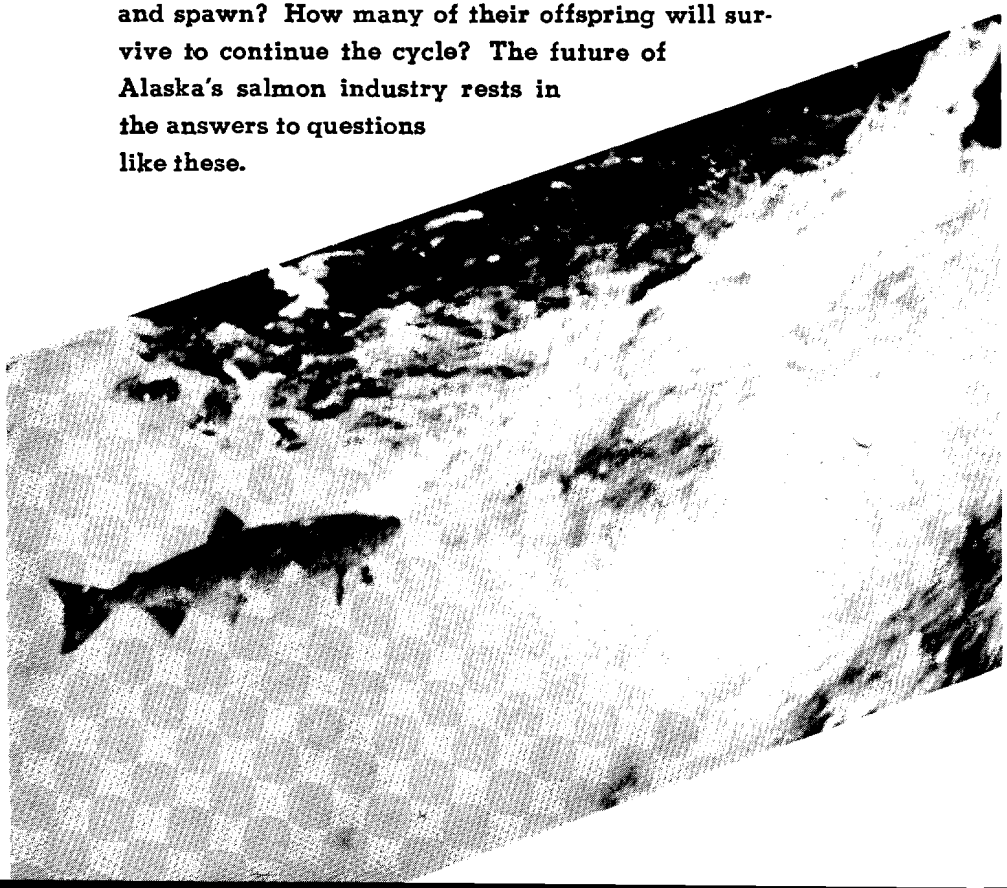
One of the most important needs in commercial fisheries management is a method of reliably predicting the size of future salmon runs. Both cannery operators and fishermen depend heavily on such predictions, which may make the difference between a profitable season and an unprofitable one. Furthermore,

Salmon run forecasts help assure that heavy catches like this aren't taken at the expense of future runs.

a heavy run is largely wasted if there aren't enough fishermen in the area or if canneries are unable to handle the bonanza, for research has shown that each stream can be efficiently used only by a certain number of spawning fish. Extra spawners beyond that number do nothing to increase future runs, and may even have a depressing effect on the survival of young salmon, though the latter point has not been proved.

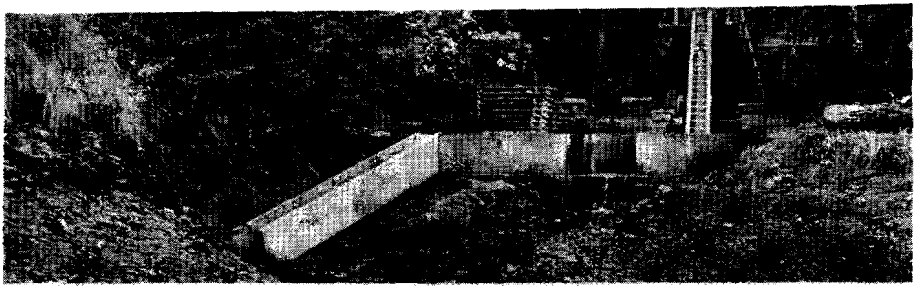
The size of a run in a particular stream or area is dependent on many variables, such as the number of eggs that hatch, the number of fry that survive to migrate to sea, and ocean mortality. Each of these variables is, in turn, dependent on other variables: rainfall, abundance of food insects in a stream, abundance of predators as salmon smolts migrate from the stream, and many others. Measuring these variables, determining the effect of each, and putting them all together to arrive at a successful prediction of the run for two, three, five or more years hence is a formidable task. The answers can be obtained only through research. Predictions are becoming more accurate as new techniques are developed and old ones are refined.

How many, ascending all obstacles, will reach "home" and spawn? How many of their offspring will survive to continue the cycle? The future of Alaska's salmon industry rests in the answers to questions like these.



• DEVELOPMENT STUDIES

ONCE THE NATURAL production of a fish or game species—either in a specific area or the State as a whole—is being utilized, it is natural to look for ways to increase that production. Development studies are an important phase of such attempts.



This steep-pass fishway, result of a development study, will allow salmon to get around a previously insurmountable barrier. Stream was diverted to make this photograph.

Development work itself, including the planning phase, is discussed in Part III of this report. Here, we are concerned with those studies which show how development may best be carried out or indicate whether a certain course is feasible. Examples of such work conducted by the Department include the development of a portable "steep-pass" fishway by the Division of Engineering and Services, the testing of a device to increase the amount of oxygen in a lake in winter by the Sport Fish Division, construction of an artificial spawning channel by the Division of Commercial Fisheries, and examination of areas to ascertain their suitability as transplant sites for various game species by the Division of Game.

The "steep-pass" fishway provides a good example of a development study, as contrasted to the development work itself. This project was begun because of the relative inaccessibility of many areas where natural barriers prevent upstream migration of salmon. There are many such barriers in Alaska; a device enabling salmon to get around the obstruction and reach good spawning areas upstream would considerably increase the state's salmon runs. The problem is one of constructing fishpasses in areas where all materials must be carried in by airplane, small boats, or human labor (or on expensive roads constructed only for the project) which rules out the large devices of concrete, steel,

and other materials used in many other states. The term "steep-pass" refers to the need for bypassing falls or dams in as short a horizontal distance as possible, to cut down on labor, materials, and other construction costs.

Since salmon are able to negotiate water only if it is flowing below a certain velocity limit, a device to allow fish to rise a given height in as short a distance as possible must embody some method of keeping the water velocity below those limits. The steep-pass fishway developed by the Division of Engineering and Services consists of sections of aluminum channel in which baffle plates, scientifically designed, slow down the water to tolerable limits. By the end of 1962 two such fishways had been constructed and installed; while it will take several years to fully assess the results, it appears that they are successful. Further refinements and additional installations should add significantly to Alaska's salmon runs in the future.

Another example of the development study is the Division of Commercial Fisheries' experiments to compare costs, success, and feasibility of various means of establishing "off-year" salmon runs, and runs in streams where there presently are none. Of the several methods available—transplanting

of fertilized eggs, eyed eggs, fry, fingerlings, and adult salmon—the adult salmon transplants show promise of being the most economical for the results obtained. The costly hatchery process can be bypassed by this method, and in comparison with the transplanting of eggs it has the advantage of the adults spawning naturally in areas possibly more suited to successful egg incubation than if the eggs were introduced to the gravel by humans.

Is that regulation accomplishing its purpose? Current reports on salmon escapement, relayed by radio to a central station, make possible rapid analysis of the situation.

• REGULATION ANALYSIS

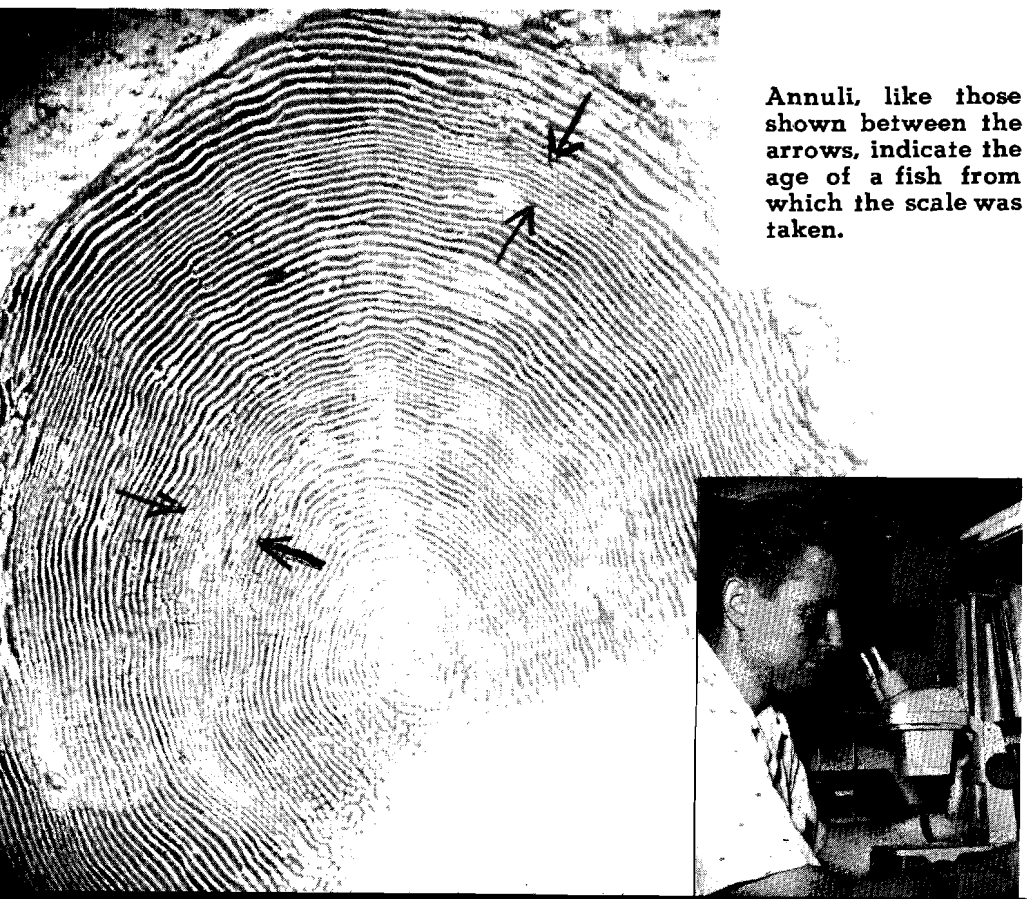
AS ANYONE WHO HUNTS, fishes or traps knows, regulations are primary tools in fish and game management. Regulations are based on experience and facts obtained through research. Since the regulations are designed to have specific effects, they in turn must be subjected to constant scrutiny to see if they are accomplishing their purposes, and are imposing the least possible restriction on human activity to obtain the desired results. Furthermore, fish and game populations will fluctuate in both size and distribution in spite of, as well as due to, harvesting by humans. A regulation which had beneficial results last year may well have detrimental results next year.

A case in point is the so-called "buck law" which provides that only male deer (or moose, elk, etc.) may be taken. This is a desirable regulation **when the object is to increase a population and the demand exceeds the supply.** Many animals, however—including most antlered game—are capable of increasing

beyond the ability of their food supply to support them. A "buck law" continued in the face of an overabundance of the species to which it's applied, when hunting pressure is insufficient to take as many animals as are produced yearly, is waste, not conservation.

Research is a continuing process. Each added bit of knowledge, each attempt to increase production, every regulation assessed, adds valuable knowledge. Modern fish and game management is founded on facts, not guesses.

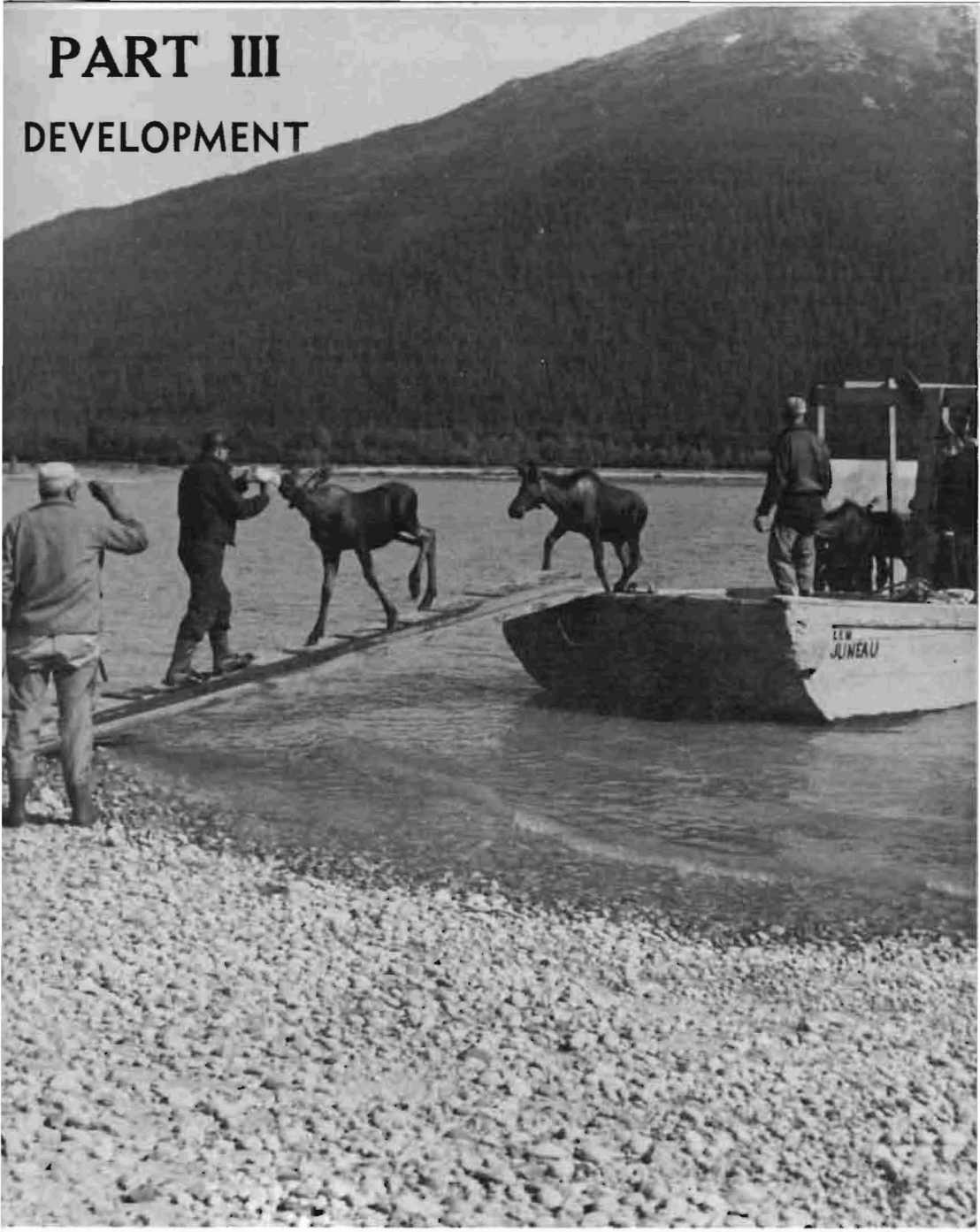
The Department has accumulated a large volume of facts, many of which have been made available in special reports and through publication in scientific journals. A list of reports and publications appears in the Appendix so that those who wish more specific information about any of the projects conducted by the Department will know where to obtain it.



Annuli, like those shown between the arrows, indicate the age of a fish from which the scale was taken.

PART III

DEVELOPMENT



These moose calves, going ashore at Berner's Bay 30 miles north of Juneau, will establish a new population of these game animals.

Fish and Game research leads to two courses of action; development, and management by regulation. The latter is discussed in Part IV.

Development projects carried out by the Department of Fish and Game are usually designed to increase production, increase opportunity or, sometimes, both.

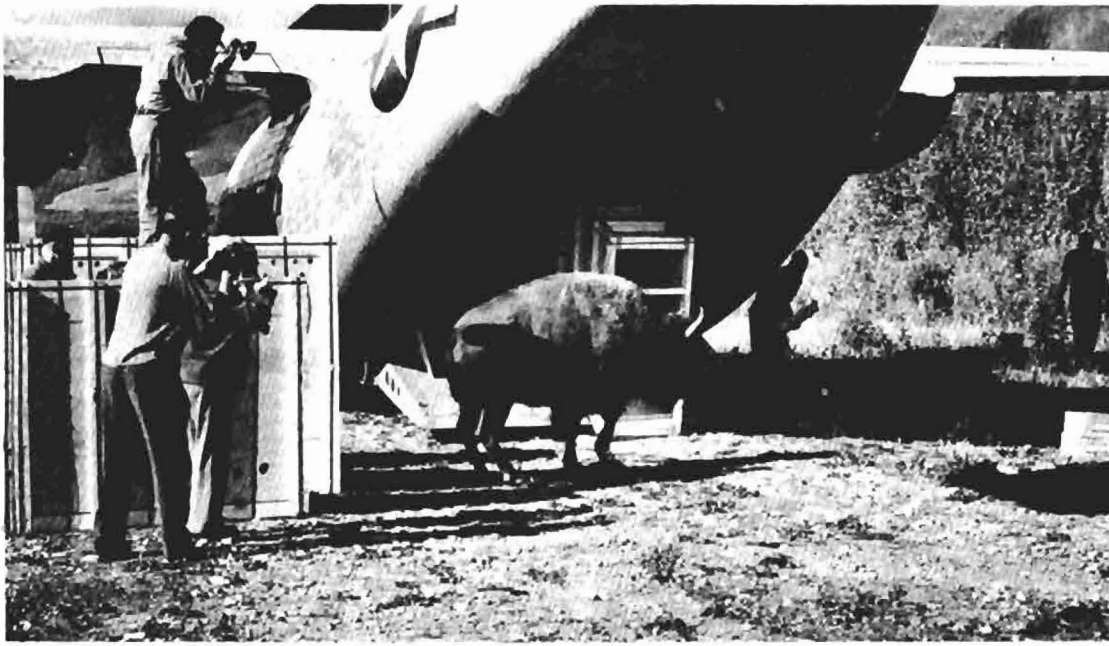
Construction of fishways and removal of stream obstructions lead to **increasing production.**

Construction of hunter-access airstrips, trails, and roads, and reservation of land to provide access to fishing areas or to prevent destruction of fish and game values provide **increased opportunity.**

Transplants of game, and rehabilitation and stocking of lakes, provide **both** increased opportunity and increased production.

In 1960, 1961 and 1962 the Division of Commercial Fisheries participated in the construction of three fishways (Bakewell Lake, Fritz Creek, and Shrode Creek) and the removal of over 300 blocks to spawning salmon. Two additional fishways, on Paul's Lake (Afognak Island) and Frazer Lake (Kodiak Island) were planned, and a contract for the latter was awarded in 1962. Frazer Lake, with over 5,000 surface acres, has a sockeye salmon run potential of up to three million fish which could yield a harvest of as much as one and one-half million fish annually.

Since statehood, the Sport Fish Division has acquired 132 public access sites, rehabilitated 15 lakes, and stocked almost 2,000,000 fish to provide increases in both production and opportunity.



Courtesy of the Alaska Air National Guard, a bison heads for the wilds of a new home.

The Division of Game, in the same period, helped provide for the construction of four hunter-access airstrips and the placement of two hunter cabins in southeastern Alaska, and transplanted elk and moose to the Panhandle, bison to the Copper River area, and blue grouse to Kodiak Island. Construction of a hunter-access road from Fairbanks to the popular Minto Lakes waterfowl hunting area was delayed only by land reservation problems.

Two other areas, on the Stikine and Copper River deltas, have been established as Waterfowl Management Areas in cooperation with the U.S. Forest Service, and another is in the planning stage.

While occasionally it is less expensive to actually attempt a development, after minimum research, than to carry out a full research program beforehand, development programs are ordinarily costly. Obviously there must be certain standards established in order to prevent unjustified use of funds on such projects. Many of the guidelines for fisheries development projects are fairly clear-cut: for example, don't stock lakes that few people can get to, don't put fishways on streams which contain little or no spawning gravel. With game animals and for some sport fish projects the situation is usually a little different, which has led to the following priorities being established:

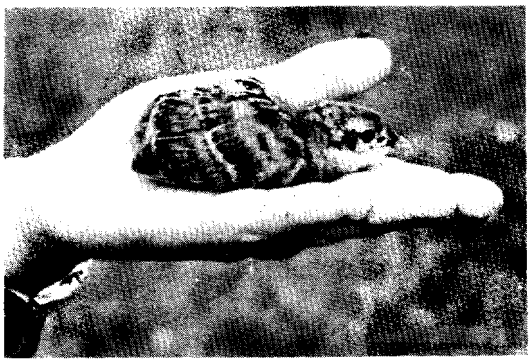
1 Restocking native species to areas formerly occupied where no known factors would prevent their re-establishment. Examples of this first priority include planned transplants of sea otter to Southeastern Alaska and musk-oxen from Nunivak Island to the mainland.

2 Extension of the range of native species across barriers which have prevented (or delayed) natural extension of the range. For example, moose have been moved to Berner's Bay and grayling have been planted in southeastern Alaska.

3 Movement of species or races, already introduced and established in Alaska, into new areas where competition with native species will not occur. Bison, for example, have been moved from Big Delta to the Copper River, elk have been transplanted to the Panhandle from Afognak Island, and plants of fast-growing rainbow trout races are being made from populations established in the Matanuska Valley.

4 Introduction of species indigenous to North America, but not native to Alaska, into Alaskan habitats where competition with native species will not develop. The planting of Washington state elk on Afognak Island in the late 1920's is in this category.

5 Introduction of exotics from other lands. Of lowest priority, such projects should be undertaken only where the foreign species will not conflict or compete with native species. Only animals from habitats similar to Alaska's should be considered.



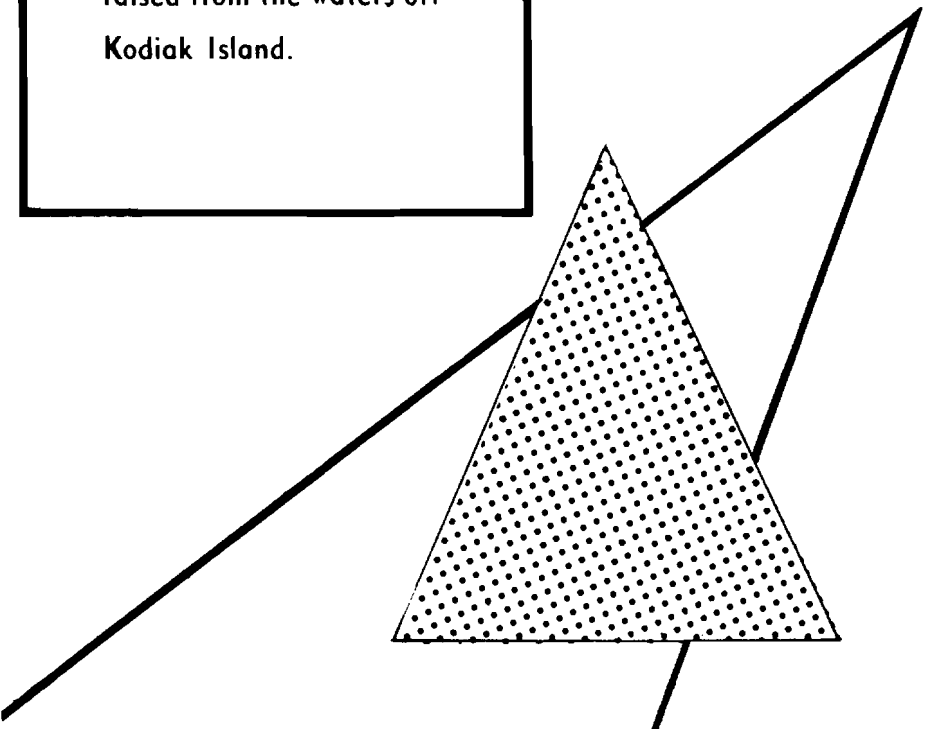
These grouse, transplanted to an area which natural barriers kept them from populating without man's help, will provide sport for future hunters.

Quite frequently development projects become economically feasible only when other agencies or the public can provide assistance. The U.S. Army, Navy, and Air Force, the Alaska Air National Guard, the U. S. Forest Service, U. S. Fish and Wildlife Service, Territorial Sportsmen, Inc., and others have all contributed substantially to projects carried out since statehood; without this assistance, many of the projects could not have been accomplished.

Newly constructed Tanis Mesa airstrip provides hunter access to good game country.

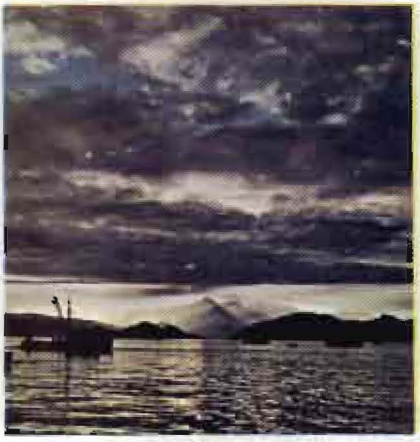
Development projects involving engineering work are handled by the Department's Division of Engineering and Services, which draws up plans and supervises construction. Private firms, working under contract, do the actual construction work on all but the simplest structures. Buildings and highway projects are constructed through the State Department of Public Works or Department of Highways.

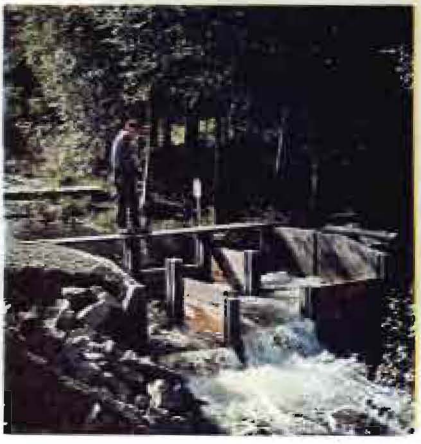
A pot full of king crab is raised from the waters off Kodiak Island.

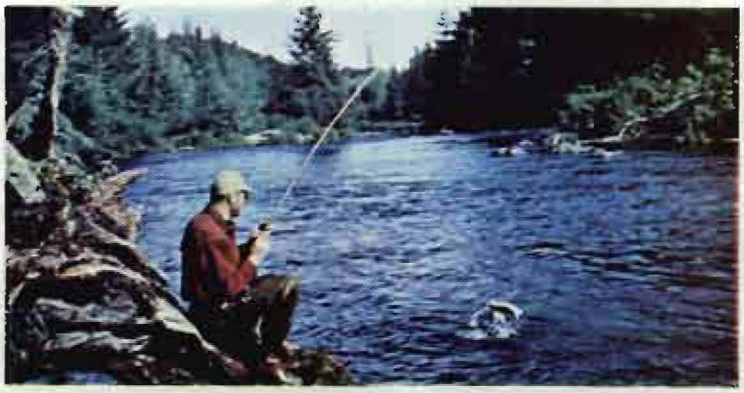


This trap at Fire Lake sport fish hatchery will be used to capture both upstream and downstream migrants for marking.

Prolarva, or sac fry, like the one at bottom right, face many dangers before becoming catchable adult fish.







"Motor fuel." These drying salmon will become sled dog food in the winter.

Alaska's bison come from a Montana herd which had a "gene pool" producing occasional white animals. Most of the white ones die young, as the gene appears to be linked to lethal factors.

PART IV

REGULATORY MANAGEMENT

MANY PEOPLE think of fish and game laws and regulations as being imposed only to preserve fish and game resources—to keep them from becoming extinct. It is true that regulations often serve this purpose, but it is far from being their **only** purpose. Laws and regulations also:

1. Assure an equitable distribution of the harvestable surplus of fish and game.
2. Preserve unique values of some fish and game populations.
3. Assure maximum value from the harvest.
4. Help provide maximum opportunity to hunters and fishermen.
5. Provide maximum production on a sustained basis.
6. Assist in gathering information needed for proper management.

A single regulation may serve one or more of these purposes. Alaska's laws and regulations include all types, as some examples will show.

Equitable Distribution:

Few Alaskans are unfamiliar with the "fish trap story" and few would express regret that fish traps have been abolished. A dispassionate observer might point out that fish traps are an extremely efficient ("diabolically efficient", in the minds of many Alaskans) means of catching salmon. Traps, however, provide a large harvest for the benefit of a few: abolishing them allows many more people—gillnetters, seiners, and trollers—to participate in, and profit from, the same harvest, which is reason enough for prohibiting them.

Bag limits on fish and game are another means of providing an equitable sharing of the harvest, as are many regulations specifying the methods and means by which fish and game may be taken.

Preservation of Unique Values:

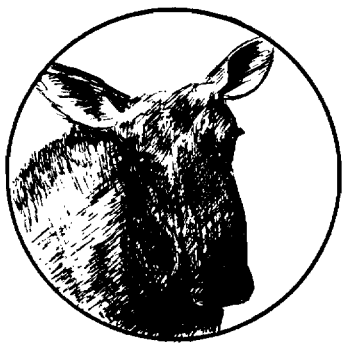
Brown bears may be hunted over most of their range in accordance with prescribed seasons and bag limits. On the Alaska Peninsula, however, is an area classified as the McNeil River Closed Area, in which brown bears may not be taken. In this area, many bears congregate every summer, and may be viewed with relative safety from surrounding vantage points. These animals are probably the most photographed wild brown bears in the world: closing the area to hunting preserves this unique value. Other closed areas similarly protect local populations of walrus, sheep, goats, moose, and caribou for the benefit of people who wish to watch, rather than hunt.

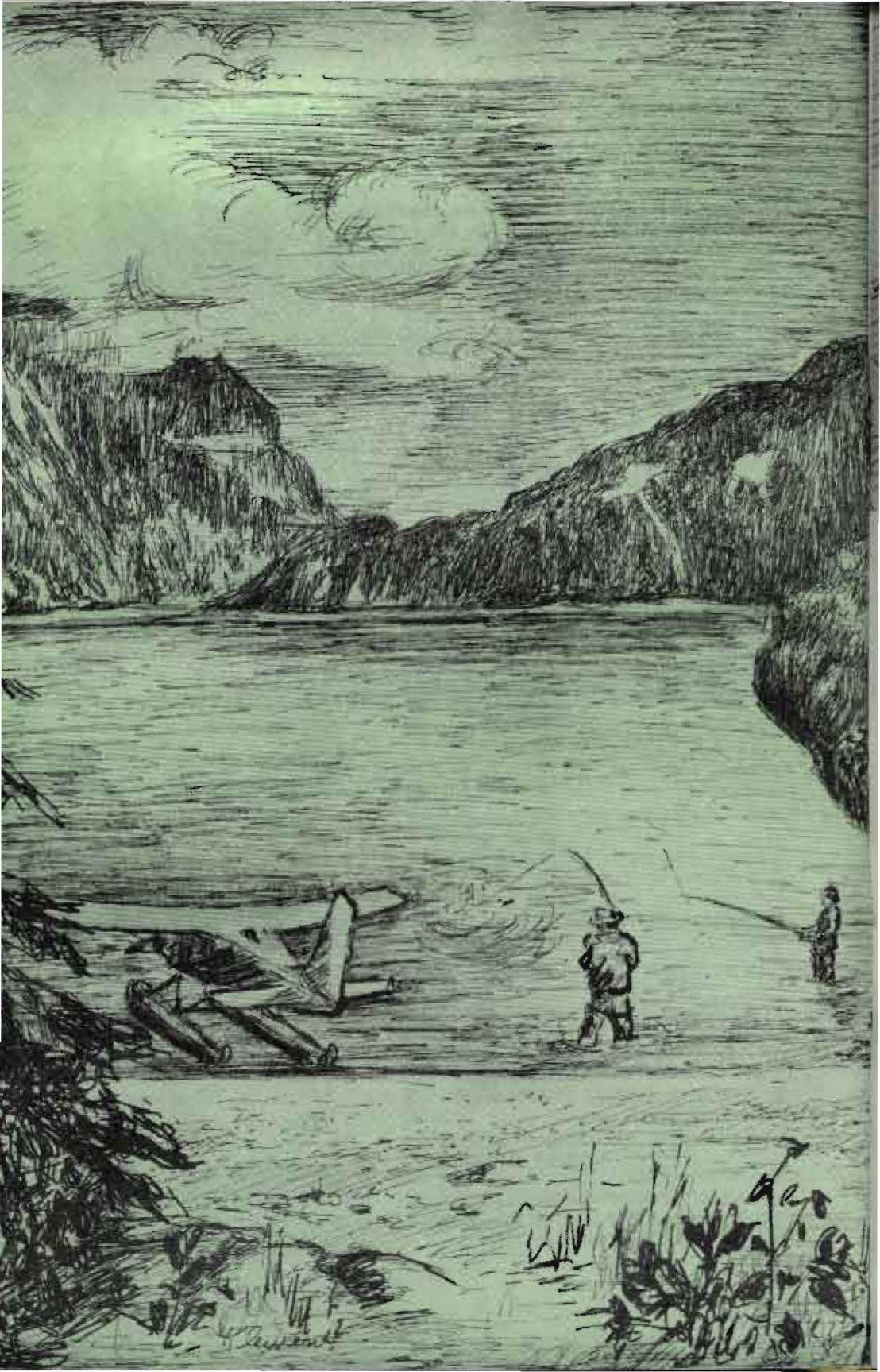
Providing Maximum Value:

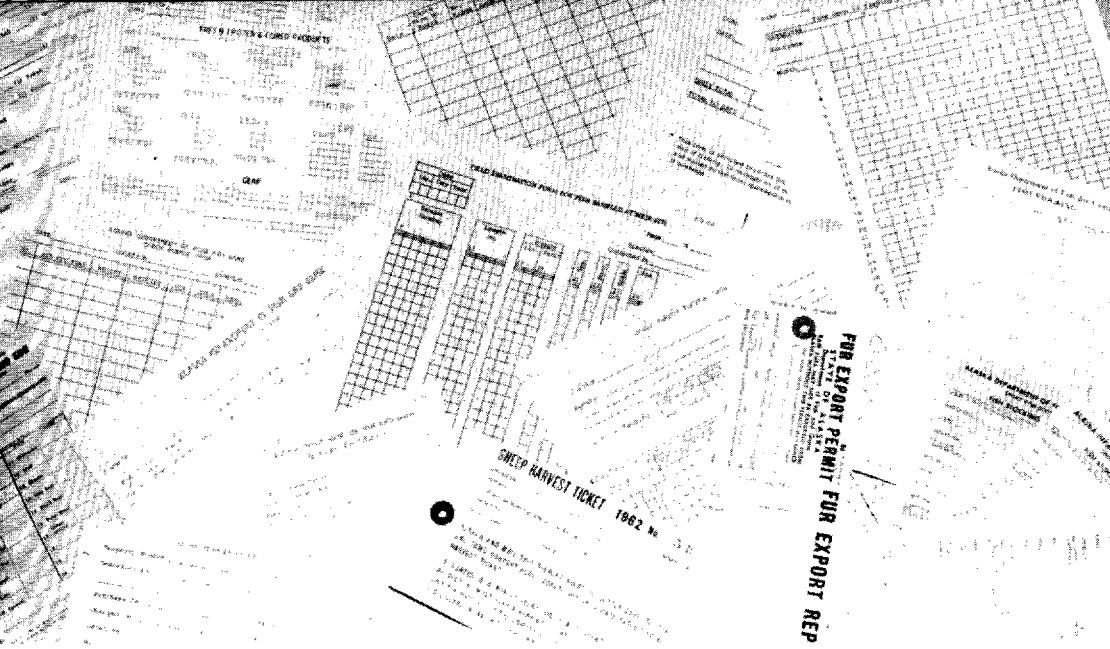
The most obvious of many regulations imposed to assure that harvested animals will provide maximum value are those providing open seasons on fur animals. During much of the year the fur of most animals is relatively valueless: only for a month or two does the skin thicken and the fur present a glossy, undamaged appearance. Open seasons are therefore set to coincide with this "prime" period, thus assuring trappers of maximum return for their efforts. Similar restrictions result in salmon and crab being taken when their flesh is firm and highly marketable, and regulations prohibiting high seas fishing with nets insure that only large, mature fish will be taken, when they come inshore on their spawning migration.

Providing Maximum Opportunity:

Just after the young are born in the spring is the time when a game population is at its highest level of abundance. During the summer, the young of most species grow to harvestable size and become self-sufficient. Hunting seasons opening in the fall, before winter has taken its toll, provide hunters with maximum opportunity in terms of the number of harvestable animals available.







Providing Maximum Production:

Among polygamous species of animals, regulations sometimes provide for harvesting a greater proportion of males than of females if the population is below the capacity of the food supply to support it. In this way the harvest can be kept reasonably high without affecting the annual production of young. Sometimes the harvest is restricted entirely to males, as is presently the case with king and dungeness crab: the females of these species bring a smaller commercial return than the larger males.

Data Gathering:

Anyone shipping raw furs out of Alaska must fill out and mail a "Fur Export Report". A requirement that the skins of brown, grizzly, and polar bears be sealed within 30 days after taking, or before being exported, allows biologists to obtain information on when and where the animals are taken. "Fish tickets" must be completed by commercial processors when they purchase fish. These and similar regulations assure that vital information, obtainable only through the cooperation of the people who use the resources, will be available when needed.

All regular hunting, fishing, trapping, and guiding regulations are set by the Alaska Board of Fish and Game, a group of ten citizens appointed by the Governor. The Board relies not only on information provided by the Department staff, but also has established citizen's fish and game advisory committees throughout the State: thus, both biological considerations and the needs and desires of Alaskans are taken into account in setting regulations. The Board meets at least twice yearly, considering mainly sport and commercial fishing regulations in the fall and game and guiding regulations in the spring. Meetings are rotated among the larger towns of the State, so that all Alaskans will have an opportunity to make their views known at the public hearing held in conjunction with each session.

All hunting, fishing and guiding regulations are set by the Alaska Board of Fish and Game. The Board—ten men appointed by the Governor—meets at least twice a year to revise the regulations, thus assuring that they reflect current situations. Notices are published at least 30 days before each session, inviting all interested persons to testify or submit written recommendations.

At least one day of each session is given over to testimony by the public, for both biology and the needs and the desires of Alaskans are considered. The meetings are rotated among towns in the state, so that all interested persons may appear in person.

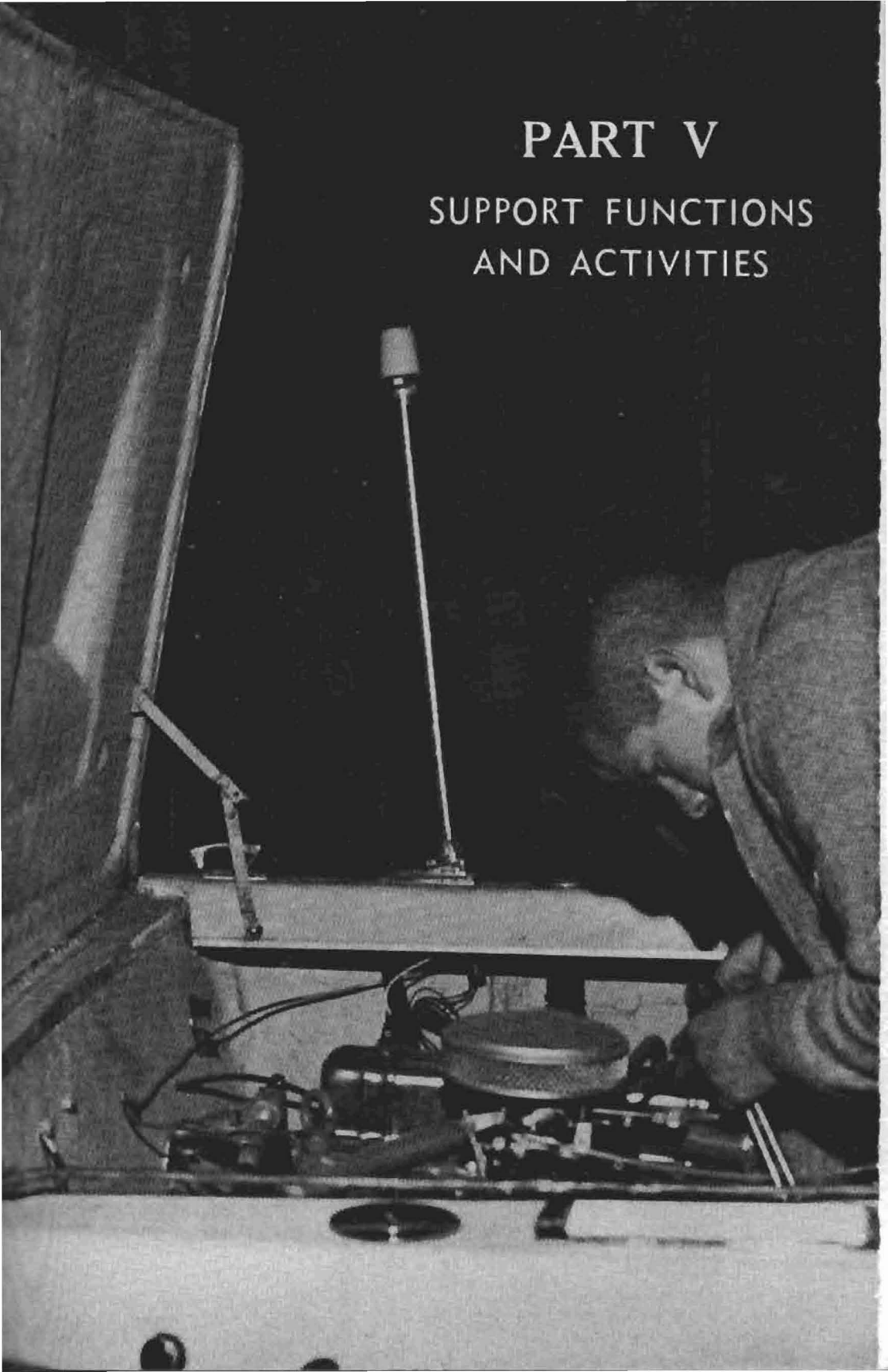
The Board has established Fish and Game Advisory Committees throughout the State. These committees hold public meetings, and send their recommendations to the Board, which considers them carefully.

Department biologists then brief the Board on the latest biological findings, and make their recommendations.

Deciding regulations on the basis of the large volume of facts and recommendations takes much study and discussion.

When the decisions are finally made the new regulations are prepared for filing with the Secretary of State. Another copy is made for the printer, and . . .

The final results provide the framework within which Alaskans enjoy the bounty of their great land.



PART V

SUPPORT FUNCTIONS AND ACTIVITIES

FISH AND GAME MANAGEMENT is essentially a business, carried out for the people by a public agency. The multi-million dollar size of this business in Alaska has been indicated in Part I—The Harvest and Its Value. Research and Development, essential to the future progress of any business, are described in Parts II and III.

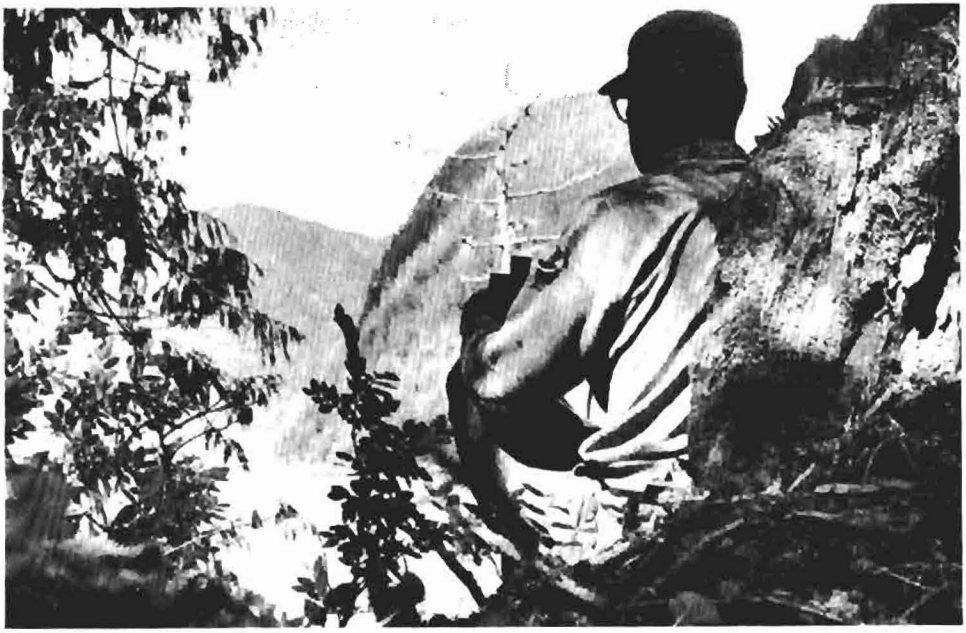
As in other businesses, there are a multitude of necessary everyday tasks which must be carried out by the Department of Fish and Game if the organization is to function smoothly and economically. Laws and regulations must be enforced, data must be compiled and analyzed, people must be hired, plans must be drawn, equipment purchased, funds kept track of. The people, who "own" the resources, must be kept informed of the status of those resources. If each man carrying out a research, development, or management program had to handle all these details himself, little time would be available for his primary tasks.

A member of a stakeout crew checks for violators. Fishing is prohibited within a certain distance of stream mouths, protecting escapement.

Enforcement of laws and regulations is primarily the responsibility of the Division of Protection, though most field men in the Department are deputized so that they may assist in this function. At the end of 1962 there were 33 Protection Officers in this Division, with an average of 225 additional temporary employees hired each year during periods of peak hunting and fishing activity.

Each permanent Protection Officer was responsible, on the average, for enforcement of game laws and regulations in 15,000 square miles of area. To cover this huge area the officers traveled, in the three years since the State took over the management of its fish and game, over 1,000,000 miles by air, 700,000 miles by road, 500,000 miles by boat, 10,000 miles by special vehicles such as snow tractors and swamp buggies, and even some 500 miles by dogsled, as well as about 10,000 miles afoot. In the course of these

extensive travels 403 persons were cited for violations of the game and guiding regulations, 212 for violations of the sport fishing regulations, and 705 for violations of the commercial fishing regulations. Penalties assessed by the courts included 50,180 days in jail sentences and $390,260 in fines.



Faced with a limited budget, the Division of Protection in 1962 developed the highly successful "stakeout" method of enforcing commercial fishing regulations. In this procedure, instead of placing a temporary Protection Aide on each stream during the entire fishing season, crews of two or three men were moved from stream to stream, keeping out of sight at each stakeout camp. This was found to be much more effective in protecting salmon escapement than the old method.

In addition to enforcement duties, Division of Protection personnel administer some of the Department's predator control programs, administer the bounty program, pilot aircraft for surveys by personnel of other Divisions, seal beaver pelts and bear hides, and assist federal and other state law enforcement agencies whenever possible.

The Department Library is maintained by the Division of Biological Research, and at the end of 1962 contained over 3,000 volumes plus thousands of periodicals and special reports.

In addition to its main function of providing information for research and other projects, the Library is also available to the public for its use in obtaining information about fish and game and related subjects both in Alaska and elsewhere. The Library subscribes to over 350 scientific journals and periodicals, and has facilities for copying material from these and the book section so that personnel in the field will benefit from research conducted elsewhere.

Fiscal management, property and purchasing, and general personnel matters are handled by the Office of Administration. The scope of these activities can be illustrated by some statistics. In the three years following statehood, the Office of Administration:

1 Handled the disbursement of 12¼ million dollars in State, Federal matching, and other funds.

2 Processed some 30,000 documents for the purchase of supplies, equipment, and services, ranging from aircraft to canned milk (for feeding moose and elk calves.)

3 Processed 4,320 documents on the hiring and termination of some 1,500 employees (including temporary help.)

4 Acquired approximately 5,500 items of major property—boats, airplanes, offices, vehicles—through transfer from federal and state agencies, at minimal cost to the Department.

Fiscal and personnel matters connected with so-called Federal Aid funds (funds obtained from federal excise taxes on sport fishing tackle, firearms, and ammunition, distributed to the states on a matching basis according to a formula based on comparative land area and license sales) were handled by a separate Federal Aid accounting section from 1960 to 1962. On October 1, 1962, this section was integrated into the Office of Administration to eliminate duplication of accounting and personnel efforts.

Education and information, a vital phase of the Department's operations, are handled by another office in Administration, the Education and Information Section. In 1960, 1961 and 1962 this Section mailed almost 40,000 pamphlets and other prepared material in response to 12,147 separate queries from individuals, organizations, and newspapers and other news media. The Section has produced six color-and-sound films for the Department and was working on two more at the end of 1962, and its circulating film library also contains nine films obtained from other sources (a list of titles will be found in the Appendix.) The Section distributed almost 300 statewide news releases in addition to the many local releases distributed by other Divisions of the Department.

The increasing interest in Alaska's fish and game resources, and the commensurate increasing importance of the Education and Information Section, are illustrated by comparative figures for the years 1960, 1961 and 1962:

	Queries Received	Pamphlets Mailed
1960	3,680	9,560
1961	3,987	12,401
1962	4,480	17,458

General administration and direction for the Department are, of course, provided by the Commissioner's Office. An important function of this office, in addition to the more obvious ones, is representing the Department at national, regional and international meetings for the purpose of obtaining information of benefit to Alaska, protecting Alaska's interests in international aspects of fish and game management, and fostering inter-agency cooperation on matters of common concern. Since Statehood, the Commissioner, Deputy Commissioner, or Department personnel representing them have attended:

The 25th, 26th and 27th North American Wildlife and Natural Resources Conferences;

The 1st and 2nd Governor's Salmon Conferences;

The 50th, 51st, and 52nd annual meetings of the International Association of Game, Fish, and Conservation Commissioners;

Two meetings of the Pacific Marine Fisheries Commission;

The 24th, 25th and 26th National Wildlife Federation meetings;

The 1962 meeting of the International Halibut Commission;

Four meetings of the International North Pacific Fisheries Commission;

The 40th, 41st, and 42nd meetings of the Western Association of State Game and Fish Commissioners;

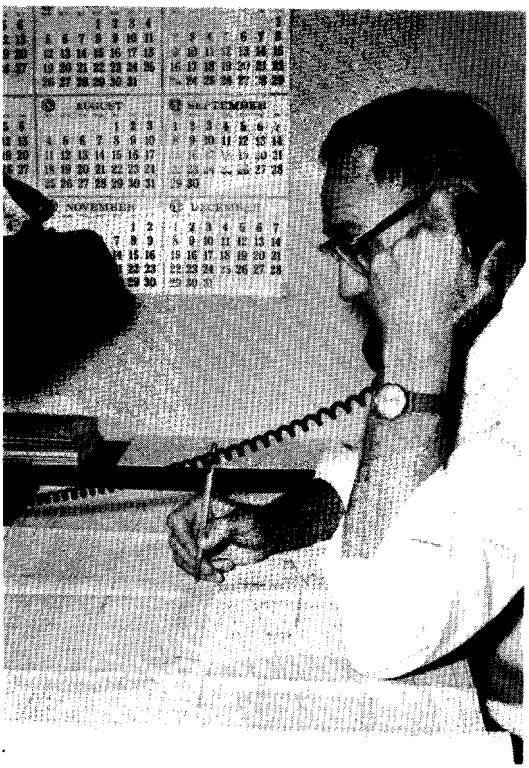
and several other meetings including those of the Alaska International Development Commission, the National Flyway Council; the Advisory Committee on Problems of the North Pacific; and the Fishing Industry Advisory Committee.


KITTIWAKE

Engineering, statistics, and marine fleet operations are the province of the Division of Engineering and Services. Prior to July 1, 1962, this Division also was responsible for the operation (jointly with the U.S. Fish and Wildlife Service) of a Food Technology Section and a Fish and Game Licenses Section: the former was terminated for economic and other reasons and the latter was transferred to the Department of Revenue in 1962.

A large portion of the engineers' time is devoted to consultation services for the other Divisions of the Department, furnishing advice and information on many minor problems concerned with engineering. Major projects completed by the Division include one dam and two migrant fish traps, two fishways, two water supply projects, and one hunter-access airstrip: plans and projects under way include spawning ponds, a hydro-power facility and electric distribution line, two fishways, two weirs, a hatchery residence, and hatchery improvements. Additional details on these projects and others appear in the Appendix.

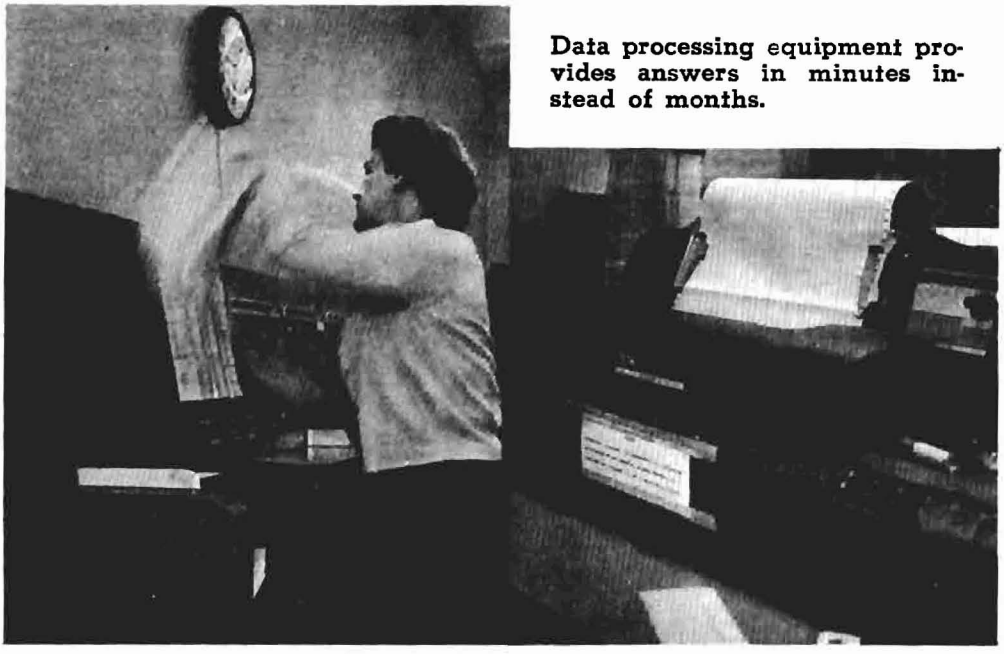
On July 1, 1962, a Vessels Section was formed in this Division to operate and maintain the 31 Department vessels over 30 feet in length. Ten of the larger units carry full-time crews. Twenty-five of the vessels are assigned to the Division of Protection, five to Commercial Fisheries, and one to the Sport Fish Division, though all, of course, are available when necessary for the projects of other Divisions. Their home ports and areas of operation extend from Ketchikan to Bristol Bay.



Department vessels like these supply field crews, check fishing boats, and serve as mobile base camps.

"According to my calculations . . ." Department engineer provides quick advice on a project.

The Statistics Section processes biological and related data for all Divisions of the Department. Statistical reports, which are important tools in fish and game management, are tabulated from large volumes of data by means of IBM data processing machines. In 1960-61-62 the Section handled eleven projects for the Division of Game, four each for the Sport Fish Division and Biological Research, one for the Division of Protecton, and two for Administration. These involved preparation of some twelve hundred reports and the handling of one and one-half million IBM cards.



Data processing equipment provides answers in minutes instead of months.

In addition to serving as the data processing agency for the Department, the Statistical Section directs the commercial fisheries fish ticket program and collects and compiles commercial fisheries production statistics. Each time a commercial fisherman sells fish or shellfish, the buyer is required to complete a fish ticket listing the quantity of each species of fish taken and when, where and how they were caught. The tickets are submitted to the Department's Division of Commercial Fisheries area offices, where they are coded and then forwarded to the Statistical Section for card punching and summarizing. The area offices, in addition

to coding the tickets, extract from them information which serves as a basis for making emergency regulations to adjust the catch and escapement so as to achieve maximum sustained yield. Detailed catch reports are tabulated from approximately 250,000 fish tickets annually.

Commercial fisheries production statistics are compiled from annual reports completed by all companies and individuals engaged in any type of fish or shellfish processing. These data, along with the catch statistics, are published annually in Statistical Leaflets compiled by the Statistical Section. The data are also furnished to the Federal Government for inclusion in national publications, and to the International North Pacific Fisheries Commission, where they are used to help substantiate the United States' position in international fisheries problems concerning the North Pacific Ocean and the Bering Sea.

During the salmon canning season, weekly case pack reports are published for release to the public.

Skilled operators transfer field data to IBM cards.

PART VI
ORGANIZATION

ALASKA BOARD OF FISH AND GAME


Eugene V. Miller
Fairbanks


Howard G. Romig
Anchorage


Oscar Dyson
Kodiak


Gordon Jensen
Petersburg


Frank Degnan
Unalakleet

— Present —


Robert H. Moss
Homer


Frank See
Hoonah


Truman Emberg
Dillingham


Roy Selfridge
Ketchikan


Richard Janson, Jr.
Cordova


Bob Martin
Naknek

Dan Ross
Anchorage

Art Hayr
Fairbanks

Dale Friemering
Unalakleet

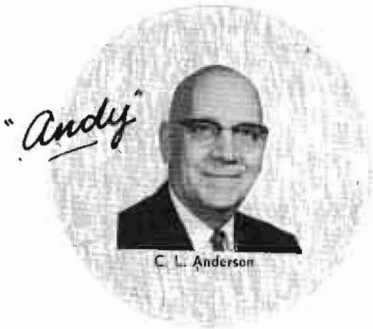
Arnold Brower
Barrow

Past

DEPARTMENT ORGANIZATION

Av Gross

ASSISTANT ATTORNEY GENERAL



C. L. Anderson

COMMISSIONER

Walt Kirkness

DEPUTY COMMISSIONER

Ed Marvich

ADMINISTRATIVE OFFICER

Doug Terry

DIVISION DIRECTORS

Alex McRae
SPORT FISH

Jim Brooks
GAME

Bud Weberg
PROTECTION

Stan Swanson
COMMERCIAL FISHERIES

Howard Tait
BIOLOCICAL RESEARCH

Gil Ziemer
ENGINEERING & SERVICES

AS THERE WILL BE in any organization, there were a number of personnel changes—and many additions—during the three years covered by this report. The organization chart on the preceding page shows the persons who held the named positions at the end of 1962. On the chart showing the Board of Fish and Game members, deserved recognition is given to former members as well as those serving at the end of 1962.

On the chart depicting the organization of the Department as a whole there is, rightfully, one extra name and face that was not present at the end of 1962: C. L. Anderson. "Andy", as he was well known to all, is the father of the Alaska Department of Fish and Game, having organized it (as the Alaska Department of Fisheries) in 1949 and fostered it through the first two years of statehood. He retired in the Fall of 1961.

Some of the Department's Divisions have Regional Offices, others do not. The personnel of each Division are located in the various towns and villages of Alaska according to the needs of the people and the distribution of important fish and game species. The Department, represented by at least one Division, and in some places by as many as five Divisions, has offices in the following places:

Anchorage	Dillingham	Ketchikan	Haines	Seward
Aniak	Delta Jct.	Kodiak	Palmer	Sitka
College	Fairbanks	King Salmon	Petersburg	Tok
Cordova	Glennallen	Naknek	Sand Point	Wrangell
Craig	Homer	Nome	Seldovia	Yakutat

Appendix A

Harvests and Values

Table A1

Comparative Annual Production of Alaska Fisheries Products 1960-1962, As Prepared for Market

SPECIES	VALUE			POUNDS			VALUE PER LB.*		
	1960	1961	1962	1960	1961	1962	1960	1961	1962
Salmon	$83,108,381	$107,049,530	$102,418,900	136,707,958	171,086,300	183,920,500	$0.61	$0.63	$0.56
King crab	5,294,866	9,625,500	11,861,800	5,034,435	8,549,000	10,577,100	1.05	1.13	1.12
Halibut	3,736,154	7,035,160	10,287,800	23,040,415	24,738,950	30,934,900	0.16	0.28	0.33
Herring	1,390,394	958,600	797,800	26,827,235	16,802,700	15,316,800	0.05	0.06	0.05
Shrimp	1,128,709	1,861,010	3,385,400	1,177,506	2,030,200	3,147,700	0.96	0.92	1.08
Dungeness crab	1,108,432	1,474,180	2,569,600	1,147,895	1,569,100	3,334,100	0.97	0.94	0.77
Clams	459,545	410,960	245,500	344,868	293,000	153,900	1.33	1.40	1.60
Sablefish	442,367	262,430	269,900	2,420,366	1,089,050	1,031,900	0.18	0.24	0.26
Steelhead	3,494	2,960	2,200	8,794	7,300	6,800	0.40	0.41	0.32
Tanner crab	——	1,220	2,500	——	1,400	4,800	—	0.87	0.52
Dolly Varden	1,073	3,590	900	6,060	11,950	3,100	0.18	0.30	0.29
Bottomfish	1,022	2,150	10,100	7,965	17,900	47,000	0.13	0.12	0.21
Smelt	54	——	——	87	——	——	0.62	—	—
TOTAL	$96,674,491	$129,513,865	$131,852,400	196,723,584	225,370,230	248,483,600	$0.49	$0.57	$0.53

* Varying values may indicate primarily that the species composition of the catch varies from year to year. This is especially true of salmon, as the various species have different cycles. The value per pound figures are thus of interest mainly over long periods of time. They are included here as a matter of interest, and should not be used to indicate trends in values when more than one species is included in a category.

Additional, more detailed commercial fisheries statistics are available from sources listed in Appendix C.

Figure A1.

Alaska salmon case packs and values, all species, 1912-1962.

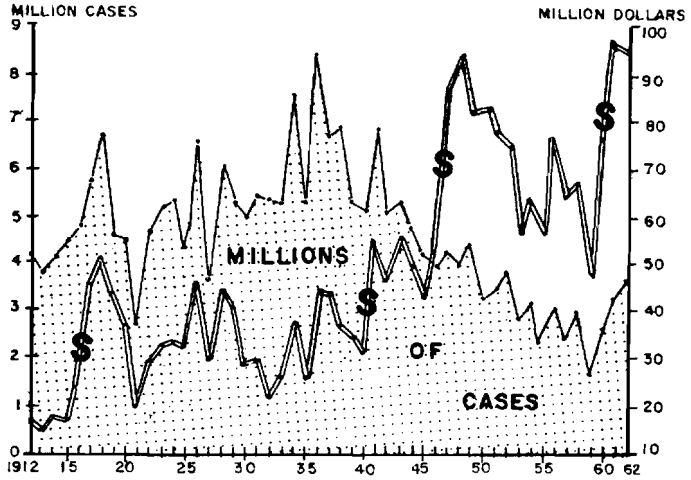


Figure A2.

Pounds of fish and shellfish landed in Alaska and values to fishermen, 1927-1962.

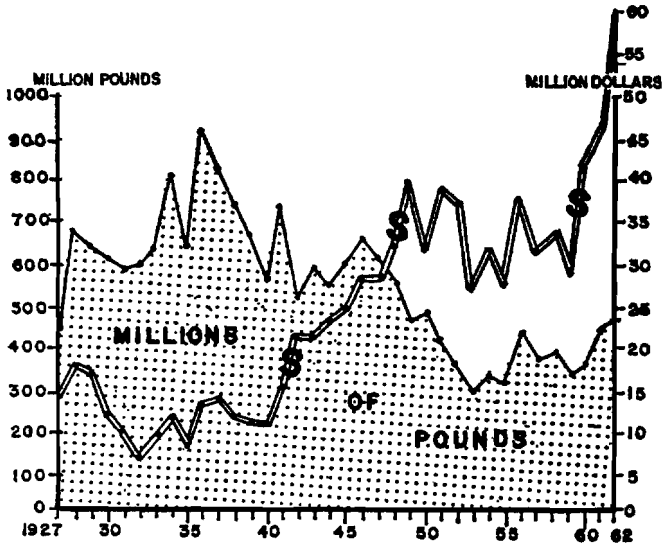


Table A2

ALASKA BIG GAME HARVESTS, 1960-1962

SPECIES	NUMBER		
	1960	1961	1962
Caribou	20-30,000	20-30,000	20-30,000
Deer	12,000	12,000	11,000
Moose	5,500	7,500	9,000
Walrus	2,300	1,200-1,500	1,200-1,400
Black Bear	1,100	1,100	1,200
Dall Sheep	500-1,000?	500-1,000?	666*
Brown & Grizzly Bear	505*	455*	538*
Mountain Goat	500	500	600
Polar Bear	163*	156*	193*
Elk	127*	125*	120*
Bison	0	50*	0

* Figures marked with an asterisk are those which are known to be accurate. For example, a Sheep Harvest Ticket in 1962 gave the first accurate harvest figures on this species, and bear sealing requirements provide accurate data on brown, grizzly, and polar bear. All other figures are estimates, based on data of varying reliability. A Moose Harvest Ticket will be used in 1963 to obtain accurate figures on this species for the first time.

Table A3

ALASKA FUR HARVESTS, 1960-1962

SPECIES	NUMBER		
	1960	1961	1962
Beaver	23,000	24,000	15,000
Muskrat	132,500	91,000	36,000
Mink	21,000	30,000	9,000
Marten	5,000	5,000	4,500
Land Otter	3,900	3,500	3,500
White Fox	1,850	2,100	800
Other Fox	730	700	750
Wolf	170*	720	450
Wolverine	200	292	175
Lynx	780	900	1,100
Weasel (Ermine)	2,000	1,700	1,400
Squirrel	n/a	700	400
Coyote	n/a	50	60

* Incomplete data. Harvest was probably considerably higher.

Appendix B

DEVELOPMENT PROJECTS

Table B1

LAKES STOCKED WITH SPORT FISH, 1960-1962

FIRE LAKE HATCHERY

RAINBOW TROUT

Arizona	Echo	Johnson	Mark	Texsmith
Blueberry	Finger	Knik	Matanuska	Thompson
Bonnie	Fish	Long	Otter	Tiekel River
Campbell	Florence	Long (Mile 86)	Ravine	Triangle
Clunie	Girgie	Lower Bonnie	Rocky	Two Mile
Cooling Pond	Green	Lynn	S^2	Upper Summit
Cordova	Halabouti	Marian	Sand	Weiner

RAINBOW TROUT AND SILVER SALMON

Chitina	Falk	Jewel	Mirror	Twelve Mile
Delaney	Gregory	Lucille	Scout	Twin Island
		Meir		

SILVER SALMON

Fire Island	Goose	Hercules	Little	Nita

GRAYLING

Hilberg	Juneau	Dick	Mission	Tolsona
			Pippin	

GRAYLING FRY

BIRCH LAKE HATCHERY

RAINBOW TROUT

ARR Pits (Fbks)	Crescent	Falls	Lisa	13 Mile
Beaver Pond	Crystal	Ft. Wainwright	Mile Pit 81	30 Mile Pit
Caribou	Deadman	Cooling Pond	Moore	31 Mile Pit
	Donna	Harding	Nita	
		Jan		

RAINBOW TROUT AND SILVER SALMON

Bolio	Craig	Lost

SILVER SALMON

2 Mile Pit

Table B1

LAKES STOCKED WITH SPORT FISH, 1960-1962 (cont.)

KODIAK HATCHERY

RAINBOW TROUT

Adak Hatchery[1]	BF #21	CP #34	B #21	B #26
BF #20	CP #29	Melnitsa	B #24	B #79
	CP #30	B #20	B #25	

RAINBOW TROUT AND SOCKEYE SALMON

SC #12

SILVER SALMON

CC #46	Dark	Elephant	L1 #70	Tanignak
		Fire Lake Hatchery[2]		

GRAYLING (eyed eggs)

AL #3	CC #42	NC #55	

DEER MOUNTAIN HATCHERY

RAINBOW TROUT

Amber	Duck	Marshall Ponds	Moraine	Qt
Black	Glacier	Moira	Notch Mountain	Swan

GRAYLING (eyed eggs)

Big Goat	Kane	Summit	Tyee

AUKE LAKE HATCHERY

GRAYLING (eyed eggs)		STEELHEAD
Crevice Creek	Peterson Creek	Peterson

1—19,245 Rainbow fry transported to the Naval Hatchery on Adak for rearing and stocking.
2—20,000 Silver fry transported to Fire Lake Hatchery in Anchorage for rearing and stocking.

Table B2

SPORT FISH LAKES REHABILITATED, 1960-1962

Lake	Area	Surface Area in Acres	Year	Concent.	Toxicant	Fish Eradicated	Result
Kelly	Anch. Mat. Valley	29.5	1960	0.025 ppm	Toxaphene	Stickleback	Partial
Two-Mile	Fairbanks	40	1961		Rotenone	Sucker, Burbot Pike, Whitefish	Complete
Finger	Anch. Mat. Valley	400	1961	0.01 ppm	Toxaphene	Sucker, Stickleback, Dolly Varden	Complete
Gregory	Anch. Mat. Valley	250	1961	0.05 ppm	Rotenone	Stickleback	Partial
Falk	Anch. Mat. Valley	19	1961		Rotenone	Stickleback	Unknown
Bumblebee	Anch. Mat. Valley	83	1961	0.01 ppm	Toxaphene	Stickleback	Complete
Crystal	Anch. Mat. Valley	130	1961	0.01 ppm	Toxaphene	Sucker, Stickleback	Complete
Florence	Anch. Mat. Valley	72.5	1961	0.01 ppm	Toxaphene	Stickleback	Complete
Loon	Anch. Mat. Valley	115	1961		Toxaphene	Stickleback	Complete
Willow	Anch. Mat. Valley	150	1961		Toxaphene	Stickleback, Sucker	Partial
Clunie	Anch. Mat. Valley	103	1961	0.01 ppm	Toxaphene	Stickleback	Complete
Peterson	Southeastern	52.2	1961		Rotenone	Stunted Dolly Varden	Complete
Jerome	Kenai Peninsula	25	1961		Toxaphene	Dolly Varden	Unknown
Johnson	Kenai Peninsula	50	1961		Rotenone	Stickleback	Partial
Lost	Fairbanks	92	1962		Rotenone	Chub, Sucker	Complete

Table B3

SUMMARY OF SPORT FISH STOCKED, 1960-1962

Hatchery	SPECIES					Total	Number of Lakes Stocked
	Rainbow	Steelhead	Silver Salmon	Sockeye Salmon	Grayling		
Birch Lake	323,333		48,791			372,124	22
Fire Lake	827,824		149,807		160,000	1,137,631	57
Auke Lake		34,914			30,000	64,914	3
Kodiak	58,316		58,260	5,000	71,000	192,576	23
Deer Mountain	56,750				150,000	206,750	14
TOTAL	1,266,223	34,914	256,858	5,000	411,000	1,973,995	119

Table B4

PUBLIC ACCESS SITES ACQUIRED, 1960-1962

SOUTHEASTERN ALASKA

Juneau 2	Klukwan 2	Petersburg 1

CENTRAL ALASKA

Alaska Peninsula 6	McCarthy 2	Summit Lake 2
Anchor Point 1	Mentasta Pass 2	Sunshine 1
Anchorage 1	Montana 1	Susitna Basin 4
Chitina 4	Ninilchik 3	Talkeetna 9
Cohoe 1	Palmer 3	Tazlina 4
Eureka 4	Paxson 10	Tyonek 1
Glennallen 8	Skwentna 4	Valdez 1
Glennallen Hwy. 1	Soldotna 1	Wasilla 8
Gulkana 1	Sourdough 2	Willow 3
Kenai 2	Strelna 2	Willow Hwy. 5

INTERIOR ALASKA

Aniak 1	Chena River 3	Livengood 5
Brooks Range 3	Circle 2	Manley Hot Springs.. 2
Chatanika 4	Delta Junction 1	Nenana 2
Chena Hot Springs.... 3	Fairbanks 4	Tangles Lakes 1

Table B5

SPORTSMAN FACILITIES PLACED OR CONSTRUCTED, 1960-1962

AREA	LOCATION	TYPE OF FACILITY
Admiralty Island	Lake Kathleen	Cabin[1]
Admiralty Island	Distin Lake	Cabin[1]
Yakutat	Tanis Hills	Airstrip[2]
Yakutat	Harlequin Lake	Airstrip[2]
Haines	Chilkat Lake	Airstrip
Ketchikan	Low Lake	Skiff[2]
Ketchikan	Karta Lake	Skiff[2]
Ketchikan	Barnes Lake	Skiff[2]
Petersburg	Petersburg Lake	Skiff[2]
Petersburg	Towers Lake	Skiff[2]
Petersburg	Deboers Lake	Skiff[2]
Petersburg	Kahsheets Lake	Skiff[2]

1—Cooperative projects with U.S. Forest Service and Territorial Sportsmen, Inc.

2—Cooperative projects with U.S. Forest Service.

Table B6

SUMMARY OF ENGINEERING PROJECTS, 1960-1962

1. COMPLETED PROJECTS

(a) Dams, Weirs, Migrant Traps:

Division Served	Project Name	Location
Research	Big Kitoi Lake Outlet Dam	Afognak Island
Sport Fish	Upper Fire Lake Migrant Trap	Anchorage
Sport Fish	Lower Fire Lake Migrant Trap	Anchorage

(b) Fishways:

Commercial Fish	Fritz Creek	Homer
Commercial Fish	Shrode Creek (in cooperation w/USFS)	Prince William Sound

(c) Water Supply:

Research	Kitoi Bay Station	Kodiak
Sport Fish	Fire Lake Hatchery	Anchorage

(d) Miscellaneous Projects:

Game	Chilkat Airstrip	Klukwan

2. PROJECTS UNDERWAY

(a) Surveys, Designs, Plans:

Division Served	Project Name	Location
Research	Spawning Ponds	Kitoi Station
Research	Hydro Power Facility	Kitoi Station
Research	Electric Distribution Lines	Kitoi Station

Table B6

SUMMARY OF ENGINERING PROJECTS, 1960-1962 (cont)

Division Served	Project Name	Location
Commercial Fish	Frazer Fishway (Cont. Awarded 1962)	Kodiak Island
Commercial Fish	Pauls Lake Fishway	Afognak Island
Sport Fish	Fire Lake Residence	Anchorage

3. PLANNING UNDERWAY:

(a) Surveys and Designs:

Division Served	Project Name	Location
Sport Fish	Big Lake Weir	Wasilla
Sport Fish	Birch Lake Weir	Fairbanks
Sport Fish	Auke Lake Fish Hatchery	Juneau
Game	Minto Lakes Access Road	Fairbanks
Sport Fish	Lucile Lake Control Structure	Wasilla

4. RESEARCH AND STUDIES:

(a) Steeppass Fishways

(b) Migrant Traps

(c) Logging/Spawning Stream Relationships

Table B7

GAME ANIMALS TRANSPLANTED, 1960-1962

SPECIES	FROM	TO	YEAR
Moose	Matanuska Valley	Berner's Bay	1960
Elk	Afognak Island	Gravina Island	1962
Blue Grouse	Petersburg	Kodiak Island	1962
Bison	Big Delta	Chitina Area	1962

Appendix C

PUBLICATIONS AND FILMS

1. Department Publications

A. ANNUAL REPORTS

No. 1, 1949 — No. , 19.....

B. INFORMATION LEAFLETS

1. **Meehan, William R. and John B. Vania.**
   An external characteristic to differentiate between king and silver salmon juveniles in Alaska. March 20, 1961, 6 p.
2. **Rickey, Roy and William L. Sheridan.**
   Length-weight relationships of carapace measurements of the king crab *(Paralithodes camtschatica)*.
3. **Sheridan, William L.**
   Summary of knowledge of certain factors influencing survival of salmon in freshwater. November 20, 1961. 5 p.
4. **Meehan, William R. and L. Revet.**
   The effect of tricaine methanesulphonate (MS 222) and/or chilled water on oxygen consumption of sockeye salmon *(Oncorhynchus nerka)* fry. December 6, 1961. 3 p.
5. **Sheridan, William L., William R. Meehan and L. Revet.**
   Preliminary survey of Afognak Lake. December 15, 1961. 14 p.
6. **Powell, Guy C.**
   King crab migrations from an offshore release location, Kodiak Island, October, 1960. December 30, 1961. 7 p.
7. **Siniff, Donald B. and David R. Klein.**
   The use of statistics in wildlife research. January 5, 1962. 7 p.
8. **Tait, Howard D.**
   Standard methods of measuring salmon. February 19, 1962. 2 p.
9. **Tait, Howard D.**
   Kitoi Bay Research Station; its development, accomplishments and future. February 23, 1962. 6 p.
10. **Siniff, Donald B.**
    Report on data processing short course. March 27, 1962. 3 p.
11. **Sheridan, William L. and William R. Meehan.**
    Rehabilitation of Big Kitoi outlet stream, Afognak Island, Alaska. April 3, 1962. 13 p.
12. **Ziemer, G. L.**
    Steeppass fishway development. April 27, 1962. 9 p.
13. **Richardson, Thomas H. and David W. Narver.**
    Forecast of Chignik Bay red salmon run in 1962. April 15, 1962. 2p.
14. **Alaska Department of Fish and Game, Bureau of Commercial Fisheries and Fisheries Research Institute.**
    Forecast of Bristol Bay red salmon run in 1962. April 17, 1962. 23 p.
15. **Tait, Howard D.**
    Glossary of common trawl fish, June 26, 1962. 4 p.
16. **Neiland, Kenneth A.**
    Preliminary observations on Philonemiasis and Crepidostomiasis in Alaskan fresh-water fish. June 26, 1962. 5 p.
17. **Revet, Leonard**
    A preliminary study of the migration and growth of the Dolly Varden char in Kitoi Bay, Alaska. August 23, 1962. 3 p.
18. **Merriam, Harry**
    Immobilization technique for Sitka black-tail deer in Southeast Alaska. September 10, 1962.
19. **Powell, Guy C.**
    King crab, *Paralithodes camtchatica*, recoveries in 1962 from from Alitak Bay tagging. September 28, 1962. 2 p.
20. **Skoog, Ronald O.**
    Method for estimating caribou herds. December 3, 1962. 6 p.
21. **Norenberg, Wallace A.**
    Salmon forecast studies on 1963 runs in Prince William Sound. January 1, 1963. 17 p.
22. **Gray, George W., Jr.**
    Loss of isthmus tags from king crabs, *Paralithodes camtschatica* (Tilesius). 1963, 4 p.
23. **Alaska Department of Fish and Game, U.S. Bureau of Commercial Fisheries, Fisheries Research Institute.**
    Forecast of Bristol Bay red

salmon run in 1963. January 17, 1963. 13 p.

24. **Narver, David W., and Thomas H. Richardson.**
Forecast of Chignik River red salmon run in 1963. March 20, 1963. 4 p.

25. **Kerns, O. E. Jr., and R. A. Marriott.**
Enumeration of red salmon smolt migration. March 26, 1963. 18 p.

26. **Gray, George W., Jr.**
Growth of mature female king crab, *Paralithodes camtschatica* (Tilesius). April 9, 1963. 3 p.

27. **Sheridan, W. L. and W. R. Noerenberg.**
Sizes of pink salmon downstream migrants. May 7, 1963. 9 p.

28. **Not yet published.**

29. **Church, Wilbur.**
Red salmon spawning ground surveys in the Nushagak and Togiak districts, Bristol Bay, 1960. June 18, 1963. 8 p.

30. **Church, Wilbur.**
Red salmon spawning ground surveys in the Nushagak and Togiak districts, Bristol Bay, 1961. n.d. 8 p.

C. LEAFLETS:

1. **Anderson, C. L.**
Role of the salmon hatchery in Alaska, July 1955. 4 p.

D. LIBRARY ACCESSION LISTS:

No. 1, July 1961-No. , 19.....

E. MEMORANDUMS:

1. **Alaska Department of Fish and Game, Bureau of Commercial Fisheries and Fisheries Research Institute.**
Forecast of Bristol Bay red salmon run in 1961. February 1, 1961.

2. **Alaska Department of Fish and Game.**
Special king crab report. Kodiak, April 1, 1961. 48 p.

3. **Siniff, Donald B.**
A report on a mesh selectivity study conducted on the 1961 Bristol Bay red salmon run. October 1, 1961. 8 p.

5. **Noerenberg, Wallace H.**
Observations on spawning and subsequent survival of fry of the 1960 salmon runs in Prince William Sound, Alaska. November 22, 1961. 22 p.

F. RESEARCH REPORTS:

1. **Parker, Robert R. and Walter Kirkness.**
King salmon and the ocean troll fishery of Southeastern Alaska. September, 1956. 64 p.

G. STATISTICAL LEAFLETS:

1. **Chitwood, Philip E.**
1960 Alaska commercial fisheries catch and production statistics. n.d. 19 p.

2. **Alaska Department of Fish and Game.**
1961 Alaska fishery operators. n.d. 16 p.

3. **Chitwood, Philip E.**
1961 Alaska commercial fisheries catch and production statistics. (1962) 17 p.

4. **Alaska Department of Fish and Game.**
1962 Alaska commercial fishery operators. January 1963. 17 p.

H. MISCELLANEOUS PUBLICATIONS:

Alaska Board of Fish and Game.
Guide register. Rev. June 15, 1961. n.p.

Alaska Department of Fish & Game
Alaska commercial fish operators. 1960. n.d. 11 p.

—Biological Research Division. **Research notes.** No. 1, 1961.

—Commercial fisheries Division. **Introduction of adult pink salmon to Fritz Creek: A Cook Inlet field report.** October 1961. 5 p.

—Division of Game. **Annual report of progress** 1959-1960. Vol. 1. Alaska wildlife investigations. (Federal Aid in Wildlife Restoration Project W-6-R-1) (1961) 504 p.

—Division of Game. **Annual report of progress** 1960-1961. Vol. 2. Game investigations of Alaska. (Federal Aid in Wildlife Restoration Project W-6-R-2) (1962) Contents: No. 1, Sitka black-tailed deer investigations.—No. 2, Moose management investigations.—No. 3, Caribou management investigations.—No. 4, Elk and bison management investigations.—

No. 5, Sheep and goat investigations.—No. 6, Bear investigations.—No. 7, Fur mammal investigations, snowshoe hare investigations, wildlife reconnaissance.—No. 8, Game bird investigations.—No. 9, Marine mammal investigations.—No. 10, Wolf management investigations.—No. 11, Parasite and disease investigations.

—Sport Fish Division. **Annual report of progress, 1959-1960.** Vol. 1. Sport fish investigations of Alaska. (Federal Aid in Fish Restoration Project F-5-R--1) (1961) 142 p.

—Sport Fish Division. **Annual report of progress, 1960-1961.** Vol. 2. Sport Fish investigations of Alaska. (Federal Aid in Fish Restoration Project F-5-R-2) (1962) 303 p.

Hennick, Daniel P. and Larry P. Jenning.

Cook Inlet seismographic observations, October-November 1962. n.d. 7 p.

Kodiak Research Center.

Increased commercial utilization of sublegal male king crabs in the Kodiak area. **King Crab Research Staff Report** No. 2. 1 p.

Lensink, Calvin J.

Summary of bounty expenditures, July 1959-June 1960. December 1960. 8 p.

Meehan, William R.

Report on spraying project for black-headed budworm in Queen Charlotte Islands, British Columbia. June 28, 1960. 7 p.

Middleton, Kenneth R.

Bristol Bay biography; a reference source to the red salmon fishery of Bristol Bay. November 30, 1961. 27 p.

Powell, Guy C.

Investigation of the growth rates of king crab in the Kodiak area. November 1960. 43 p.

Rearden, Jim D. and C. A. Weberg.

A survey of the razor clam *(Siliqua patula dixon)* **sports fishery, Kenai Peninsula, Alaska.** August 1959. 25 p.

Sheridan, William L.

Kitoi Bay Research Station: Annual Report 1960. November 16, 1960. 10 p.

Weberg, C. A. and J. D. Rearden.

Observation on offshore seismographic work in Alaska, January-June 1959. June 1959. 145 p.

2. Scientific Journal Publications

Andrews, Rupert E.

The role of bag limits, size limits and seasons as tools in sport fish management. **Proc. 11th Alaska Sci. Conf.,** 1960. pp. 90-91.

Kirkness, Walter

The use of bag, size and season limits in managing a sport fishery for king and silver salmon, Anchorage, **Proc., 11th Alaska Sci. Conf., 1960.** pp. 88-90.

Klein, David R.

Rumen contents analysis as an index to range quality. **27th N. A. Wildl. Conf., Trans.,** 1962, pp. 150-164.

Lensink, Calvin J.

Status and distribution of sea otters in Alaska. **J. Mamm.,** 41(2): 172-182, May 1960.

Meehan, William R.

Observations on feeding habits and behavior of grizzly bears. **Amer. Midl. Nat.,** 65(2): 409-412, April 1961.

—Use of a fishwheel in salmon research and management. **Trans., Amer. Fish. Soc.,** 90(4): 490-494, October 1961.

Meehan, William R. and L. Revet.

The effect of tricaine methanesulfonate (MS 222) and/or chilled water on oxygen consumption of sockeye salmon fry. **Progr. Fish.-Cult.,** 24(4):185-187, October 1962.

Meehan, William R., and Donald B. Siniff.

A study of the downstream migrations of anadromous fishes in the Taku River, Alaska.

Trans., Amer. Fish. Soc., 91(4): 399-407, October 1962.

Mossman, Archie S.

A color marking technique. **J. Wild. Mangt.**, 24(1):104, January 1960.

Neiland, Kenneth A.

Alaska species of acanthocephalan genus Corynosoma luehe, 1904. **J. Parasit.**, 48(1): 69-75, February 1962.

Neiland, Kenneth A.

Suspected role of parasites in nonrookery mortality of fur seals *(Callorhinus ursinus)*. **J. Parasit.**, 47(5):732, October 1961.

Neiland, Kenneth A.

Two new species of Prosthodendrium Dollfur 1931 (trematoda: Lecithodendriidae) from the little brown bat in Southeastern Alaska. **J. Parasit.**, 48 (3):400-401, June 1962.

Parker, Robert R.

Critical size and maximum yield for Chinook salmon *(Oncorhynchus tshawytscha)*. **J. Fish. Res. Bd. Canada**, 17(2): 199-210, March 1960.

Powell, Guy C.

Migration of large male king crabs, *Paralithodes camtschatica*, off Two-Headed Island Kodiak Island, in October 1960. **Proc., 12th Alaska Sci. Conf.**, 1961. pp. 101-102.

Rausch, Robert A.

Present status and possible future management of wolf populations in Interior and Arctic Alaska. **Proc., 12th Alaska Sci Conf.**, 1961. p. 28.

Rausch, Robert A. and Ralph W. Ritcey.

Narcosis of moose with nicotine. **J. Wildl. Mangt., 25(3):** 326-328, July 1961.

Shepherd, Peter E. K.

Trumpeter swans in Alaska. **Proc., 12th Alaska Sci. Conf.**, 1961. pp. 22-23.

Weeden, Robert B.

Outer primaries as indicators of age among rock ptarmigan. **J. Wildl. Mangt.**, 25(3):337-339, July 1961.

Weeden, Robert B.

A population study of rock ptarmigan in Central Alaska. **Proc., 12th Alaska Sci. Conf.** August 29, 1962. pp. 23-24.

3. Popular Articles

Cramer, Edward J.

The sheefish of Arctic America. **Alaska Sportsman** 28(11): 18-20, November 1962.

Croxton, Loren W.

Alaska's wild mink. **Alaska Sportsman**, 29(3):26-27, March 1962.

Jones, Frank.

Alaska's white sheep. **Alaska Sportsman** 29(1):18-20, January 1963.

Klein, David R.

The Alaskan mountain goat. **Alaska Sportsman** 27(3):14-16, March 1961.

Klein, David R.

The Sitka black-tailed deer. **Alaska Sportsman** 26(9):13-15, September 1960.

Olson, Sigurd T.

The polar bear. **Alaska Sportsman**, 26(7):10-12, July 1960.

Skoog, Ronald O.

The caribou, nomad of the North. **Alaska Sportsman**, 28 (4):18-21, April 1962.

Wadman, Roger D.

The Alaskan cutthroat trout. **Alaska Sportsman**, 28(10):18-20, October 1962.

Weeden, Robert B.

Alaska's grouse. **Alaska Sportsman**, 27(11):16-18, November 1961.

Weeden, Robert B.

Alaska ptarmigan. **Alaska Sportsman**, 27(8):12-14, August 1961.

4. Films

4. **FILMS** (All films listed are available for showing to organizations, school classes, and public meetings. Contact nearest Department office).

A. **Department Films:**

"The King Crab Story"
Color and Sound Running time, 29 min.

"The Sea Lion"
Color and Sound Running time, 20 min.

"Rainbows for the Sportsman"
Color and Sound Running time, 14 min.

"Valley of the Kings"
Color and Sound Running time, 29 min.

"Quest for Better Fishing"
Color and Sound Running time, 11 min.

"White Whales of Bering Sea"
Color and Sound Running time, 11 min.

B. **Films Purchased by the Department:**

"Fisheries of the Great Slave"
National Film Board of Canada
Color and Sound Running time, 18 min.

"Alaska and Its Natural Resources"
Richfield Oil Company
Color and Sound Running time, 26 min.

"Fish and the Seine Net"
Scottish Home Department and Marine Laboratory, Aberdeen
Black & White Sound Running time, 19 min.

"Adaq, King of Alaskan Seas"
Wakefield Fisheries
Color and Sound Running time, 26 min.

"Salmon—Catch to Can"
U.S. Fish & Wildlife Service in cooperation with the Canned Salmon Institute.
Color and Sound Running time, 14 min.

"Take a Can of Salmon"
U.S. Fish & Wildlife Service in cooperation with the Canned Salmon Institute.
Color and Sound Running time, 14 min.

"Trawls in Action"
A Ministry of Agriculture & Fisheries Film England, made by the Fisheries Laboratory Lowestoff.
Black & White Sound Running time, 26 min.

"Animals of Alaska"
Cecil E. Rhode—Northern Films
Color and Sound Running time, 11 min.

"The Loon's Necklace"
Crawley Films Ltd., distributed by Encyclopedia Britannica Films, Inc.
Color and Sound Running time, 11 min.

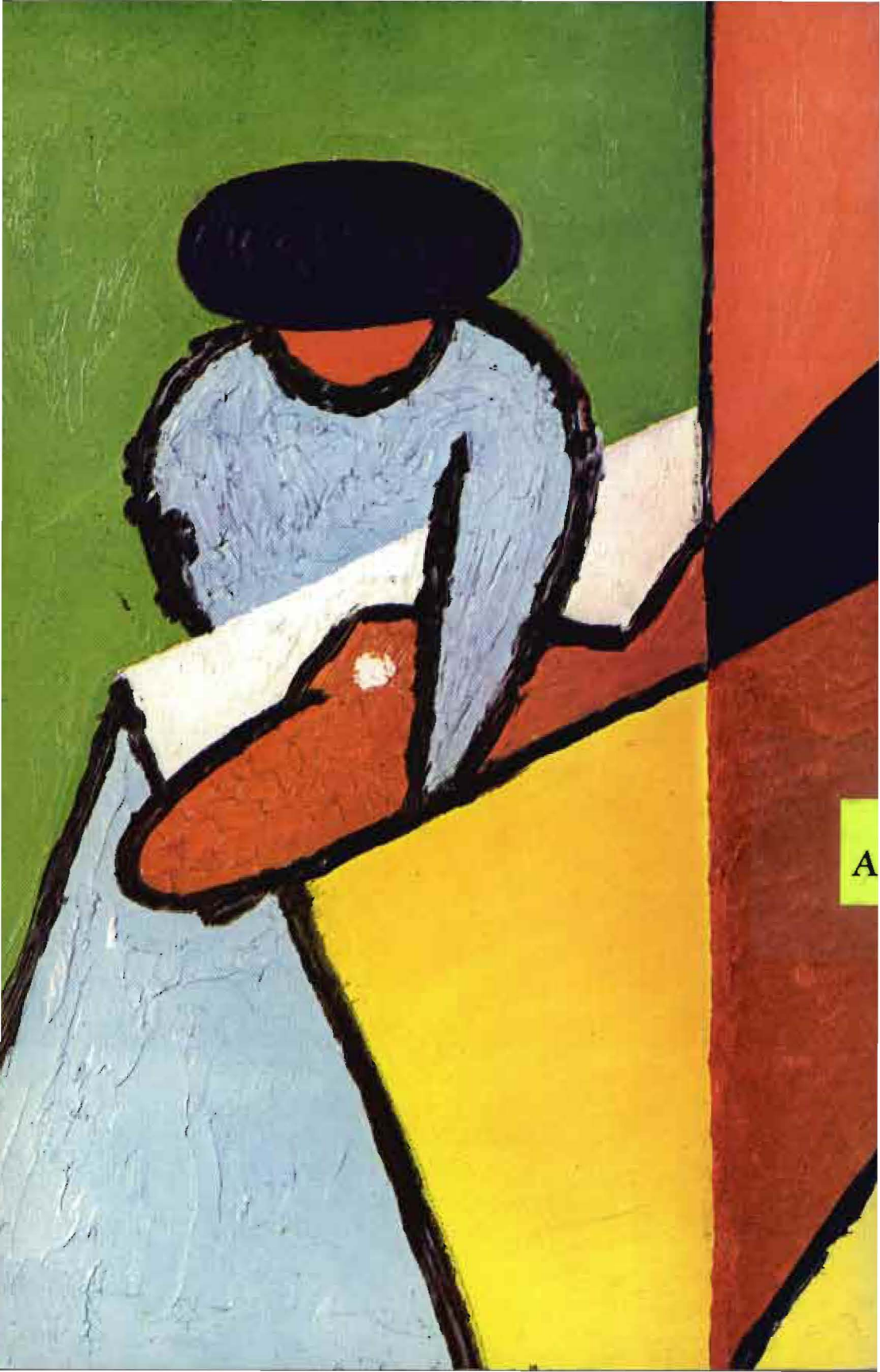
APPENDIX D—FISCAL

SOURCES AND AMOUNTS OF DEPARTMENT FUNDS FOR THE FISCAL YEARS 1960, 1961, and 1962

	'59-60	'60-61	'61-62
Fish & Game Fund Appropriations	$862,383.01	$375,000.00	$1,273,069.93
(Primary source of income for this fund is receipts from sale of hunting and sport fishing licenses and big game tags)			
State General Fund Appropriations	2,095,615.00	3,797,811.72	4,009,676.97
Private Donations	6,247.42	20,789.69	26,196.74
Federal Receipts:			
Saltonstall-Kennedy	25,055.41	20,956.87	26,246.66
(These funds come from a federal excise tax on importations of fisheries products into the United States)			
Emergency Salmon Research Funds	—	181,300.00	573,609.36
Pittman-Robertson	48,700.14	233,499.39	456,075.89
(These funds are obtained from a federal excise tax on the sale of sporting arms and ammunition)			
Dingell-Johnson	192,254.50	171,066.51	278,375.88
(These funds are obtained from a federal excise tax on the sale of fishing tackle. These and the Pittman-Robertson funds are appropriated to the states according to a formula based on comparative land area and license sales. To obtain them, the state must match each three dollars of federal money with one dollar of state money. The money can be spent only on sport fish and game projects)			

DEPARTMENT OF FISH AND GAME EXPENDITURES FOR THE PERIOD JULY 1, 1959 to JUNE 30, 1962

DIVISION	AMOUNT (totals for 3-year period)
Administration	$599,529.23
Biological Research	775,672.99
Commercial Fish	2,138,036.66
Engineering & Services	525,680.32
Game	1,951,333.62
Protection	3,095,643.19
Sport Fish	986,766.97
Board of Fish & Game	34,984.31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