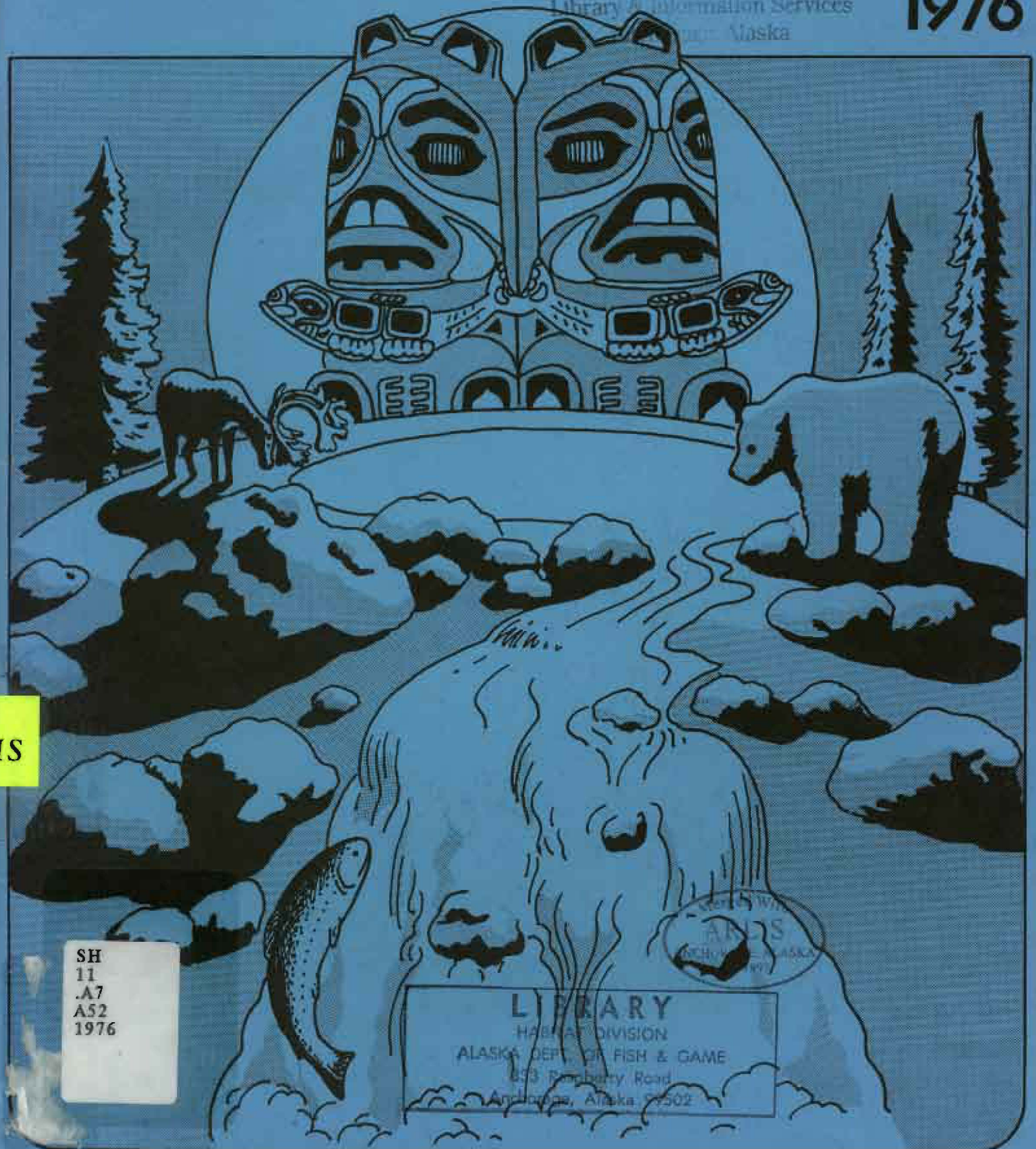
ALASKA DEPARTMENT of FISH and GAME ANNUAL REPORT 1976



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STATE OF ALASKA

DEPARTMENT OF FISH AND GAME

OFFICE OF THE COMMISSIONER

JAY S. HAMMOND, GOVERNOR

SUBPORT BUILDING – JUNEAU 99801

The Honorable Jay S. Hammond
Governor of Alaska
Pouch A
Juneau, Alaska 99801

Dear Governor Hammond:

The operations of the Department of Fish and Game during 1976 continued to emphasize responsible fish and game management as the challenges imposed by the state's growing population exerted increasing pressure on Alaska's resources.

The passage of a $29 million bond issue for the rehabilitation of Alaska's salmon fisheries was especially significant to the department's efforts, along with land and habitat issues and the problems of relatively large wolf populations and depleted ungulate herds.

In this report you will find detailed accounts of each aspect of the department's operations. We are pleased to be permitted to offer it for your review.

Sincerely,

James W. Brooks

James W. Brooks
Commissioner

prepared by
Information and Education Section
Alaska Department of Fish and Game

ALASKA DEPARTMENT of FISH and GAME

1976 annual report

State of Alaska

JAY S. HAMMOND
GOVERNOR

JAMES W. BROOKS
COMMISSIONER

Carl Rosier, Director Commercial Fisheries Division
Robert S. Roys, Director FRED Division
Robert Rausch, Director Game Division
Rupert Andrews, Director Sport Fish Division

Jeff Morrison, Director Administration Division
Lowell Barrick, Chief Engineering Section
Ron Skoog, Chief Habitat Section
Alex McRae, Chief Hatcheries Section
Dolores Moulton, Chief Information-Education

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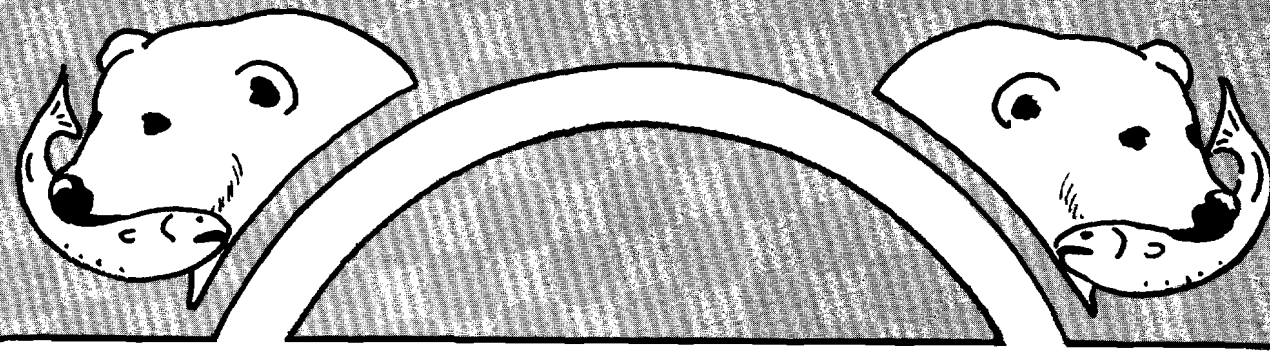

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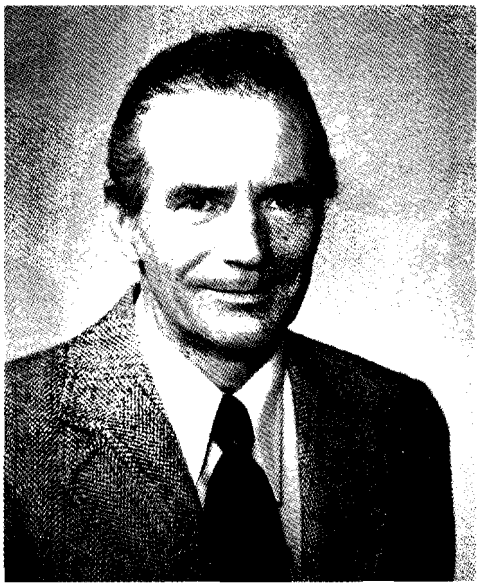


James W. Brooks
Commissioner
Department of Fish and Game

E.J. Huizer
Deputy Commissioner
Department of Fish and Game

from the COMMISSIONER'S DESK

Nineteen hundred and seventy-six has been a noteworthy year for the Alaska Department of Fish and Game. The department's responsibility for the creative, fair and careful management of the state's fish and game resources has dictated that our efforts grow right along with the state's population. The challenges of responsible management have led to an exciting year for us all. The information in the following pages details the achievements of the past year, but I'd like to take this chance to briefly recount some of the things I consider to be of special importance.

Among the issues gaining the most publicity in the past year have been the state's wolf management efforts. Legal maneuvers that had delayed a planned wolf reduction program in the Tanana Flats area near Fairbanks in 1975 were finally resolved during 1976, and a successful program was carried out. The latest statistics available justify the program by showing a significant increase in the survival of moose calves. That result should be followed by the restoration of a healthier moose population for the area.

Another wolf-related problem is now being faced in connection with a second serious issue, a major decline in the numbers of the Western Arctic caribou herd, once the largest in the state. Although the wolf is not the sole cause of the losses, a reduction plan was formulated to aid in speeding the herd's recovery. Along with the wolf program, human hunting was drastically cut back, to allow the herd a chance to return to a more desirable population level. (Note: A February 1977 court decision effectively halted the wolf reduction program. As of this printing, it still has not been reinstated.)

Two comprehensive management plans were drafted during the year, both of which are to be reviewed by the public during 1977. The review is to be followed by the preparation of the final version of the plans. The first is the Alaska Salmon Fisheries Plan, designed to detail the operational activities needed for the complete rehabilitation and maintenance of Alaska's salmon stocks for subsistence, commercial and recreational use. The second plan is a seven-volume Alaska Wildlife Management Plan. Both are of utmost importance in the development of a mature, self-sustaining system of resource utilization.

National interest d-2 land proposals arising from the Alaska Native Claims Settlement Act continue to be an important issue for the department. The eventual disposition of the lands will have a significant effect on the public's use of its wildlife resources.

Particularly important during 1976 was the passage of a $29.2 million bond issue for the Fisheries Rehabilitation, Enhancement and Development Division (F.R.E.D.). The voters' action will allow the construction of eight new incubation and rearing facilities and the repair or upgrading of a number of others. In addition, the F.R.E.D. program benefited from the department's acquisition of two new 36-foot vessels for use in southeastern Alaska and the Cook Inlet region.

The highlights of the 1976 fisheries harvest also deserves mention. The year's shellfish harvest was the highest ever recorded, with new records being set for both the shrimp and tanner crab fisheries. The salmon harvest was the highest since 1971, even though parts of the state are still suffering from depressed conditions. Statistics are encouraging, even for hard-hit southeastern Alaska, where they show that a turning point has been reached and salmon populations are improving.

Finally, the passage in 1976 of the United States' 200-mile fisheries zone has had a substantial impact in addition to the effect on Alaska's fishing industry. The department took a leadership role in developing a preliminary plan for management of several species in the affected area including king and tanner crab, shrimp, scallops and offshore salmon.

Taken as a whole, 1976 has been an encouraging year, with clear evidence that troubled resources are responding in a positive way to the department's programs. It has, however, also become clear that beneficially husbanding Alaska's fish and wildlife resources requires not only careful planning by the Department of Fish and Game, but the wholehearted cooperation of the public as well.

ADMINISTRATION

Jeffrey J. Morrison
Director
Division of Administration

"The state's business moves at the speed of paper." With this in mind, it is the primary responsibility of the Division of Administration to move the department's paper work as fast as possible while at the same time insuring that fairness to all vendors and job applicants is maintained. Another major consideration is to obtain goods and services at the lowest possible cost. While "paper-pusher" is not usually a term of great respect, someone needs to make sure that supplies are ordered quickly, vendors paid promptly, and employees receive prompt and accurate personnel and payroll services. The Division of Administration takes pride in its corps of paper-pushers who are dedicated to fast and accurate service to the public and to other divisions within the department.

In addition to these general administrative services, other services provided by the Division of Administration include warehousing, property control, acquisition and maintenance of office facilities, professional library services, department housing program, contract review, budget assistance and coordination, interdivisional planning, administrative guidance at regional offices and operation and maintenance of department-owned vessels. The division also provides administrative supervision to the information and education section, which receives its program direction from the commissioner.

Accounting

General warrants issued by the Department of Administration for our obligations indicated a long processing period in 1976 which we are now analyzing and hope to reduce.

In addition to general warrants, during the year there were 20,300 warrants issued in the field. Expenditures, excluding payroll, processed by the accounting section and regional offices amounted to over $11,561,000. Federal aid reimbursement claims were prepared in a timely manner and totaled more than $5,442,600.

BUSY SPOT — The library responded to nearly 700 staff requests during the year, and made 373 interlibrary loan transactions to secure materials for staff members. More than 200 periodicals were scanned each month for material of current interest.

Personnel

The payroll and personnel functions were combined into a single section during 1976. In addition to their normal duties of processing personnel actions reclassifications, and maintaining records on permanent and temporary employees, the section performed an audit of all employees' leave records for the first time in several years. Also, a study of support personnel in headquarters and regional offices was initiated which will be completed in early 1977.

Supply

The Department of Administration's confidence in our supply procedures was reflected in increased delegation of purchasing authority during 1976. General purchasing authority was increased to $1,000, with greater authority for groceries and short-term vessel charters. These changes greatly assist in the timely completion of field projects due to reduced

MOUNTAINS OF MAIL — Supply section's mailroom in Juneau processed more than 75,000 pieces of outgoing mail in 1976.

processing time on purchasing. The value of inventoriable property increased from $3,818,000 in December 1975 to $5,153,000 in December 1976. The department's property control program has been able to maintain a high degree of accuracy during this expansion. During 1976, the use of postal permits for outgoing and business reply mail was increased in the mail room, resulting in some savings to the state over former procedures. Additional methods are being investigated to expedite correspondence in an inexpensive manner.

Vessels

The vessels' section provides, operates and maintains 15 vessels of which seven are crewed and eight are unmanned. The purpose of the vessels program is to provide working platforms, mobile housing accommodations for field personnel, experimental fishing expertise and capability and freight hauling capacity. In late 1976, two new unmanned vessels were added to the fleet. Both are identical, 36 feet in length, with a full electronics package.

The year 1976 continued the trend of the past several years toward significantly increased winter operations. The major (manned) vessels are in operation on a year-round basis as a result of intensive effort in the area of herring management.

In the area of maintenance, two developments occurred in 1976. First, the manned vessels have been scheduled for major maintenance (yard work) on a three-year schedule which allows planning for budgetary and operational purposes. Second, an engine oil sampling and analysis program was initiated in an attempt to detect engine problems and schedule work when convenient.

During the past year, vessels traveled 75,600 miles, hauled 442,000 pounds of freight and spent 1,191 days at sea.

General Administration

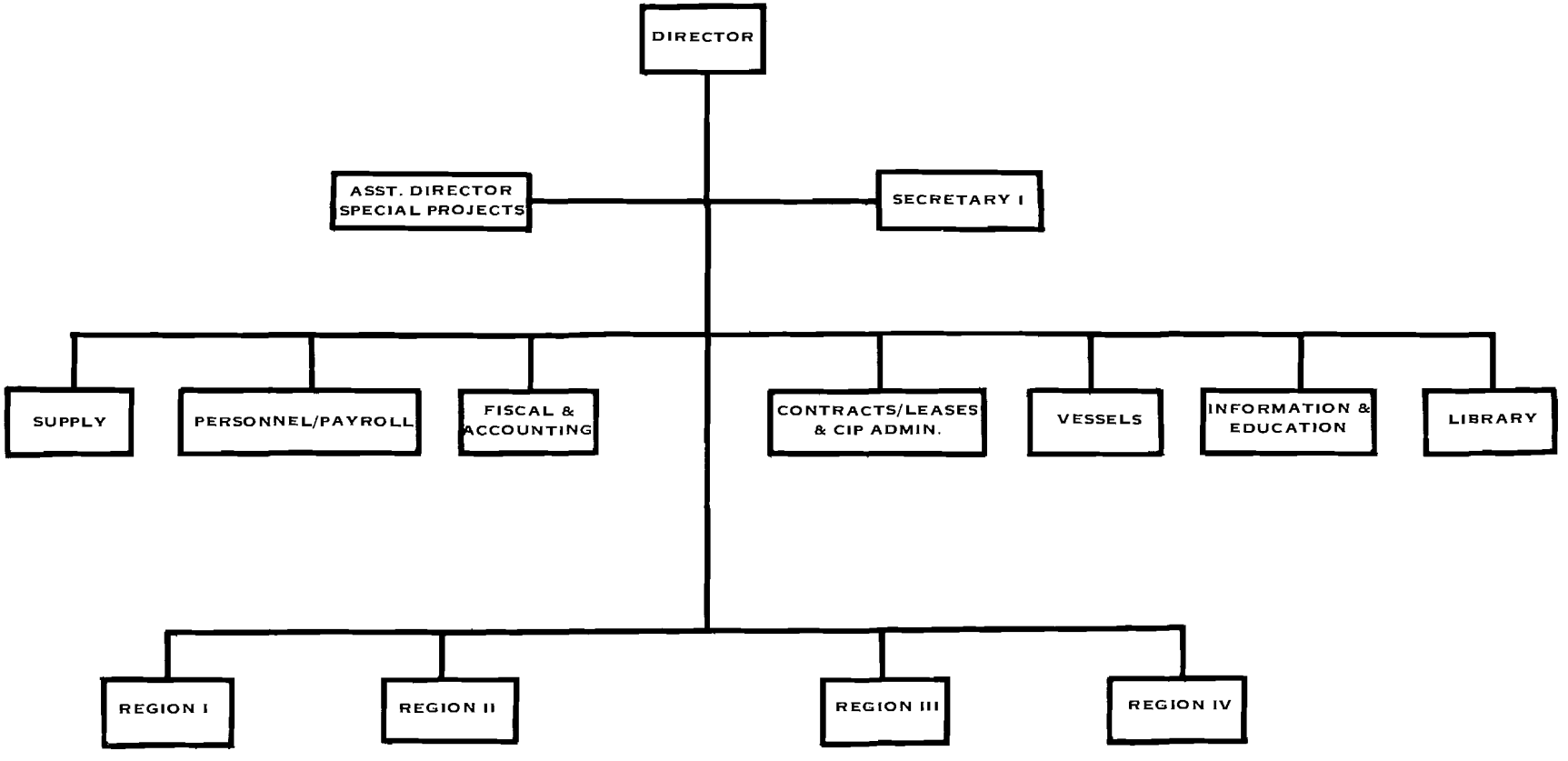
Additional office space was acquired at the Anchorage regional office, which was rapidly filled primarily because of the growth of the Division of F.R.E.D. Work was also done to consolidate the operating and maintenance budgets of the department's widely scattered housing units. These units had formerly been budgeted in five separate divisions. Centralization of budgeting and responsibility to take effect in July 1977, will provide improved maintenance and a more livable home to most of the employee-tenants now in department housing.

With assistance from the Division of Buildings and Division of Occupational Safety and Health, voluntary compliance and maintenance inspections were initiated at selected Fish and Game facilities in 1976. These inspections have pointed out corrective actions necessary to promote the safety and longevity of state-owned facilities — most of these corrective actions were implemented. The division also assisted in the development of a statewide life-cycle cost system and worked with other divisions in the department in the preparation of the Alaska Fisheries Plan and the acquisition of public access land.

Plans for 1977

In addition to continuing responsibilities, short- and long-range planning will be done concerning vessel needs, department communications and needs for office and warehouse facilities. The division will increase its in-house administrative training to personnel in other divisions and will also assist in the reorganization of the Division of F.R.E.D. during 1977.

DIVISION OF ADMINISTRATION
ORGANIZATIONAL CHART



ENGINEERING

Lowell S. Barrick
Chief
Engineering Section

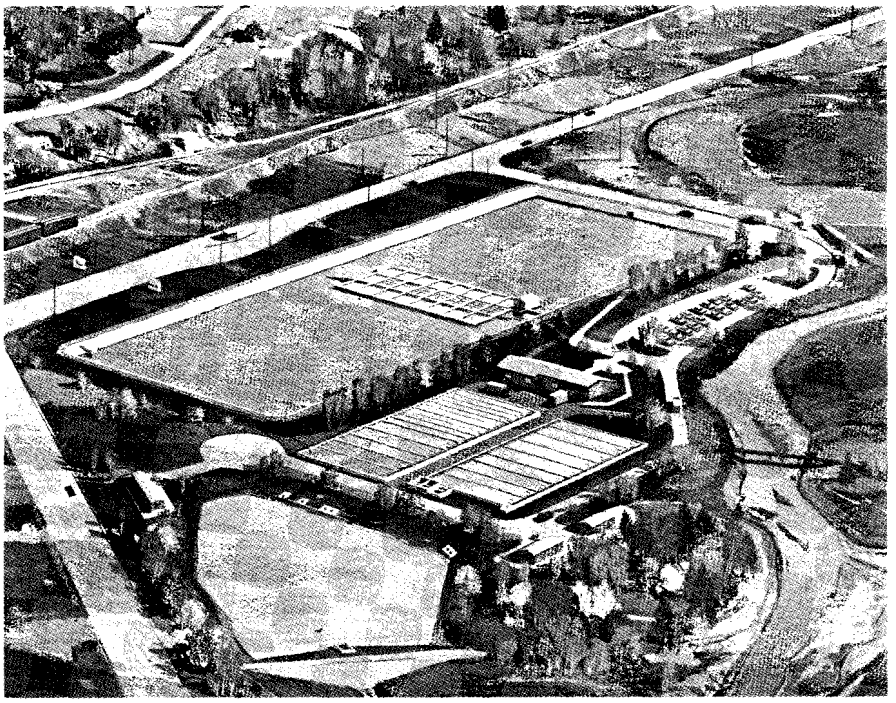
The Engineering Section is a technical support group for the Department of Fish and Game. The objective of the Engineering Section is to provide quality engineering support to all sections and divisions of the department. This objective is achieved by combining sound engineering practices with biological requirements in the design and construction of department projects. Focal points of the section's engineering support are:

1) Conducting site investigations to assist department biologists in the selection of proposed facility sites.
2) Preparation of project concepts and cost estimates for use in planning project budgets.
3) In-house design of select projects.
4) Coordination of consultant-designed projects to ensure conformity with department requirements.
5) Construction administration and inspection of select projects.
6) Planning coordination with the Department of Public Works throughout the development (planning/design/construction) of ADF&G projects.

PROJECTS

The following list of projects are those which required major engineering support during 1976:

1. Kitoi Bay Hatchery: Modification of heating/water systems
2. Fort Richardson Well Field: Drilled new process water wells
3. Ship Creek Hatchery Complex: Design completed/construction started
4. Lake Nunavaugaluk Incubation Facility: Design completed/construction completed
5. Tutka Incubation Facility: Shakedown test 1975-76/operational '76
6. Tutka Facility Housing: Site construction and utilities completed '76
7. Big Lake Incubation Facility: Shakedown test 1975-76/operational '76
8. Big Lake Housing: Duplex designed/constructed/occupied
9. Big Lake Wells: Drilled new process and domestic wells — operational '76
10. Apollo Creek Fishway: Design completed
11. Frazer Lake Fishway: Design completed
12. Anan Creek Fishway: Design completed
13. Ketchikan Creek Fishway: Design completed
14. Middle Creek Fishway: Field survey completed
15. Russian River Fishway: Preliminary field data collected
16. Irish Creek Fishway: Preliminary field data collected
17. Falls Creek Fishway: Field modifications completed
18. Fish Creek Saltwater Rearing Pens: Construction completed — operational '76
19. Chilkoot River Weir: Construction completed — operational '76
20. McGrath Office Sewer: Designed and constructed — operational '76
21. Cordova Roof Repair: New roofing installed
22. Anchorage Pathology Lab: Air filter system installed

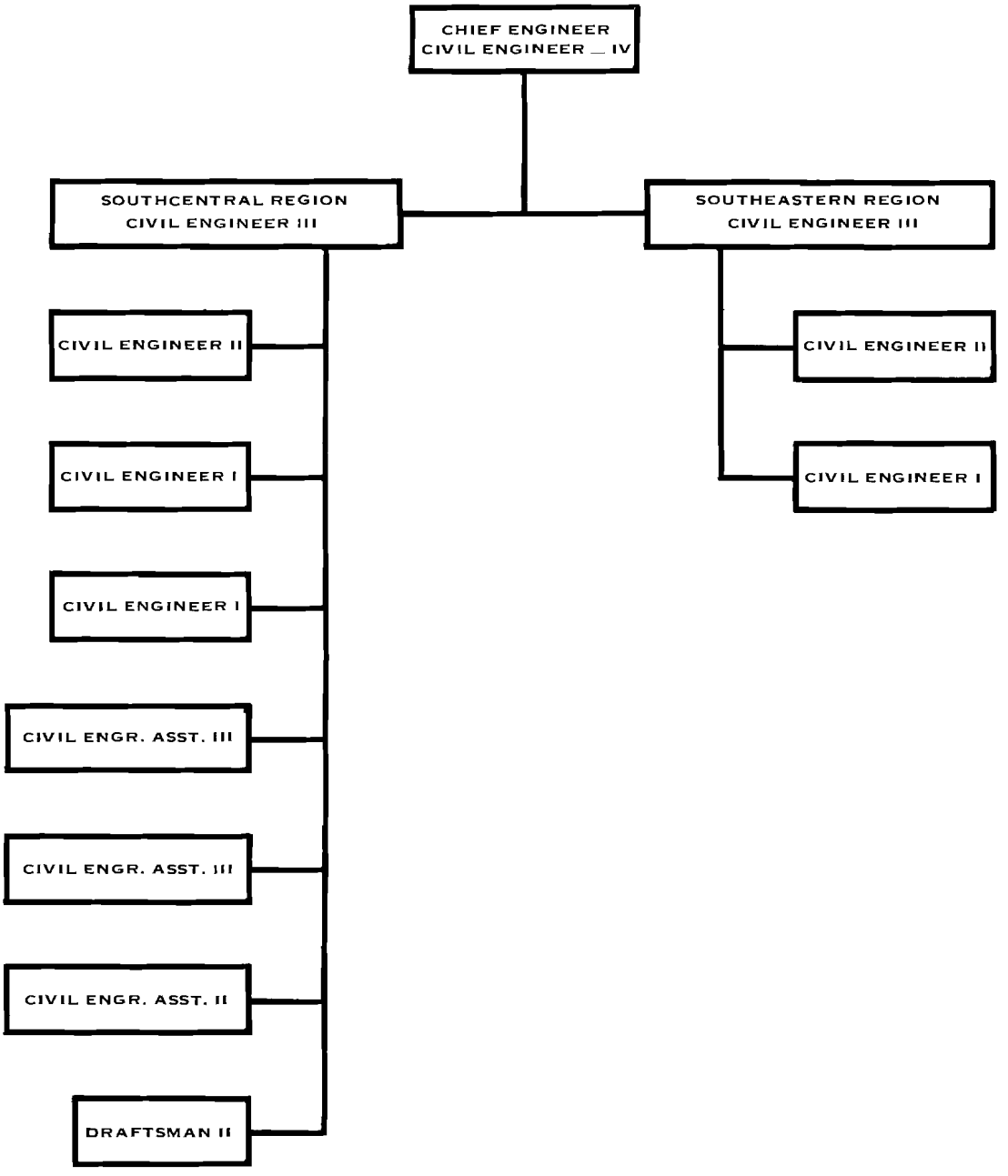


SHIP CREEK — Construction began in the fall of 1976 on the Ship Creek hatchery complex near Anchorage. Completion by late 1977 is expected.

23. Harris Harbor Floats: Designed/constructed/operational
24. Harris Harbor Float Lighting and Electrical Outlets: Designed/constructed/operational
25. Fire Lake Fish Tagging Trailers: Designed/constructed/operational
26. Crooked Creek Wells: Drilled new process and domestic wells
27. Crooked Creek Housing: Trailer and facilities installed
28. Russell Creek Incubation Facility: Field work and conceptual layout
29. Klawock Incubation Facility: Field work and conceptual layout
30. Klawock River Weir: Designed
31. Hidden Falls Incubation Facility: Field work and conceptual layout
32. Cannery Creek Incubation Facility: Field work and conceptual layout
33. Hidden Lake Incubation Facility: Field work and conceptual layout
34. Karluk Lake Incubation Facility: Field work and conceptual layout
35. Starrigavan River Weir: Designed/constructed/operational
36. Starrigavan Incubation Facility: Phase I improvements designed

SOCKEYE HATCHERY — A sockeye hatchery was constructed at Lake Nunavaugaluk, near Dillingham, in 1976. The hatchery was built to augment the red salmon stocks in the Bristol Bay area.

ENGINEERING SECTION
ORGANIZATION CHART



Ronald O. Skoog
Chief
Habitat Section

HABITAT

The Habitat Protection Section is responsible for the protection, maintenance and improvement of fish and wildlife habitat. The section's primary functions are to administer the Title 16 permitting process, which is the Alaska statute that provides for the designation of rivers, lakes and streams that are important for anadromous fish spawning or migration; provide fish and wildlife data; and develop departmental positions on issues by coordinating divisional, state, and federal input. Early participation and coordination by the department ensure that detrimental impacts of land and water uses on aquatic, marine and terrestrial habitats are kept to a minimum.

Administratively, the section is divided into three regional offices, Pipeline Surveillance, Marine and Coastal Habitat Management and Headquarters. The Habitat Section has three programs: 1) Land and Water Protection; 2) Land and Water Management; and 3) Marine and Coastal Habitat Management. Commissioner Brooks has delegated the section the statutory responsibilities under A.S. Title 16 involving 1) protection of anadromous fish streams, 2) protection of game refuges, and 3) protection and identification of critical habitat areas.

MAJOR PROGRAMS

Environmental Monitoring

Issuance of Permits and Surveillance

Under Title 16 construction in or use of designated waters is illegal unless a permit is obtained from the Department of Fish and Game, Habitat Protection Section prior to initiation of such activities. Regional supervisors reviewed numerous permit applications and issued 346 permits during 1976.

On-site inspections were done to ensure compliance with permit stipulations designed to minimize impacts to fish and wildlife resources and their habitats. The Prudhoe Bay petroleum development area, placer mining operations and military maneuvers were routinely monitored.

Permit and Project Review

In addition to the Title 16 responsibilities the section must also review other state and federal agencies' permits and project proposals. The following list summarizes the Habitat Section's participation in this review activity.

State	
Clearinghouse	222
Multiple Land Use	75
Miscellaneous Land Use Permits	173
Highway Plans	70
Water Use	130
Tideland	30
Timber Sales	30
Waste Disposal	26
Right-of-Way	4
Gravel Removal Permits	14
Log Salvage Permits	6
Miscellaneous Permits	15
	795

Federal	
Corps of Engineers	280
U. S. Geological Survey	8
U. S. Coast Guard	3
BLM	29
EPA Discharge (NPDES)	4
EIS	21
U. S. Forest Service Tideland Permits	25
Miscellaneous Permits	3
	373

RADAR WATCH — A camper-mounted generator and radar unit was used to plot flow and circulation patterns in Kachemak Bay and lower Cook Inlet to determine the potential movement of oil pollution.

Environmental Coordination

Planning

One of the major projects pursued in Land and Water Use Planning was the development of a statewide wildlife habitat inventory to serve as a tool for state land selection and classification. The state was divided into township blocks and a rating system established to evaluate biological productivity, habitat protection, human use and management potential.

The staff provided information utilized in developing the Portage Habitat Management Area project and the department's Anadromous Fish Plan. Habitat staff also provided the guidance and design for the construction and planting of 10 islands in the West Chester Lagoon Waterfowl Sanctuary and the installation of a fishway in Bodenburg Slough to provide sockeye salmon permanent access to approximately 170 square meters of spring spawning area.

Personnel worked closely with the Bureau of Land Management in advance of the BLM becoming the surface manager of Naval Petroleum Reserve — Number Four. Considerable input based on experience gained in the Prudhoe Bay development area was provided to BLM regarding their proposed surface management regulations.

The Planning Coordinator functioned as a liaison between the Alaska Department of Fish and Game and the Department of Natural Resources' new Planning and Research Section and was, therefore, involved in the following planning efforts: Cook Inlet Land Trade; several water planning efforts; Haines-Sitka Land Trade, North Slope Development and Pipeline Haul Road policy statements; Delta Land Use Plan; Eielson Air Force Base Nike Site Land Selection; and the first one-quarter of the classification of 650,000 acres of state lands for agriculture.

Public easements were reserved on and across lands selected by the various villages and regional corporations under the Alaska Native Claims Settlement Act. The easements will provide access to public lands and ensure that the public will be able to continue using these areas.

The protection of fish and wildlife and their habitat plus the maintenance of these lands for the purpose of perpetuating hunting, fishing and viewing are the major benefits that refuges and critical habitat areas provide. The creation of the Susitna and Trading Bay state game refuges for waterfowl and small and big game added 471,000 acres to the state's refuge lands. Of the eight critical habitat area bills that were submitted to the Legislature, the Clam Gulch critical habitat area for razor clams was the only one passed. Public meetings were held in Big Delta, Cordova, Homer and Sitka to discuss the Department's nomination of lands near each community for critical habitat.

The first complete review of interagency cooperative agreements was accomplished. Fifty-six agreements are presently in effect with various federal, state and municipal agencies and private organizations.

Review

The review of a draft environmental impact statement for a proposed molybdenum mine near Ketchikan has involved Habitat personnel in extensive task force participation and substantial amounts of field work.

The section is instituting a policy of early interaction with industry and the Department of Highways. For example, as much information and specific language as possible is being incorporated into oil and gas leases. This approach will provide industry with the necessary guidelines for exploration and development prior to a lease sale.

Special Projects

Habitat Protection has two special projects — Marine and Coastal Habitat Management (MCHM), and the Joint State/Federal Fish & Wildlife Advisory Team (JFWAT).

The Marine and Coastal Habitat Management Project is responsible for all activities affecting fish and game resources in Alaska's coastal zone and marine waters. The project is subdivided into the Kachemak Bay studies, technical guidance and special projects and the Coastal Zone Management Project.

The Kachemak Bay project is a three-year study, which was initiated in 1974, to assess the potential impacts of oil development on the fisheries resources. These studies include: defining the transport processes which carry larval crustaceans and pollutants around the bay; distribution of larval crusta-

ceans; background hydrocarbon levels, food habits of commercial shellfish and an identification of areas which would be impacted by oil spills.

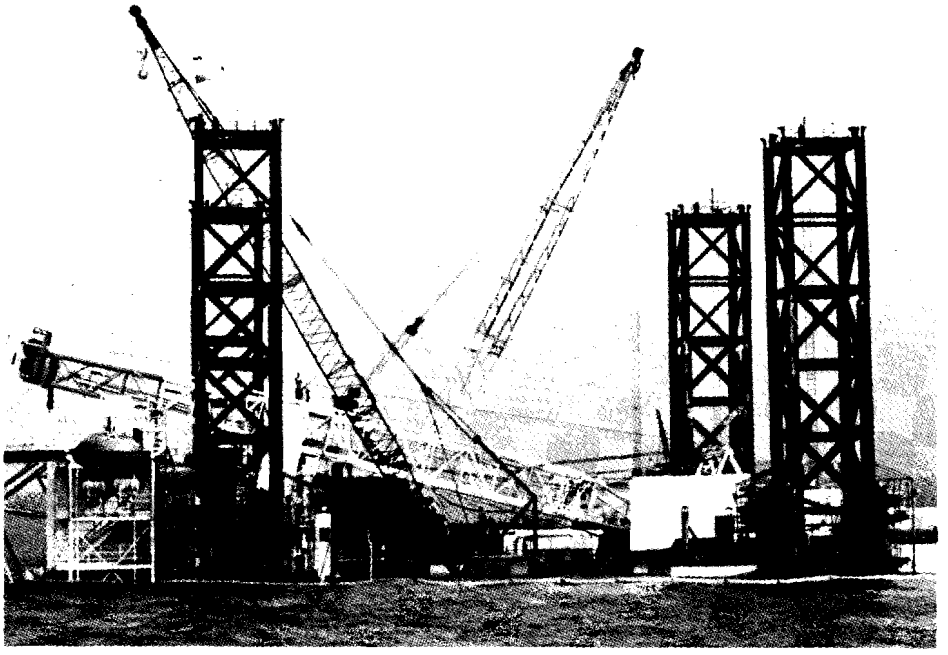
Some of the important projects completed as part of the technical guidance and special projects phase of MCHM were: the environmental stipulations and monitoring of the salvage of the drilling rig "George Ferris" from Kachemak Bay, an environmental analysis of the ARCO causeway in Prudhoe Bay, an evaluation of the two sites proposed for the Pacific Alaska LNG plant on the Kenai Peninsula, a review of the potential effects of the El Paso – Gravina Point LNG plant on Sheep Bay, a comprehensive biological analysis of 31 potential sites for OCS development bases in the Gulf of Alaska and a report describing the biological values and physical factors to be considered in the state's lease "buy back" program in Kachemak Bay. In addition, the Marine and Coastal Habitat Section reviewed and provided input on legislation, environmental impact statements, outer continental shelf oil development projects and permit requests for activities in Alaska's coastal zone and marine waters. As the department's representative for handling marine oil spills, MCHM was involved in monitoring and assessing the effects of the Marathon Oil spill at Trading Bay, the George Ferris spill in Kachemak Bay, the Pacific Sealift spill at Kenai and the Karmalu spill in Homer.

The Coastal Zone Management Project consisted of: 1) providing coastal zone management boundaries, 2) identifying coastal areas of particular ecological concern, and 3) identifying the existing Alaska Department of Fish and Game policies, regulations and authority for the development and use of coastal resources.

The Joint State Federal Fish and Wildlife Advisory Team was formed in May 1974 as a result of the Cooperative Agreement between the Department of the Interior and the State of Alaska regarding the proposed trans-Alaska pipeline. The 15 members of the Pipeline Surveillance Team represent the state component of JFWAT. The goal of the Joint State Federal Fish and Wildlife Advisory Team is to provide review capability for and surveillance of pipeline construction while maintaining the maximum number of management options along the pipeline corridor for future resource and land managers.

The duties and responsibilities of JFWAT involve field surveillance, design review, technical evaluation and permit review and issuance. Several construction problems were encountered during the field surveillance and design review processes. The problems are being addressed by the State Pipeline Coordinators Office, Alaska Pipeline Office and Alyeska Pipeline Service Company. The technical evaluation staff continued to conduct applied research to determine the impact of pipeline construction on moose, caribou and fisheries resources. Thirty permit applications from other agencies were reviewed and 140 Title 16 permits were issued in connection with pipeline construction.

Approximately $1.1 million in state and federal monies were allocated to the Habitat Protection Section in FY '77. In addition to this Alyeska reimbursed $971,700 for work related to pipeline surveillance. The following table indicates the projects and the source of their funds.



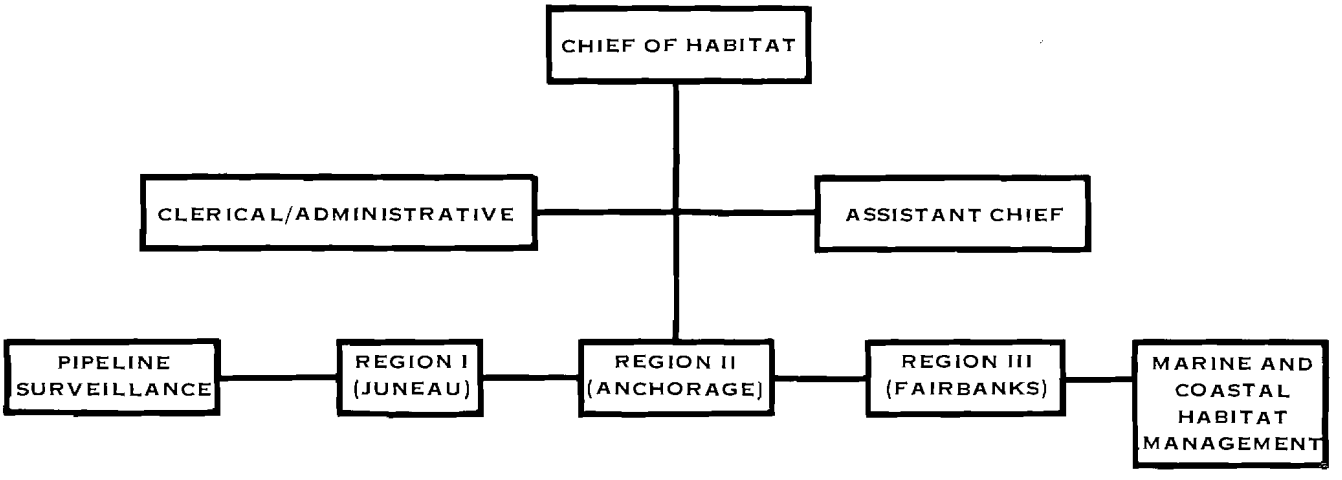
MUDDY PROBLEM — Habitat section closely monitored and assisted in the removal of the drilling rig George Ferris, which became mired in the bottom of Kachemak Bay, one of the state's most productive marine environments.

Funding Source PROJECT	STATE	FEDERAL	OTHER	TOTAL
CZM/MCHM	408,100	82,800 (CZM)		490,900
Land & Water Protection	161,400	77,900 (Pittman-Robertson) 33,200 (Dingell-Johnson)		272,500
Land & Water Management	101,000	74,300 (Pittman-Robertson) 63,700 (Dingell-Johnson)		239,000
Pipeline Surveillance			971,700 (Alyeska)	971,700
Administrative Support	109,600			109,600

What's In Store For 1977

During 1976 the section was involved with projects related to forestry, mining and the oil and gas industries. It is anticipated that the section will be increasingly involved with similar matters. In 1977 Habitat staff will address a wide variety of issues, e.g., outer continental shelf leasing, coastal zone management, oil spills, forestry practices and management, land classification and selection, energy development and placer mining. Although the list is not complete, it does indicate the far-ranging scope of the section's involvement and activities.

HABITAT PROTECTION SECTION
ORGANIZATIONAL CHART



Alex H. McRea
Chief
Hatchery Services

HATCHERY SERVICES

In 1969-1970 the need for combining the state's expanding fish hatchery operations with the necessary implementation of the 1968 fish hatchery construction bond issue led to the creation of the Hatchery Services Section, which assumed control of hatchery-related operations in July, 1971. Hatchery Services has three basic goals:

1) Completion of new fish hatchery facilities as funded by the fish hatchery construction statutes.
2) Becoming operational with the new and existing fish hatchery facilities and developing stable sources of salmon and trout eggs for use in the production programs.
3) Fully utilizing the facilities to provide the Sport Fish Division, Commercial Fisheries Division and Fishery Rehabilitation, Enhancement and Development Division with fish for their expanding needs.

MAJOR PROBLEMS

New Development

Elmendorf Hatchery—

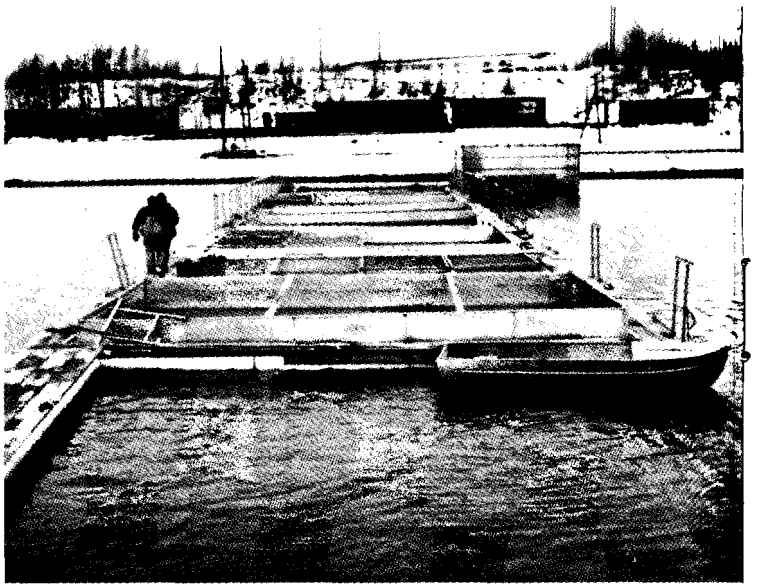
First bids on the project exceeded available funding, and the scope of work to be done was reduced to permit awarding a construction contract. The contractor started preliminary work at the site prior to freeze-up, and will complete that portion of the contract in 1977. Sixteen additional floating raceways were installed in the Elmendorf Cooling Pond for rearing rainbow brood trout, and a floating spawning building was constructed to permit spawning operations during winter. An office trailer was obtained from the Highway Department.

Fort Richardson

A new building was constructed at Fort Richardson and was occupied by end of the year. New wells were drilled and placed into operation to provide an additional 1,000 GPM and permit adequate control of rearing temperatures. A laboratory trailer obtained from the Highway Department was converted into a portable incubation unit. A water supply and drain system was installed, and plumbed for 12 stacks of Heath incubators; two stacks can be supplied with temperature-controlled water.

Crystal Lake and Fire Lake

A double wide trailer was obtained from Department of Public Works and set up to provide office and laboratory space. The former office and lab in the hatchery building were converted into additional



MORE RAINBOWS — Rainbow trout brood stock and rearing programs were doubled in 1976 to provide more fingerling for the Sport Fish Division's stocking program.

incubation and rearing space. The recirculating raceway ponds were converted to operate as straight raceways in an attempt to alleviate excessive dissolved nitrogen.

Fish transport equipment was improved at both Crystal Lake and Fire Lake. A trailer, tanks and generators were purchased for Fire Lake to assemble a 2,500-gallon unit. Two 4,000-gallon trailer tankers were ordered, one unit for each hatchery, to provide additional transporting capability for the expanding rearing program. Two fish planting barges, again one for each hatchery, were constructed and will be fully operational to haul fish into salt water areas not available from the road system.

Coded wire tagging machines were purchased for both Fire Lake and Crystal Lake. Trailers and other equipment and apparatus were purchased to make portable tagging trailers; these will be ready for use in the spring of 1977.

Kitoi Bay Hatchery

The F.R.E.D. Division constructed and installed new substrate incubators at Kitoi Bay Hatchery to incubate up to 20 million eggs, and the station was upgraded to a production pink salmon hatchery. The domestic water supply system was upgraded and new furnaces were installed in the hatchery and bunkhouse.

Operational Highlights

A summary of numbers of fish produced, planted and remaining on hand is presented in Tables 1, 2 and 3. The rearing program at all stations was generally successful in producing fish needed to fulfill requests. A number of general rearing problems were encountered, but were largely routine and were resolved.

The Crystal Lake Hatchery staff constructed a weir on Andrews Creek, a tributary of the Stikine River. This resulted in a successful king salmon egg take and 175,000 eggs were obtained. King salmon of Carson River (Washington origin) returned to Crystal Creek for the first time; about 250 adults returned, and 200,000 eggs were spawned.

Eggs and the resulting fry taken from rainbow brood trout of Ennis origin at Elmendorf during the 1975-76 spawning season were of poor quality and produced few viable fish. A diet test was started to determine whether this might be a factor in the poor quality. A total of 3.3 million eggs were taken during the 1976-77 spawning season, but evaluation of the egg quality cannot be final until spring of 1977. The first eggs from Swanson River and Talarik Creek stocks are expected in the spring of 1977.

An outbreak of furunculosis in brood trout became a serious problem following spawning, and the State Fishery Pathologist provided assistance in trying to resolve the problem.

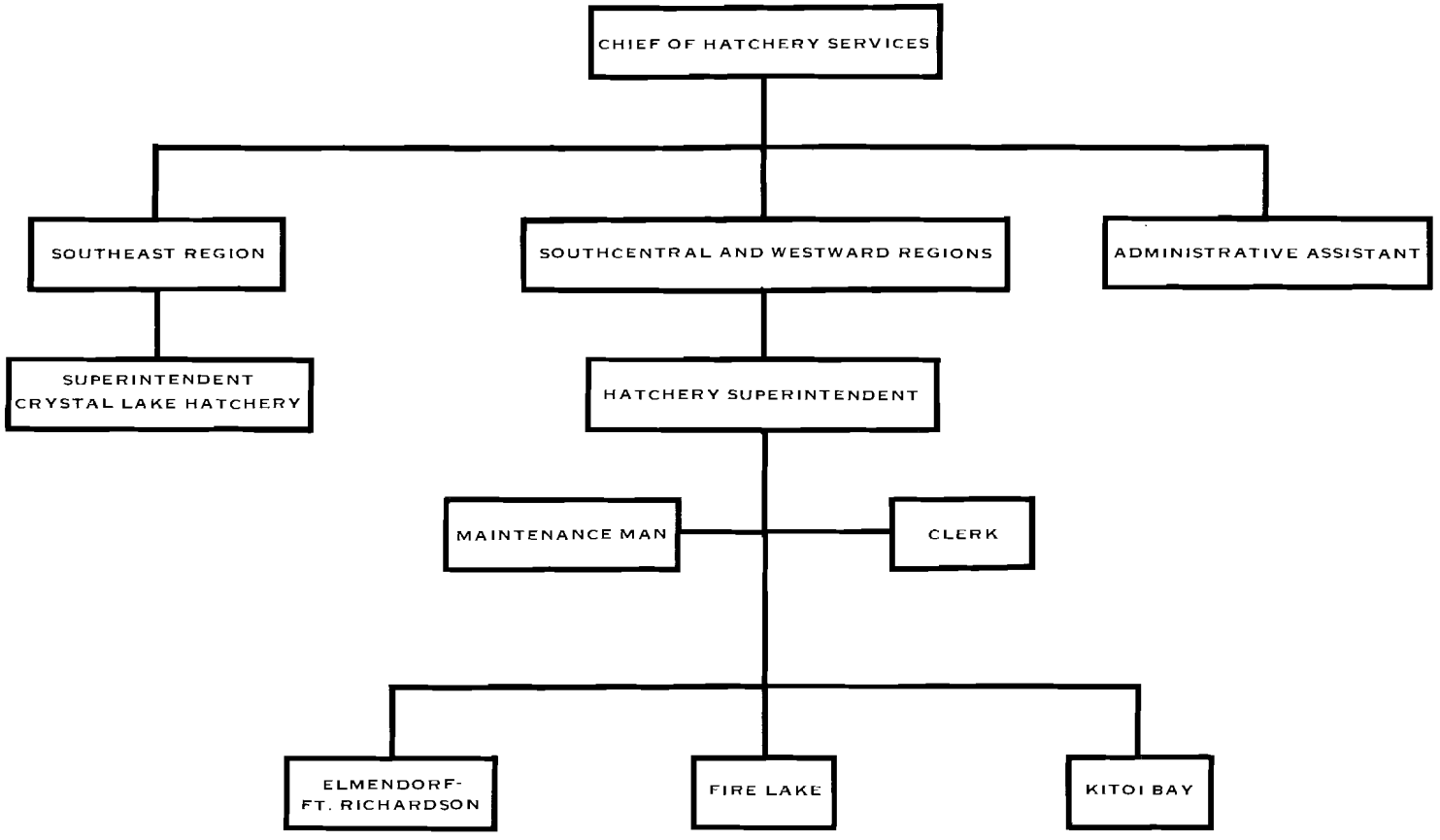
Sheefish eggs were taken from Yukon River and Koyukuk River stocks. Mechanical problems were the cause of high egg losses, but about 200,000 viable fry were hatched. An attempt will be made to rear them during the winter-spring of 1977.

COHO PROJECT — Hatcheries Section personnel released coho smolts produced at the Crystal Lake Hatchery in Petersburg into suitable streams in Southeast.

The desired quota of 20 million pink salmon eggs at Kitoi was not possible because of the low numbers of returning adults; however, a total of 7.9 million eggs were taken. The numbers are great enough to provide an adequate test of the new facilities and to provide a substantial increase over previous operating levels.

Outlook for 1977

Plans to combine the Hatchery Services Section with the department's F.R.E.D. Division are expected to reach the implementation stage in 1977. The merger is designed to further enhance the operations of the department by the creation of a more effective, unified program of statewide activities.



HATCHERY SERVICES SECTION
ORGANIZATIONAL CHART

Dolores A. Moulton
Chief
Information & Education Section

INFORMATION-EDUCATION

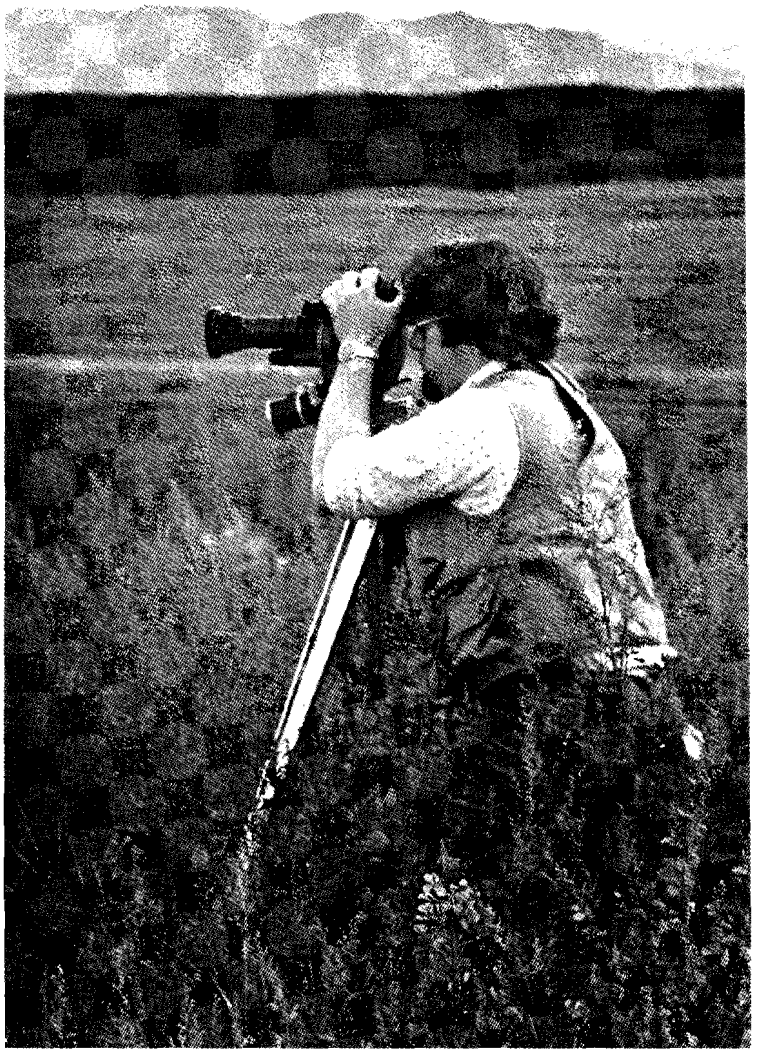
The Information-Education Section is responsible for coordinating a program for the department which provides the public with factual information concerning fishing and hunting opportunities, regulations concerning harvest, opportunities for other uses of the wildlife resources of the state and the research and management activities of the department.

The primary goal of the information program of the department is to foster an understanding and appreciation of Alaska's wildlife resource. This understanding and appreciation on the part of the public, to whom these resources belong, is a necessary part of the management of the resources carried out by the department. An aware and knowledgeable public is of the utmost importance in influencing the decisions and guidelines which the Board of Fish and Board of Game give to the Alaska Department of Fish and Game.

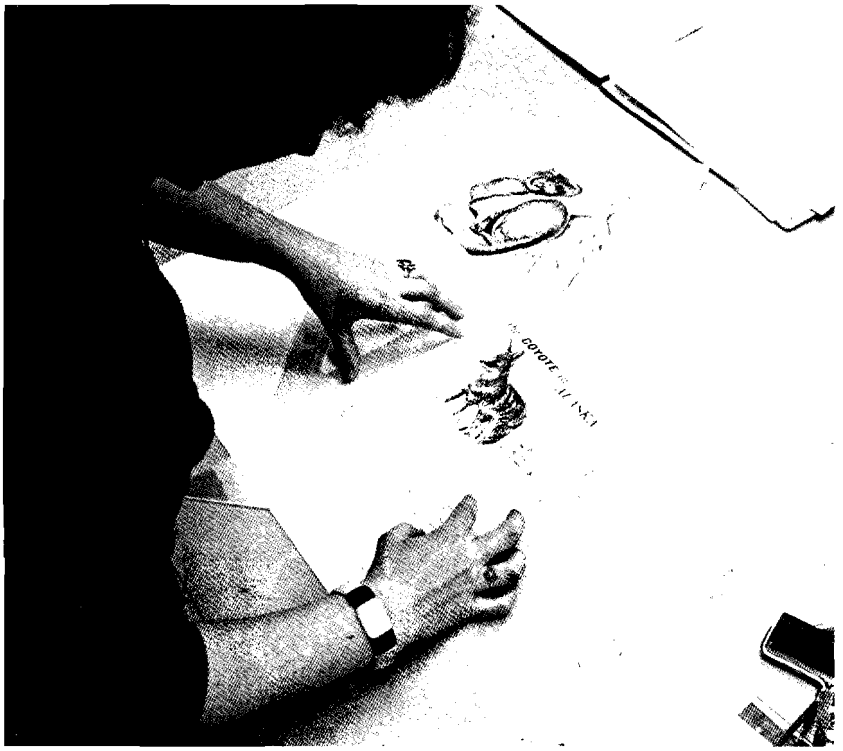
Other informational goals include informing the public of the department's resource activities, findings and programs, regulations governing openings and closures, availability and status of fish and wildlife. The section must also respond to the thousands of public inquiries concerning Alaska's fish and wildlife resources. A primary educational goal includes promoting public understanding, particularly by young people and industry, of fish and wildlife biology and ecology and of ways to perpetuate these resources for the future.

The Department of Fish and Game is the information source and research-management agency for fish and wildlife and the information section is the link between the public and the department.

The I and E section has its headquarters in Juneau. Three permanent professionals in the field of communications and public information are stationed



A THOUSAND WORDS — Photographer Russ Dixon spent much time in the field. Film documentation provided the department with a valuable tool for informing the public of ADF&G activities.



COMMUNICATION — In addition to preparing and distributing news releases, the I & E section wrote and illustrated many other publications.

there, along with a permanent clerical position and two seasonal temporary positions. A permanent information officer is stationed in the Anchorage area. Although restricted by funding and personnel levels, the section provides the core for the information program carried on by the department. The section's work is greatly augmented by the information disseminated by other departmental personnel throughout the state.

The information/education section provides photographic and graphic support to all divisions in the department. Films, video releases, television programs, news releases, feature stories, radio programs, pamphlets, personal appearances and a bimonthly magazine with a circulation of 10,000 are all part of the section's activities. The 30-minute video presentation prepared for the F.R.E.D. division was well received throughout the state. The department-sponsored wildlife photo contest is handled by the section and a full color hardback publication entitled "Big Game of Alaska" with photographs from the 1975 contest will be available in the spring of 1977.

It should be mentioned that during 1976 the weekly television series which had been produced for several years by the section's Anchorage office was discontinued. The blame for that unfortunate occurrence must rest upon the increase felt in the workload of the area's sole departmental information officer. Although the program had been one of the section's best received efforts since its inception, the difficulty of maintaining even elementary forms of information distribution under the increasing pressures in the state's largest city eventually became so great that a regular weekly schedule for the series had to be abandoned. Television shows will continue to be produced on an irregular basis, providing quality shows when time and material are available.

In addition to assisting in the preparation of the regular reports and publications of the various department divisions and the magazine, in 1976 the graphics team of the section assisted in the preparation of special publications such as the "Alaska Salmon Fisheries Plan." Several special programs and exhibits designed to fulfill the goals and objectives of the various divisional programs were executed.

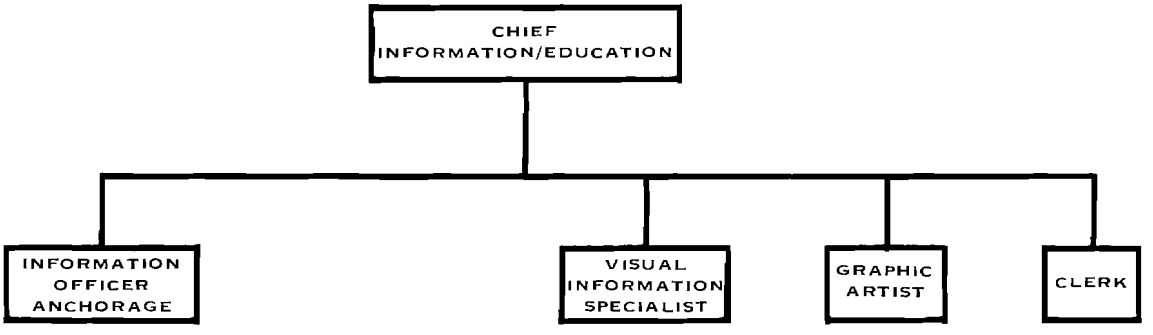
In 1976, the section was reorganized and a special task force appointed by the commissioner outlined goals and objectives for the program. The rapid population growth of the state and increasing interest on the part of the public of other states will, in 1977, continue to present a challenge to the information section to meet these goals and objectives.

The approach to be taken by the section in 1977 will be to concentrate its efforts on specific areas of

INFORMATION — I & E Section Chief Dolores Moulton coordinated statewide news and information efforts. Here she confers with Graphic Artist Sue Kilka.

the written, visual and educational aspects of the program. The magazine will be upgraded by adding some color, more pages, special topics, and more comprehensive information. The wildlife notebook series will be revised and reprinted, regular feature stories offered to the media, a full-length film on commercial fish management prepared along with other films and shorts and an attempt to provide more of the educational aspect of the program will be made. An ongoing effort toward better communication within the department is anticipated and although it is expected that the section will necessarily have to continue to operate with very limited funding and staff in 1977 the program is gaining strength and the year ahead should prove to be one in which the information program does a more efficient and comprehensive job in providing Alaskans with a better understanding of the resources and the department's role in managing the fish and game of the state.

In 1977 and thereafter, very serious and substantial problems will continue to confront the managers of Alaska's fish and wildlife resources. Leading the list are the needs for improving cooperation between the owners of state, federal and private lands and encouraging the protection of proper habitats for Alaskan animals of all types, and providing consistently fair resource allocation between all of the user groups concerned with the state's fish and game. In these problems and others, the I & E section will play perhaps the single most important role in advocating and maintaining the elements of cooperation, coordination and understanding among all those involved.



INFORMATION & EDUCATION SECTION
ORGANIZATIONAL CHART

COMMERCIAL FISHERIES

Carl L. Rosier
Director
Division of Commercial Fisheries

The Division of Commercial Fisheries is charged with the responsibility of managing all commercial and subsistence fisheries in the state, with the exception of halibut, to provide for the sustained production of these valuable renewable resources. In order to fulfill this objective, the division is divided into three major functions: management, research and administration. Management involves the regulation of commercial harvests by area, seasons, quotas, etc., which are based on the regulations, policies and directives of the Board of Fisheries as modified by current biological information on stock condition. Research involves the development of new techniques and new information which will improve the management of the resources. Administration makes policy decisions and coordinates the activities of the division.

With an operating budget of $6.9 million in 1975-76, the Division of Commercial Fisheries managed commercial fisheries grossing $126.7 million for the fishermen and $291.2 million for seafood processors (1975 figures). Subsistence harvests of fisheries resources continued to provide essential sustenance for many rural Alaskans.

MANAGEMENT

Shellfish Harvests

Shellfish harvests in 1976 surpassed those of any previous calendar year. An abundance of king crab, improved markets for tanner crab, and expansion of the shrimp fishery onto previously underutilized stocks combined to produce a total harvest of 317.3 million pounds of shellfish in 1976 (Table 1).

King crab population estimates by N.M.F.S. and Fish and Game personnel in 1976 indicated an increased number of sublegal and legal-sized crab in the Bering Sea, and the total harvest of 70.3 million pounds during 1976 reflected this increased availability of commercial-sized crab. This catch accounted for 66% of the total king crab landings in the state. Near average catches were made in Cook Inlet and Unalaska. Elsewhere in the state, catches were below average, primarily due to decreased recruitment of legal-sized males into these fisheries.

Tanner crab catches reached a record level of 80.7 million pounds during 1976. Increased market interest in this species resulted in catches approaching or achieving the sustainable yields in most areas of the state except the Bering Sea, where interest in king crab took precedence over tanner crab. Catches from Prince William Sound westward to Kodiak were near recent averages, but down from previous record catches. Record harvests occurred in southeastern Alaska (including Yakutat), Chignik, Unalaska, and the Bering Sea, where the harvest of 22.3 million pounds was over three times the previous high for that area.

The dungeness catch of 1.5 million pounds was the lowest harvest since before statehood. Increased abundance of this species in Washington, Oregon, and California depressed the price of this species to Alaska fishermen, and the fishing effort was reduced from previous seasons. The Southeastern-Yakutat fishery produced 67% of the total statewide harvest.

Record shrimp catches in Prince William Sound, Cook Inlet, Chignik, and the south side of the Alaska Peninsula combined with average catches in other areas of the state to produce a record harvest of 129.0 million pounds. About 85% of this catch is comprised of pink shrimp.

Commercial razor clam catches were minimal in 1976, reflecting the red tide-caused shutdown of the industry in 1975. Several commercial operators are continuing development work on hydraulic clam dredges.

Scallop catches continued to decline in 1976 to 265,000 pounds, due largely to lack of fishermen. Fisheries occurred off Kodiak and Yakutat.

Salmon Harvests

A total of 43.0 million salmon were landed in Alaska during 1976, the largest harvest since 1971.

Catches of sockeye and pink salmon produced the highest statewide totals in five years although some areas of the state continued to experience depressed runs of these species. The king and coho catches were slightly below their recent 10-year averages, and the chum harvest slightly exceeded that average.

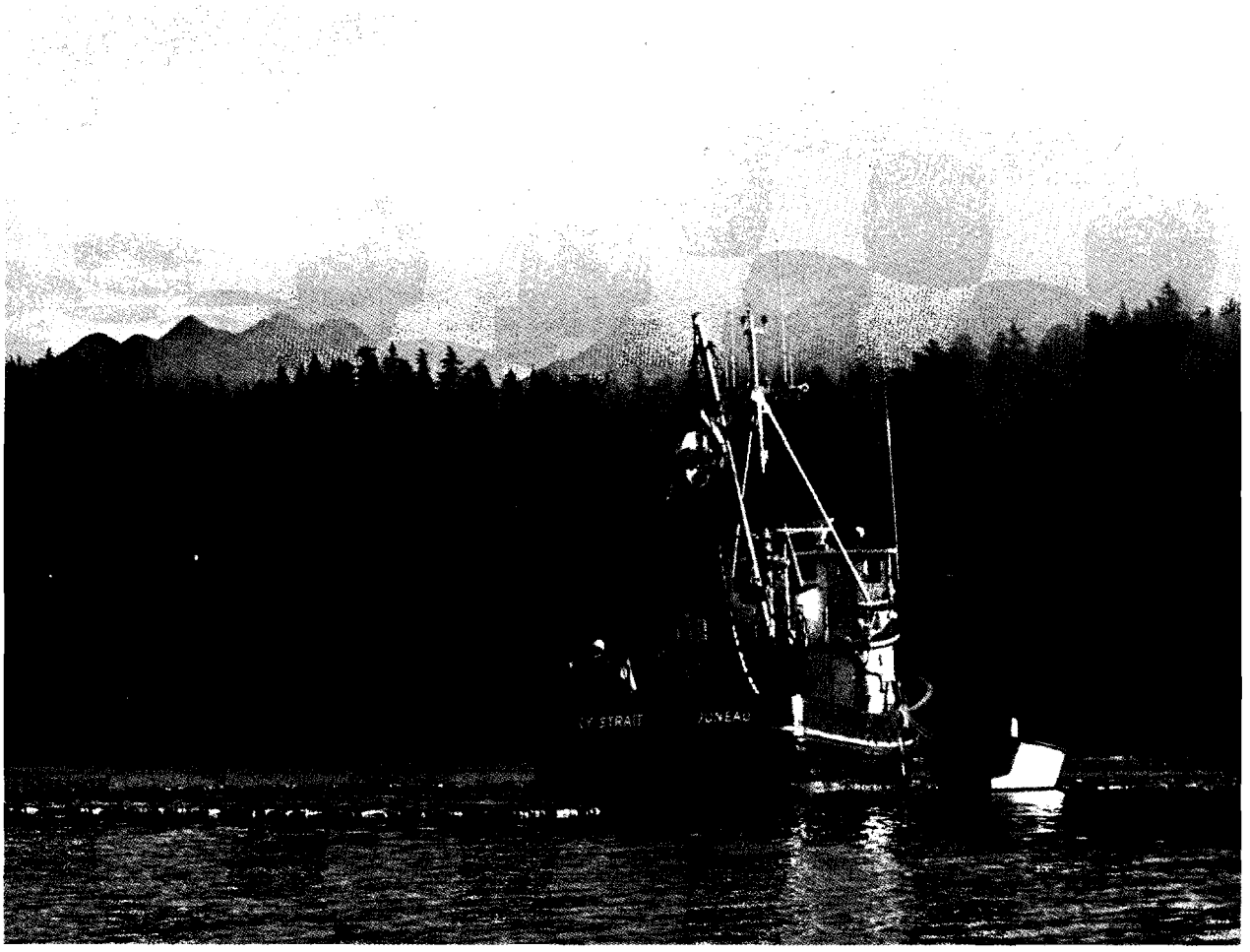
Salmon runs to southeastern Alaska in 1976 showed improvement over the 1975 season. Runs of coho, sockeye, and fall chum salmon were average or better, and drift gill net fishermen, who depend primarily on these species, experienced a good season. High prices for king salmon coupled with excellent coho fishing in districts 13 and 16 in August and early September allowed most commercial trollers to have a profitable season. Northern southeastern Alaska pink returns were extremely weak in 1976, and an almost total closure of the purse seine fishery was necessary to provide the brood stock needed to rebuild the run. The pink salmon return to the southern half of the panhandle was slightly above the upper range of the pre-season forecast, and purse seiners harvested about five million pinks.

The Yakutat red salmon harvest was above average, and good escapements were obtained. Catches of other species were near recent levels.

Good parent-year escapements and egg-to-fry survival, coupled with excellent fishing weather throughout the season, produced a catch of 864,000 sockeye in the Copper River area. King salmon catches were also above average.

Early and middle segments of the Prince William Sound pink salmon run were strong, and both catch and escapements were good. In general, late-run systems received poor escapements, and the fishery was closed early to protect these stocks. Chum salmon catch and escapement were also poor.

Strong sockeye and pink salmon runs to upper Cook Inlet helped produce the largest catch there since 1968. The sockeye harvest of 1.6 million was the second largest since statehood, and good to excellent escapements were achieved in most key systems. A weak coho run to the Northern district



HARVEST GROWS — The commercial fishing picture improved in 1976, with the largest salmon catch reported since 1971. Shellfish harvests set new records, surpassing all previous year totals.

was offset by strong runs to the Central district, and the total coho catch was near average.

Lower Cook Inlet continued to suffer from the 1964 earthquake-caused depression of even-year pink salmon runs. Strong local runs of sockeye, chum, and pink salmon combined to produce a total area catch of 245,000.

Nearly half of the statewide pink salmon harvest came from Kodiak Island, which produced 10.7 million pinks. Escapements were well distributed. Sockeye and chum harvests were also higher than recent catches.

Stronger than anticipated pink and sockeye returns produced catches of 400,000 and 1.1 million, respectively, in the Chignik area, and escapement goals were met in most systems. Chum and coho harvests were also above recent levels, and escapements appeared average to good.

Local record runs of pink salmon to South Peninsula systems produced the highest pink salmon catch there since 1965. Returning pink salmon averaged more than four pounds each, about a pound heavier than usual.

Fisheries in the Shumagin Islands and South Unimak Pass produced 300,000 sockeye and more than 400,000 chum. Local sockeye escapements were good, but local chum runs were weak with just fair escapements.

Sockeye runs were relatively strong along the North Peninsula east of Nelson Lagoon, with a harvest of over 650,000 sockeye. Escapement requirements were satisfied in most systems. The chum harvest was also above average, but escapements were average or below in most systems.

The return of 12.2 million sockeye to Bristol Bay only slightly exceeded the pre-season forecast of 12.0 million. Of this return, 680,000 were intercepted by the Japanese on the high seas. For the third consecutive season, escapement goals were reached in all major river systems. An inshore harvest of 5.6 million sockeye occurred. The chinook harvest of nearly 100,000 fish and a record escapement reversed the recent decline of this species. Chum catches were the largest since 1916, totaling 1.4 million. Pink returns were weaker than expected.

Although the 1.7 million salmon harvest for the Arctic-Yukon-Kuskokwim region was the third largest recorded, it showed a significant decline in the catches over 1974 and 1975. Only the Yukon and Kuskokwim summer chum runs were of average strength. Norton Sound and Kotzebue chum returns were particularly weak, and the catch dropped to about half of the 1971-75 average in these areas. Considerable improvement in chinook salmon numbers was noted in the Kuskokwim district, but the regionwide total was near the long-term average.

The subsistence harvest in the Arctic-Yukon-Kuskokwim totaled 75,800 king salmon and 444,667

CAPTURED COHO — Several coded-wire tagging programs were conducted in 1976. The coho pre-smolts captured in these minnow traps were tagged and released in a program designed to find stock separation and movement patterns for Berner's Bay coho stocks.

other salmon (primarily chum). A record 232,000 pounds of roe from subsistence-caught salmon in the Yukon and Kuskokwim areas was sold during 1976. Large subsistence catches were also made in the Bristol Bay area (201,300 salmon in 1975).

Herring Harvest

The Board of Fisheries opened exclusive areas to herring fishing with gill nets for the first time in 1976, and this gear harvested 29% of the 4.8 million pounds of herring taken during the spring sac roe fishery in southeastern Alaska. Purse seine and herring pounds accounted for 66% and 5% of the harvest, respectively.

Expanded markets for use of herring as bait and as human food increased the demand for herring during the winter fishery in southeastern, and a total of 12.8 million pounds were landed between January 1 through February 28 and October 1 through December 31.

All major herring stocks in southeastern Alaska are currently being utilized, and large increases in production in the future will depend on increases in stock availability. Large historical catches of herring indicate that stocks are now at low levels, and current management practices, which restrict harvest level to 10-20% of the assessed stock, are aimed at conserving the resource until it expands.

No decrease in the herring spawning stocks was noted in Prince William Sound in 1976, but the spring sac roe harvest dropped to 4.3 million pounds, the first time the catch has failed to achieve the 10 million-pound harvest guideline since 1972. The slow buildup of the Valdez Arm herring stock precluded a fishery on this stock, and the harvest in the Sound was limited to a one-hour fishery at Green Island.

The herring spawn-on-kelp harvest of 477,000 pounds was near average, but kelp quality and egg density were poor. New regulations adopted by the Board of Fisheries at its December meeting now allow only selective hand cutting of kelp plants. These new regulations should significantly alter the character of this fishery.

A total of 9.6 million pounds of herring were harvested during the spring sac roe fishery in Cook Inlet. Most of the harvest came from the Kamishak district. Reduced catches are anticipated during the next two or three seasons due to two weak-year classes entering the fishery.

The roe-on-kelp fishery in Bristol Bay produced a record 296,000 pounds during 1976. A total of 49 fishermen harvest this resource, which is limited to rockweed.

RESEARCH

Pre-season forecasts of pink salmon returns are made in many areas of the state: Southeastern Alaska, Prince William Sound, lower Cook Inlet, Kodiak,

ANAN PINKS — Pink salmon were brailed and airlifted over a barrier falls at Anan Creek near Wrangell to ensure escapement to the spawning area. A fish ladder is scheduled to be built in 1977 to bypass the falls.

Chignik, the south side of the Alaska Peninsula, and even-year Bristol Bay returns. Chum salmon returns are forecast in Prince William Sound. These forecasts are usually based on the relationship between pre-emergent fry density indices and subsequent adult returns. Correlations of returns with other factors such as sea surface and air temperatures have proven useful in assessing annual variation in marine survival. Efforts are now underway in several areas to produce computer data files to provide more accurate relationships on which forecasts can be based. While accuracy of projections has improved every year since 1971, an average error of 27% of the actual harvest (or 10 million fish) necessitates a significant improvement in forecasting to provide reliable information to the fishing industry.

Pre-season sockeye salmon forecasts are made for two areas of the state: Chignik and Bristol Bay. Because of the more complex life history of this species compared to pink salmon, additional data are collected to provide a more accurate forecast of adult returns. The numbers of smolt migrating to the ocean each year provides an index for making pre-season forecasts. The escapement-return relationships,

marine maturity schedules and fry densities in the rearing area may also contribute to the forecast. In-season information obtained from offshore test fishing provides further refinement of the forecast just prior to the fishery. A contract with the Fisheries Research Institute of the University of Washington was negotiated in 1976 to begin modeling the extensive Bristol Bay sockeye data to improve the forecast and in-season estimates of run strength by district. Stock separation work was begun in 1976 on sockeye scales, and trial samples indicate distinct differences between river systems in Bristol Bay. This information will also aid in permitting more precise management of this valuable fishery.

Achieving a proper distribution and abundance of brood stock to maintain future salmon runs and harvests at optimal levels is a basic objective of the salmon management program, and many research studies are directed at determining what these escapement parameters should be. Data on fry or smolt releases or adult returns from various-sized escapements are used to estimate desired escapement levels for Alaska salmon streams. Additional information on the spawning area available, rearing area productivity and the effects of predators or competitors is also collected to aid in determining optimum escapement requirements.

Recent advances in sonar technology hold significant promise for enumeration of adult salmon returns. Sonar units have been used to count adult salmon returning to glacial river systems since the mid-1960's to provide in-season information for fishery management and post-season assessment of management effectiveness. These early units were difficult to put in place and to maintain in operational condition throughout the salmon season. During 1976, a new system utilizing a single transducer was field tested against the earlier sonar array and against visual escapement estimates. The new system, which is much easier to install and repair, produced comparable results to other methods. The division plans to use the new system to replace older units as they wear out in order to obtain escapement indices for significant salmon spawning streams which are not currently monitored, and to assess run strengths in the marine environment as the fish head for their natal streams.

Sonar systems are also utilized for other aspects of salmon research. Sonar counters have replaced fyke nets for smolt enumeration in several Bristol Bay systems. The nets provided an unreliable estimate of the smolt as they left freshwater and caused some mortalities. Sonar is also used to transmit killer whale sounds underwater in two Bristol Bay river systems during smolt outmigration to scare off belukha whales, an important predator on the smolt.

Additional research projects occur throughout the state. In Southeastern Alaska, work on chum salmon is aimed at determining the availability of brood stock for rehabilitation and enhancement projects and at collecting basic age-weight-length information together with escapement and pre-emergent data to be used in assessing the feasibility of forecasting chum salmon returns. A program to develop stock separation techniques to improve management of Southeastern salmon was initiated in October 1976. This project will include marking and tagging with adult recoveries, electrophoresis, computer modeling of past catch and escapement data, and study of oceanographic features.

Coded wire tagging of coho salmon juveniles in major northern Southeastern rearing systems was also initiated in 1976. This field program appeared to work well, and returns of these fish through the common property fishery in 1978 should give the department necessary information on distribution, timing, and rate of exploitation of the different stocks of coho.

Land-use project emphasis remained the inventory of streams in Southeastern Alaska to identify salmon stocks, habitat types and physical and chemical characteristics of salmon streams. These baseline data will be used to identify critical environmental factors necessary for the protection of the stream environment during land development activities. Detailed stream catalogs have been completed for districts 1, 2, and 4.

Stream cataloging, lake productivity determination and experimental gravel incubation in a spring area near Paxson were major research activities in the Copper River drainage during 1976.

Research efforts in upper Cook Inlet in 1976 made significant progress toward providing more accurate and timely information on the distribution, timing and abundance of salmon returning to the upper inlet. A new offshore test fishery identified routes of travel of returning fish. Test fishing at the mouth of the Kenai River was intensified and produced good escapement information three days ahead of the sonar counters upstream. Sonar counters were also used experimentally in the Susitna River to evaluate their potential to obtain more timely escapement data. Lake productivity work on the Kenai Peninsula was finalized in 1976 and stock separation studies were initiated.

Impoundment of arctic char during smolt outmigration in the Wood River system proved to be an effective mechanism to reduce predation on smolt in this system. Lake fertilization experiments indicated that this technique can increase sockeye production without increasing the number of spawners required, and the division plans to implement a more extensive lake fertilization program as funds permit.

Surveys in the Yukon and Kuskokwim drainages during 1976 identified previously unknown king salmon spawning streams in the upper Kuskokwim and fall chum streams in the upper Yukon. Preliminary analysis of recoveries of fall chum tagged near

Galena during 1976 indicated a spatial separation of stocks, with 81% of the upper Yukon River (including the Chandalar and Porcupine Rivers) recoveries being tagged on the north bank of the Yukon and 87% of the Tanana River recoveries being tagged on the south bank.

Herring

Biomass estimates of herring stocks can now be made from three department vessels equipped with digital echo sounder integrators. These vessels are utilized to gather information on distribution and abundance of herring throughout Southeastern Alaska. Age and growth analyses of commercially caught herring provide important data on stock status, and further studies have been initiated to provide information on spawn density and substrate for particular stocks of Southeastern herring.

Shellfish

Tanner and dungeness crab stock assessment work was initiated in Prince William Sound in 1976 in an effort to determine stock condition.

In lower Cook Inlet, king and tanner crab sampling and tagging projects were continued to define stock strength by age, harvest levels and fishing mortality. Shrimp stocks harvested by trawls and pots were analyzed to help develop management strategies.

In the Westward region, work continued on a 10-year study on king and tanner crab populations, including interrelationships between the two species. Index cruise information for the Kodiak area indicated that king crab recruitment is down for the 1977-78 and 1978-79 fishing seasons, probably due to overfishing during the 1970-71 and 1971-72 seasons, but that recruitment of crab into the fishery will increase during 1979-80 and 1980-81 as a result of the quotas imposed on this fishery beginning in 1972.

SAC ROE — Herring harvests continued to be a small but important part of the commericial fishing picture in Alaska.

In other areas of the Westward region, king crab stock assessment in the Adak and Western Aleutians areas indicated a continued decline in the number of king crab. Bering Sea stocks, however, appeared to be increasing.

The department is developing a new permanent tag for king crab because of technical problems with the older tag. The department is also collaborating with N.M.F.S. personnel in developing a permanent tag for tanner crab.

Earlier evidence had indicated that tanner crab

females did not mate again after their molt to maturity, but in 1976 staff biologists observed some post-molt females mating. Biologists also learned that males between 110 and 140mm (4.3 and 5.5") are more important reproductively than larger males. Finally, growth per molt information is now available for most size classes of tanner crab although frequency of molting data are still incomplete.

Shrimp stock assessments indicate reduced numbers of shrimp over recent levels in the Kodiak, Chignik, and Alaska Peninsula areas, but the reproductive capacity of these populations does not appear to be impaired. The recent decline may in part be due to overfishing or to naturally lower fecundity of the shrimp populations. The 1976 season was the first time that interim harvest levels had to be established for the Chignik-South Peninsula area because of fishing intensity.

A shrimp population study in Kiliuda Bay is investigating the effects of tides on the availability of shrimp to commercial gear. The shrimp appear to migrate off the bottom during periods of large tides. Further assessment of the Ugak Bay shrimp stock, which was overfished in the late 1960's and early 1970's, showed no measurable signs of recovery despite a five-year closure of the fishery in this area. Logbook catch per unit-effort information is being standardized as part of the increased biometrics support to the shellfish research programs in this region.

ADMINISTRATION

The passage of PL 94-265, the fishery conservation and management act of 1976, established a zone of U. S. jurisdiction over fisheries resources from three to 200 miles off shore. The North Pacific Fisheries Management Council, which advises the Secretary of Commerce on management of this zone, gave the Department of Fish and Game primary responsibility in drafting the management plans for those fisheries which the state currently manages within this zone: king, tanner, and dungeness crab, shrimp, scallops and offshore salmon. Management plans for groundfish are being developed by the National Marine Fisheries Service (Seattle).

Planning for and coordination of private nonprofit salmon hatcheries received impetus from the passage of SB 688 during the 1976 Alaska State Legislature. This act provided for the establishment of regional aquaculture associations which, together with the department, were empowered to develop comprehensive salmon enhancement plans for all regions of the state. Two new permits were issued for private nonprofit hatcheries during 1976, and by the end of the year three facilities were operational — Prince William Sound Aquaculture Corporation on Evans Island, Sheldon Jackson College in Sitka, and Douglas Island Pink and Chum, Inc., on Douglas Island.

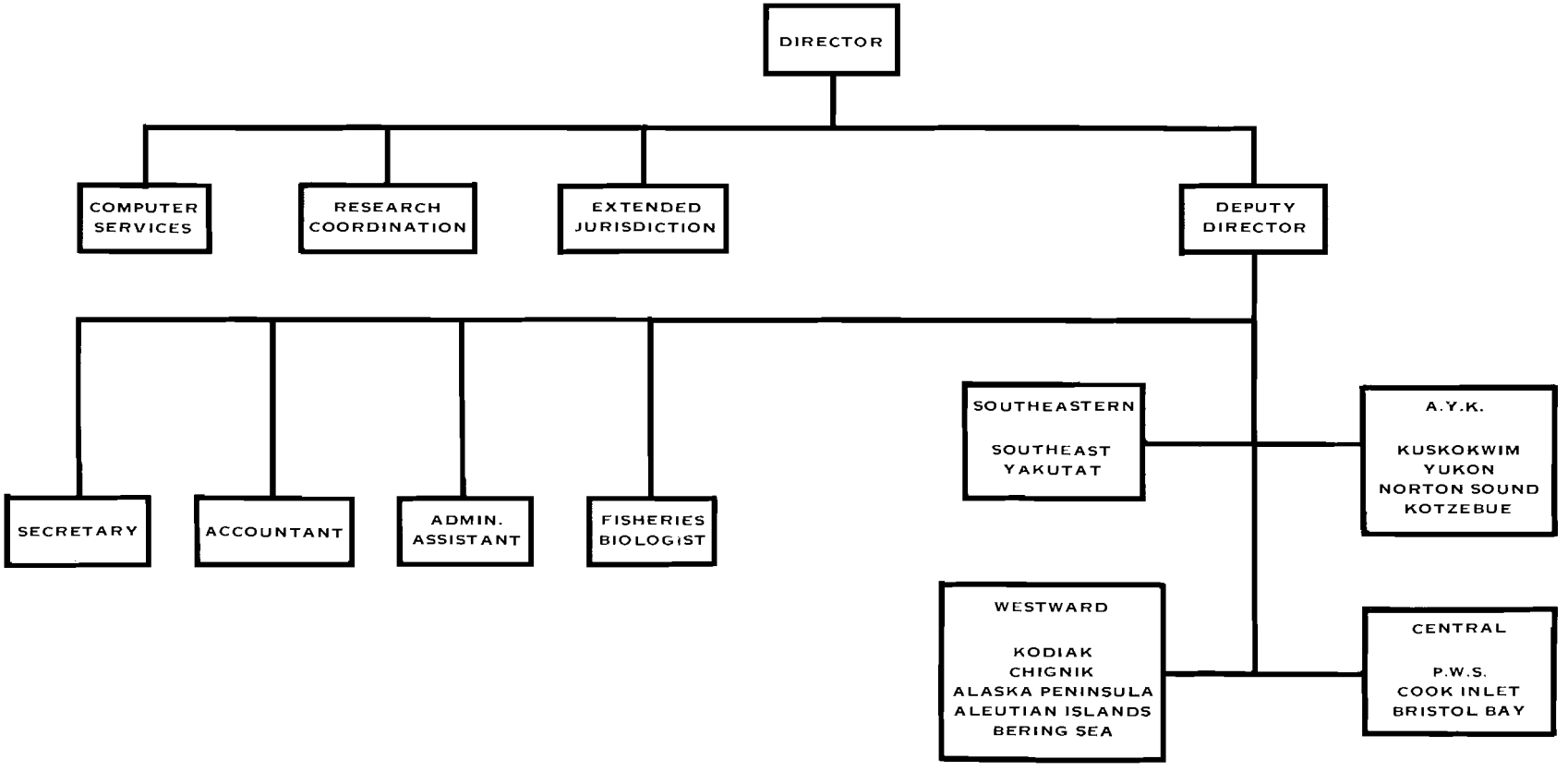
In order to improve the quality and timeliness of in-season catch data, the computer service section of the division implemented a new data collection system in 1976. Computer terminals were placed in key offices in the state for in-season data collection into a central time-sharing computer. In addition to providing more complete seasonal data, this system also offered graphics output and could be tapped by any agency or office with a computer terminal. Other improvements in computer services during 1976 included modifying the catch data system to identify catch by individual fishermen and decentralizing data editing and input from the headquarters to the regional level.

The department, in cooperation with the Alaska Trollers Association, the University of Alaska Sea Grant Program, and the National Marine Fisheries Service, helped implement a troll logbook program for the state during 1976. Department assistance was provided in compiling, programming and summarizing data from the 51 logbooks returned in 1976 and in preparing the 1977 logbooks.

In addition to contributing to the state's position on the federal O.C.S. leasing program, the department acted as a contractor to the Outer Continental Shelf Environmental Assessment Program. Fisheries inventory projects were conducted for the following areas and species during 1976 in order to locate areas of biological sensitivity which could be adversely impacted by oil development: Chukchi Sea-Norton Sound — pelagic and demersal fish; Bering Sea — herring and forage species; Alaska Peninsula — razor clams; Kodiak Island — demersal fish and razor clams; lower Cook Inlet — pelagic and demersal fish; and Kenai Peninsula — intertidal organisms.

Outlook for 1977

A commercial salmon harvest of 35 million fish is projected for Alaska in 1977 (about average for the last seven years but eight million fish less than were harvested in 1976). The harvest is not expected to be less than 23 million nor more than 46 million. The anticipated decline from 1976 is primarily due to forecast weak sockeye salmon returns to Bristol Bay and moderate to severe pink salmon declines in Central and Western Alaska. Shellfish harvests are expected to equal or exceed those of 1976, thus continuing the general upward trend in harvest levels experienced during the last 20 years. Especially likely to show increased harvest levels is the tanner crab fishery. Additionally, 1977 will probably see a developing groundfish fishery as Alaskan fishermen begin to take advantage of opportunities provided through extended jurisdiction. In time, extended jurisdiction is expected to result in harvests of additional millions of pounds of fish worth millions of dollars to Alaskan fishermen and to the economy of the state.



COMMERCIAL FISHERIES DIVISION
ORGANIZATIONAL CHART

FISHERIES REHABILITATION ENHANCEMENT & DEVELOPMENT

Robert S. Roys
Director
Division of Fisheries Rehabilitation, Enhancement and Development (F.R.E.D.)

The Division of Fisheries Rehabilitation, Enhancement and Development (F.R.E.D.) has the responsibility to: 1) develop and continually maintain a comprehensive, coordinated state plan for the orderly present and long-range rehabilitation, enhancement and development of all aspects of the state's fisheries for the perpetual use, benefit and enjoyment of all citizens and to revise and update this plan annually; 2) encourage the investment by private enterprise in the technological development and economic utilization of the fisheries resources; and 3) through rehabilitation, enhancement, and development programs do all things necessary to insure perpetual and increasing production and use of the food resources of Alaskan waters and continental shelf areas.

MAJOR PROJECTS

F.R.E.D.'s efforts in 1976 focused on refining aquaculture technology to meet Alaska's particular parameters and potentials, establishing inventory and assessment teams for facility site evaluations, and developing a long-range rehabilitation and enhancement plan.

F.R.E.D. sent a biologist and an engineer to Japan in the spring of 1976 to obtain information on Japanese hatchery programs. The trip was planned to coincide with the rearing and outmigration of chum salmon fry. A review of the 20 hatcheries visited will be published in early 1977. An intensive fish culture training program was initiated and two disease workshops were conducted. A Fish Culture Manual and a Mark-Tag Manual scheduled for completion in 1977 were initiated to standardize operating procedures throughout the state.

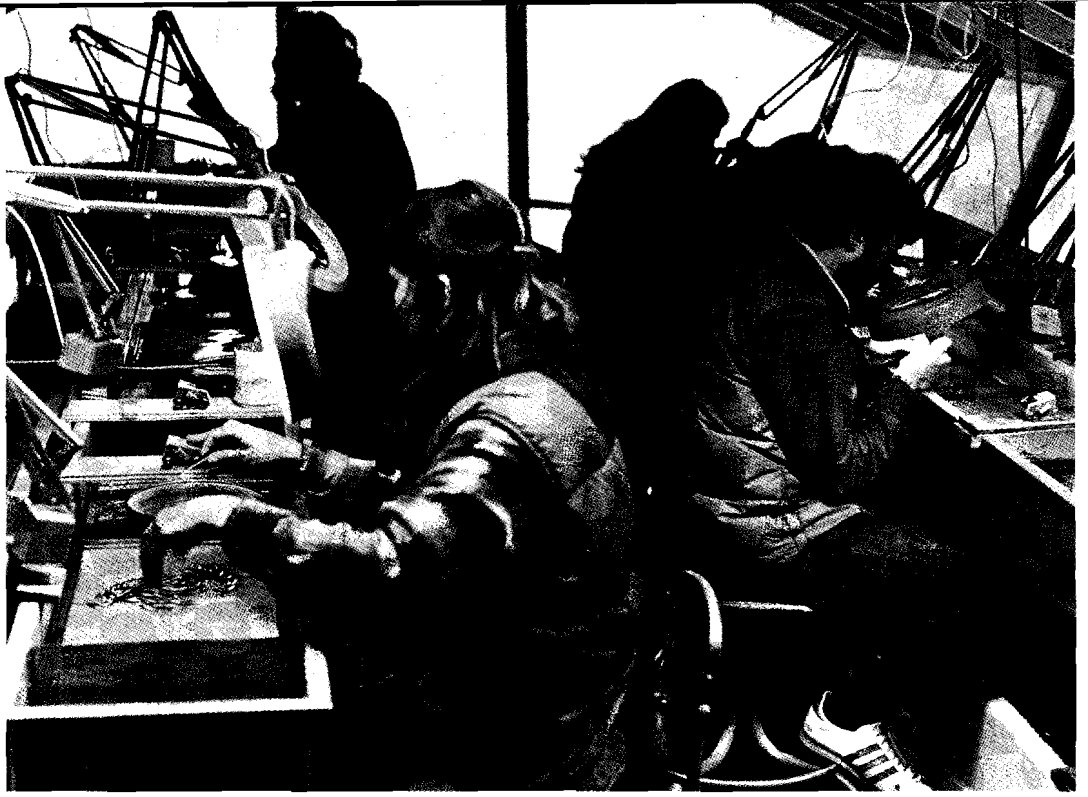
The passage of the $29.2 million bonding authorization for salmon enhancement was the biggest news for the F.R.E.D. Division in 1976. The bonding provided funds for eight new incubation and rearing facilities, three fishways and improvements to several existing facilities. Construction will begin in 1977 on some of these projects.

Pathology

F.R.E.D. maintains a central disease laboratory in Anchorage whose responsibility it is to assist in diagnosis and treatment of disease problems, to monitor the health of fish populations in order to anticipate potential problems, and to prevent the spread of fish diseases from one locality to another through a stock certification program. Since the IHNV (Infectious Haematopietic Necrosis Virus) is capable of decimating populations of sockeye fry, fingerlings and smolt, research has continued to determine the distribution of the virus in Alaskan sockeye populations. No IHNV problems were detected for brood year 1975 sockeye at Big Lake, East Creek, or Kasilof hatcheries. Cooperative research was undertaken with the Western Fish Disease Laboratory in Seattle to develop methods of controlling IHNV in hatchery-reared sockeye. Vibriosis vaccinations were prepared and administered to salmon at some of F.R.E.D.'s hatcheries. Research continued on disease problems associated with northern pike, arctic char and king crab.

Cooperative Programs

A cooperative feasibility study is in progress with the Alaska Power Administration at the Snettisham Power Project to determine if the constant 41°F. water is suitable for salmon production. F.R.E.D. participates in cooperative research with the National Marine Fisheries Service (NMFS) at two locations in the southeast. At Auke Bay various incubation systems for the production of high-quality pink fry are tested. Comparison of adult returns for hatchery vs wild stocks and comparison of wild vs hatchery fry permit evaluation of incubation techniques. At Little



DELICATE WORK — Crew at Beaver Falls facility near Ketchikan marked tiny chum salmon fry with both clipped fins and coded-wire tags. The tags were used with chum fry in 1976 for the first time.

Port Walter F.R.E.D. is utilizing the NMFS facilities in a cooperative program to meet the needs for improved chinook salmon brood stock for southeast Alaska. Approximately 65,000 king salmon eggs are being incubated and reared in this program. NMFS and F.R.E.D. are also cooperatively participating in the evaluation of the East Creek Sockeye Hatchery in Bristol Bay.

Habitat Maintenance and Improvement

In addition to salmon incubation and rearing, F.R.E.D. Division is engaged in other activities to enhance and rehabilitate salmon resources. Among these activities are the construction of fishpasses over migration barriers which allow spawner access to new areas and counteract the debilitating effects of man or nature on natural spawning areas.

High water at Anan Creek south of Wrangell necessitated the transport of fish by helicopter over the falls to their spawning grounds. Construction of a fishpass over Anan Falls is planned for 1977. Beaver dams were removed from creeks in the upper Cook Inlet area as part of a stream clearance program.

REGIONAL ACTIVITIES

SOUTHEASTERN REGION

Beaver Falls, Ketchikan

The Beaver Falls facility which commenced operations in 1974 is designed as an applied research facility for the investigation of chum salmon aquaculture technology. The 7.6 million eggs taken this fall at Disappearance Creek on Prince of Wales Island are being incubated at Beaver Falls and at the Deer Mountain hatchery, which is leased from the city of Ketchikan. Some of the fry which will emerge in the spring of 1977 will be subject to short-term rearing in saltwater pens; the others will be released directly into George Inlet and Disappearance Creek. Evaluation of the success of F.R.E.D.'s enhancement and rehabilitation programs involves marking and tagging a percentage of the fish released from facilities. In the spring of 1976, coded wire tags were adapted for use on salmon fingerlings. A tagging program of this scale is the first of its kind in the world. The first returns at Beaver Falls will be in the fall of 1977 when some of the chum released in the spring of 1975 will be returning as three-year-olds.

Starrigavan, Sitka

The estuarine rearing pens completed in 1972 at Starrigavan were one of F.R.E.D.'s first projects. The incubation facilities added in 1975 made the facility capable of rearing all five species of salmon although current emphasis has been on rearing cohos and king salmon whenever a king brood stock is available. Preliminary catch and escapement data indicate that more than two percent of the coho smolt released in 1974 returned this fall. At the end of 1976, 900,000 coho eggs were being incubated and 125,000 coho were being fed in the rearing pens. King salmon fry from the Crystal Lake Hatchery will be reared and released at Starrigavan in 1977.

Fish Creek, Juneau

The estuarine rearing pens at Fish Creek have been devoted to rearing coho fingerlings since October 1974. Coho salmon eggs taken at Mendenhall ponds are incubated at Crystal Lake Hatchery and the fry are returned for initial rearing at Mendenhall Ponds until they are able to adapt to an estuarine environment. In September fingerling are transferred to the Fish Creek pens for overwintering and release the following spring. Forty-three thousand magnetically tagged coho smolt were released in May of 1976. Preliminary catch and escapement data from the adult returns indicate that more than 2.5 percent of the first smolt release of 1974 survived to adulthood.

CENTRAL REGION

Big Lake, Wasilla

Big Lake incubation facility, located on Meadow Creek near Wasilla, was completed in the spring of 1976. Big Lake has historically been a large producer of sockeye, but stocks are currently depressed. The temporary incubation unit operating in 1975 produced 80,000 sockeye fry, which amounted to 30% of the total fry out-migration in Meadow Creek because a severe winter killed a large percentage of the wild eggs and fry. The Big Lake facility was brought into full production in 1976 with an egg take of 10 million sockeye eggs. Expansion to a 20-million-egg capacity is expected with planned production aimed at achieving an annual run of 50,000 to 250,000 adult sockeye to the Big Lake system. Other 1976 projects included rearing 100,000 king fry over the winter in an attempt to re-establish a run of king salmon to Fish Creek, monitoring environmental conditions in natural sockeye spawning areas to recreate those incubating conditions in the facility, and incubating and rearing 5,000 trout. The trout were lost when the water delivery system failed.

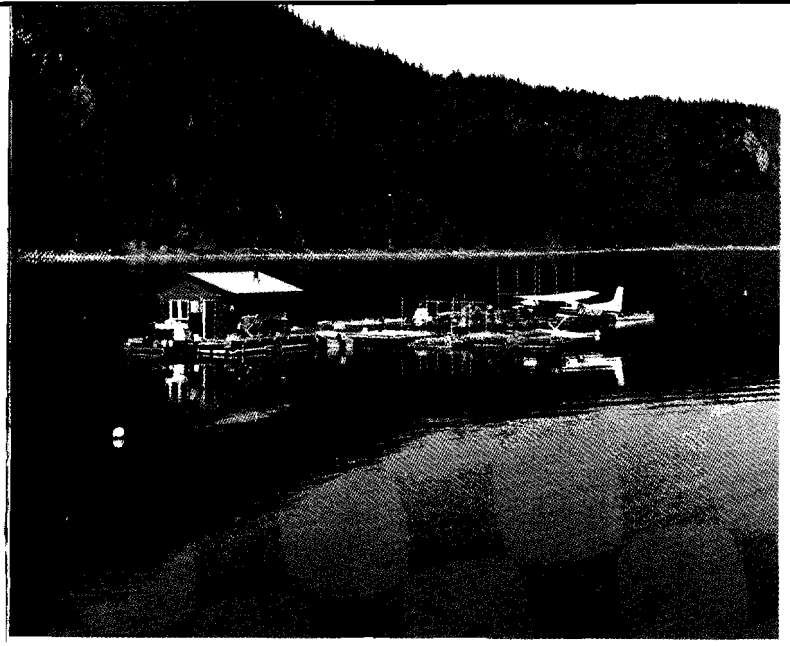
Tutka Lagoon, Seldovia

The new incubation facility at Tutka Lagoon, completed in the spring of 1976, will serve as the center for the rehabilitation of several pink and chum salmon stocks on the lower Kenai Peninsula. Full production was initiated in the fall of 1976, when 10 million pink salmon eggs were taken. Expansion to 20 million pink salmon egg capacity is planned. Eggs taken in 1975 at Tutka Creek were incubated at Kasilof and the 300,000 fry produced were returned to Tutka in the spring of 1976 for short-term rearing and marking operations. Continuing studies on seasonal changes in estuarine productivity will be used to help time the release of pink salmon for best ocean survival.

Halibut Cove, Homer

The primary objectives of the estuarine rearing pens at Halibut Cove Lagoon on the Kenai Peninsula have been to produce fish for the developing sport fishery and the existing commercial fishery and to build brood stocks at Halibut Cove Lagoon where none had previously existed. In the fall of 1976 the adult return of 5.8 percent of the pink salmon fry released at the rearing station was the highest per cent recorded adult artificial return of pink salmon in Alaska. This phenomenal return from the 50,000 pink fry which had been reared and released in August 1975 provided a commercial fishery where none had previously existed. In 1976 Halibut Cove Lagoon also reared 300,000 coho salmon and 100,000 sockeye, and received 25,000 Crooked Creek king salmon smolt and 5,000 coho smolt from heated water ponds in Anchorage for saltwater rearing, imprinting and release. In the future expansion is planned for the lake stocking program and the program of imprinting king and coho smolts which have been reared in heated water in Anchorage.

ARTIFICIAL — The spawning technique used at Tutka was the "dry method". Eggs and milt were collected separately and mixed after transport back to the facility.



BEST RETURNS — The tranquil-looking facility at Halibut Cove Lagoon reared and released 50,000 pink salmon fry in 1975. The return of 5.8% in 1976 was the highest percentage recorded of adult artificial returns in Alaska.

Crooked Creek, Kasilof

The Kasilof facility located on Crooked Creek 12 miles south of Soldotna on the Kenai Peninsula was one of the first built by F.R.E.D. and after three years of investigation it is a production facility.

Eleven and a half million sockeye eggs were taken in the fall of 1976 from Tustumena and Hidden Lakes and fry are scheduled to be returned to these locations following incubation and short-term rearing. In addition to sockeye, emphasis has been on rearing king salmon for the Cook Inlet fishery. A good run of king salmon to Crooked Creek in 1976 made it possible to take 800,000 eggs. One hundred thousand of these filled the Kasilof incubators to capacity; the rest were sent to the Fire Lake Hatchery in Anchorage and to Crystal Lake Hatchery in Petersburg to help establish runs for the fisheries in Southeastern. Incubation technology tests conducted at Crooked Creek have provided valuable information for future hatchery designs in the state.

About 85,000 Crooked Creek king salmon smolt which were reared in the hatchery section's heated ponds in Anchorage were returned in May of 1976 to Crooked Creek for tagging, fin clipping, imprinting, and release. Presently, the main water supply at the hatchery is unfiltered stream water pumped directly from an open pipe lying on the stream bottom. Improvement of water quality is a primary objective in 1977. Studies are underway to discover natural rearing areas and carrying capacities for king salmon habitats in central Alaska in order to produce maximum utilization of all potential rearing areas. Fry and fingerling salmon stocked in underutilized lakes and streams will feed on natural food and then migrate to the ocean as smolts.

Lake Nunavaugaluk, Dillingham

When the Lake Nunavaugaluk facility located 25 miles from Dillingham is operating at production capacity, it will be capable of incubating 15 million sockeye eggs. The hatchery will be operated during the winter of 1976-77 to test water intake systems. At present, 3.2 million sockeye eggs are in instream incubators on a natural spring area in East Creek, a tributary of the lake. The returning adults from this release and from a release of 360,000 sockeye fry made in 1976 will provide hatchery brood stock. Cooperative research on lake productivity and carrying capacity that is underway with the NMFS will provide data to plan for stocking the underutilized natural rearing areas in Lake Nunavaugaluk.

WESTERN REGION

Kitoi Bay, Afognak Island

The Kitoi Bay Hatchery, in existence as a pink and sockeye research station since the mid-1950s, was converted this fall to a production facility with a capacity of 20 million pink eggs. The incubation system is being tested during the 1976-77 winter by incubating 7.9 million pink salmon eggs. In the spring of 1976, 778,000 pink salmon fry were released at Seal Bay Creek to establish a run above a fish ladder installed in 1972. An escapement of 119,321 sockeye to the Frazer Lake system demonstrated the success of F.R.E.D.'s program to bolster the run by providing access to new spawning grounds via a 210-foot fish ladder and by planting eggs and fry above the ladder.

WATCH IT! — Clipping fins on diminutive chum salmon fry required magnifying equipment.

KITOI BAY — A short-term rearing experiment was established at the Kitoi Bay facility to test the feasibility of new pen designs.

Increasingly greater annual releases of hatchery fry have bolstered the natural Kitoi pink salmon run from a few thousand fish to around 14,000 in 1976. A return of 44,000 pink salmon is forecast for 1977 with the hatchery contributing about 66 per cent.

NORTHERN REGION

Fairbanks

F.R.E.D. opened an office in Fairbanks in the fall of 1976 to begin development of a program for salmon enhancement and rehabilitation. The Interior's climatic conditions may require the development of new methods for rearing king salmon. Tentative plans are being developed to evaluate the use of heated waste water from diesel power plants to rear salmon. The feasibility of using geothermal water from sites in the Interior and on the Alaska Peninsula will be conducted under a federal grant from the Alaska Energy Office.

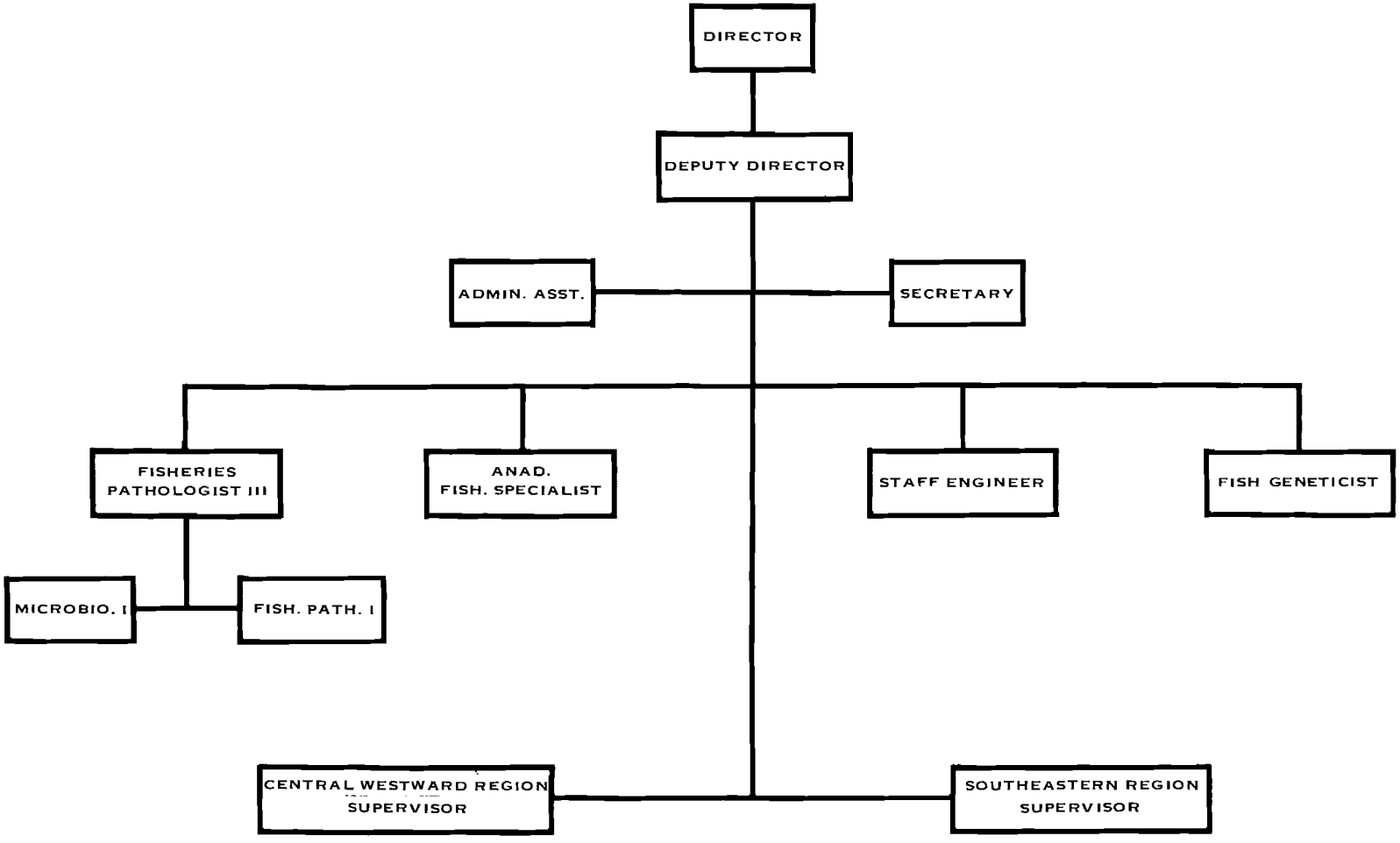
What's In Store For 1977

The 1976 bond issue provides for two new incubation facilities in southeastern Alaska. The site selected in Kasnyku Bay at Hidden Falls on the east coast of Baranof Island will be capable of producing at least 47 million chum fry and three million coho fingerling. The second site being considered is at Klawock Lake on Prince of Wales Island and it will have a similar capacity. The Department of Public Works is working with the F.R.E.D. staff on design development and engineering studies. Construction bids for these facilities will be requested in 1977. The 1976 bond issue provides funds for three facilities in the Central Region. One facility to be built at Cannery Creek in Unakwik Inlet on Prince William Sound will be capable of releasing 20 million pink salmon fry, nine million chum fry and one million coho fry. Construction is scheduled to begin in 1977 if possible.

Plans for the expansion of the Ship Creek Complex at Elmendorf Air Force Base should be completed in 1977. The finished facility will include a hatchery building, two sets of rearing ponds and will have the capacity to incubate 45 million eggs and to produce 40 million two-inch fish or six million five-inch smolts.

A facility at Hidden Lake/Skilak Lake on the Kenai Peninsula will provide for the incubation and short-term rearing of 20 million sockeye fry. Data will be collected on water sources so that design work can be completed in 1977. In the Western Region the bond issue provided funds for two additional facilities. Construction should begin during the summer of 1977 on the incubation facility at Russell Creek near Cold Bay. It will have a capacity of 50 million pink and chum salmon eggs.

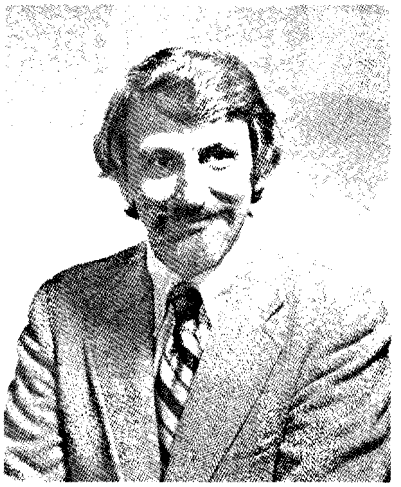
During 1977 a major reorganization of the F.R.E.D. Division and the Hatcheries and Engineering Sections of the Division of Administration is scheduled. By July F.R.E.D. will have absorbed these two sections in order to streamline activities, eliminate duplication of efforts and make a more efficient organization. The same personnel will be retained but organized by different job titles and responsibilities and under a different chain of command. During 1977 F.R.E.D. will hire a geneticist to ensure that the enhancement and rehabilitation plans developed are consistent with preserving the genetic integrity of natural stocks and with developing viable hatchery stocks.



DIVISION OF FISHERIES REHABILITATION ENHANCEMENT AND DEVELOPMENT

ORGANIZATIONAL CHART

GAME



Robert A. Rausch
Director
Division of Game

The Game Division, in accordance with the concept of sustained yield as specified in Section 4, Article VIII of the Constitution of the State of Alaska, has the responsibility of conducting a conservation program involving all species of wildlife in the state. Basically, the goal of the division's program is to provide maximum benefits to the citizens of Alaska through orderly utilization of the state's game resources.

Game Division operations, which are directed toward managing, maintaining and improving game resources while knowledgeably directing the utilization of harvestable surpluses, are divided into three categories: management, research and survey-inventory. Management activities include assisting in the development and enforcement of trapping and hunting regulations, administration of controlled hunts, preparation of regulatory proposals and public relations work. Research activities and survey-inventories of game populations and their habitat provide information necessary for the proper management of Alaska's game resources.

MAJOR PROBLEMS

The Game Division's main problems in 1976 were related to two major issues: wolf management and federally related development programs in Alaska. Wolves and wolf-associated problems resulted primarily from disagreements between the department and the U. S. public regarding wolf control programs designed to improve the status of Alaska's big game herds. Citizens in the "lower 49" states, not understanding our programs and desiring to protect the wolf from irreparable harm, swamped department offices and the Office of the Governor with their protestations of our programs. This controversy ultimately went to District Court in Washington, D. C. where Judge Hart ruled that the department's activities: (1) were not environmentally detrimental, and (2) were not of national significance. As a result the division was allowed to effect its limited wolf control program on the Tanana Flats south of Fairbanks. A division wolf research program in the Nelchina Basin generated additional public reproach, eventually leading to suspension of federal funding for this project.

Development of Alaska's outer continental shelf required amassing a very considerable data base on this region's fisheries and wildlife, and resulted in continued major research activities by Game Division biologists.

THE DIVISION'S APPROACH

Federal Legislation

The Marine Mammals Protection Act of 1972 continued to hamper efforts of the Game Division to effectively manage Alaska's marine mammal resources. During 1976 regulations were developed and implemented allowing the first sport harvest of walrus since 1972 (management authority for this species was returned to the state by federal regulations of December 1975). Efforts continued through 1976 to regain state control over seals, sea lions, belukhas, sea otters and polar bears. The Director of Game and his marine mammals staff participated in three hearings on this subject held in Alaska (Anchorage, Nome and Bethel), then in September went to Washington, D. C. for the final hearing on this matter. Hopefully, by mid-1977 the management authority for the remaining marine mammal species will be returned to Alaska and non-native residents of the state will again have the opportunity to utilize these marine mammals.

Concern over the development of Alaska's outer continental shelf (OCS) oil reserves continued to place major manpower demands upon the Game Division in 1976. A six-man research team, funded by the U. S. Department of the Interior, gathered much-needed information on Alaska's marine bird and marine mammal populations along our coast from Yakutat to the Beaufort Sea. In southcentral Alaska these included studies on harbor seals, sea lions, sea otters and marine birds which identified critical habitats and food sources and provided information on numbers, rates of reproduction and movements of

these species. OCS studies in the Arctic included the delineation of coastal marine bird habitat from Wales to Barter Island, surveys of offshore bird populations in the Bering, Beaufort and Chuckchi Seas, the first intensive survey of spotted seals in the Bering Sea, studies of marine mammal/sea ice relationships and a study of ringed seal populations from Kotzebue to Demarcation Point. Studies of the Game Division and federal counterparts in Alaska's Arctic seas have been very productive because of the current availability of the U. S. Coast Guard's "Glacier" and NOAA's "Surveyor." These vessels, in the area especially for OCS studies, are the first adequate logistics platforms available to biologists in these areas.

Other federally funded research activities completed during 1976 were a U. S. Fish and Wildlife Service funded investigation of polar bear predation upon marine seals and a Marine Mammal Commission funded study of harbor seals in Prince William Sound. In a similar program, initiated in 1975 but extending through 1976, the Game Division staff continued to develop an extensive wildlife resource inventory for the Alaska Coastal Management Program under the auspices of the Coastal Zone Management Act of 1972. Such inventories have not been completed for the northwest Gulf Coast and the Cook Inlet-Kodiak areas. These inventories will serve as an internal aid to ADF&G in its land use decisions, but also will be a data source for other resource management agencies, native corporations, private industry and citizens with an interest in the coastal zone.

In Southeastern Alaska, considerable efforts were expended to benefit wildlife resources in the Tongass National Forest. Game Division biologists, working closely with Forest Service personnel, conducted on-the-ground site inspections of areas proposed for timber harvest and subsequently developed recommendations for wildlife protection on these areas. Throughout the year these and other biologists also worked closely with the Forest Service in developing policies for management of wildlife habitat on the forest as a part of the Forest Service's Land Use Management Plan.

Pipeline

As work on the trans-Alaska oil pipeline reached its peak during 1976, animal/human encounters required increased efforts by Game Division management biologists. The problem of feeding of wild animals by pipeline-associated workers ultimately reached the point where it was necessary to pass regulations expressly prohibiting this activity. The two research programs funded by Alyeska Pipeline Service Corporation to determine the effects of the pipeline on moose and caribou movements continued through 1976 to gather base line information on affected populations.

TROUBLED HERD — An alarming drop in numbers of the Northwest Arctic Caribou herd was confirmed in 1976. The Board of Game and the Division of Game moved to sharply curtail both human harvesting and losses through predation in an attempt to halt the decline.

RESEARCH STUDY — Game division biologists conducted studies of the dynamic relationships between moose and wolves. Blood samples provided information on the animal's health.

Management Activities

As was the case in 1975, wildlife management activities in Alaska seemed to be mostly wolf-related. A wolf-control program attempted in 1975, but blocked by legal technicalities, was finally initiated in early spring 1976 on the Tanana River Flats south of Fairbanks. Division biologists killed a total of 66 wolves in the area and this reduction aided by legal hunting and trapping by the public resulted in what appeared to be a substantial improvement in the survival rates of calf moose born in June. Although it would be premature to attribute increased survival to the wolf-control program alone, there is sufficient evidence to indicate that at least some of the improvement could be the result of this program. Fall calf:cow ratios, which for years had averaged only 10-15:100 in this area, were over 40:100 in 1976.

Indications of major declines in the size of the Western Arctic caribou herd were substantiated by further studies in 1976, and major divisional efforts were made to develop a workable recovery plan for this herd. The Game Board, working closely with the Game Division, ultimately established very restrictive bag limits for this heretofore unregulated herd and developed a wolf control program to be implemented during late fall 1976. By November, division biologists had initiated a program whereby members of the public were issued permits at Kotzebue, Bettles and Kobuk to take wolves by aerial hunting. Although few wolves had been taken by year's end, it was expected that by February 1977 efforts would be renewed and wolf control could be effected in this area (the wintering range of the Western Arctic caribou herd).

Wolf problems were not limited to the Interior and Arctic. In response to severely depleted deer populations on Mitkof, Kupreanof and Kuiu Islands, the 1976 Alaska State Legislature mandated a wolf control program in this area. This program was initiated in winter 1976, but mild weather reduced its early effectiveness.

Muskox hunts, initiated in fall 1975, continued in 1976, with early spring and fall hunts being held on Nunivak Island. Removal of a total of 71 muskoxen by hunting in 1976 was a major step in bringing this species back into balance with its depleted range. During 1976 calves were born in all three muskox herds established by transplants in 1969 and 1970 (Seward Peninsula, Point Hope and North Slope).

In cooperation with the U. S. Fish and Wildlife Service the first detailed aerial inventory of Dall sheep populations in the Arctic Wildlife Range was accomplished during summer 1976. Four caribou herds were photo censused in addition to previously mentioned studies of the Western Arctic herd: the Nelchina herd contained 7,927 animals, the Mulchatna herd 9,097 animals, the Port Heiden-Cinder River herd 11,368 animals and the herd between Port Moller and Cold Bay 2,006 caribou.

The responsibility for initiating a new brown bear harvest permit system on Kodiak Island was taken over from the U. S. Fish and Wildlife Service in 1976 and this system was placed in effect on July 1. Intensive hunting pressure on mountain goats in Game Management Unit 7 (Kenai Peninsula) required the initiation of a restrictive permit system which segments the unit into smaller, more manageable areas.

The 1976 Alaska Legislature established three new waterfowl-oriented refuges, Mendenhall Wetlands, Trading Bay and Upper Cook Inlet-Susitna Flats. Each of the enabling acts required considerable input from Game Division personnel to insure their passage into law. These refuges will provide permanent protection for the substantial coastal marshes of upper Cook Inlet and the Juneau area.

A plethora of activities concerning planned changes of land use in the Delta area required considerable input from biologists in the Interior region. The Delta bison herd continued to be healthy and produced much valuable meat and recreational opportunity for Alaska's hunters.

During 1976 new regulations and policies were developed to regulate the sport of falconry. The federal government provided guidelines applicable nationwide, but their regulations will not take effect until December 1977.

Major progress was made during summer 1976 on an interpretive trail system to enhance public enjoyment of the Fairbanks Wildlife Management Area.

SLEEP WELL — This tranquilized bear provided data giving biologists a better understanding of the species and its needs.

This foot trail, much of which is elevated because of the boggy nature of the terrain, was 50 per cent complete by fall 1976.

Other Research

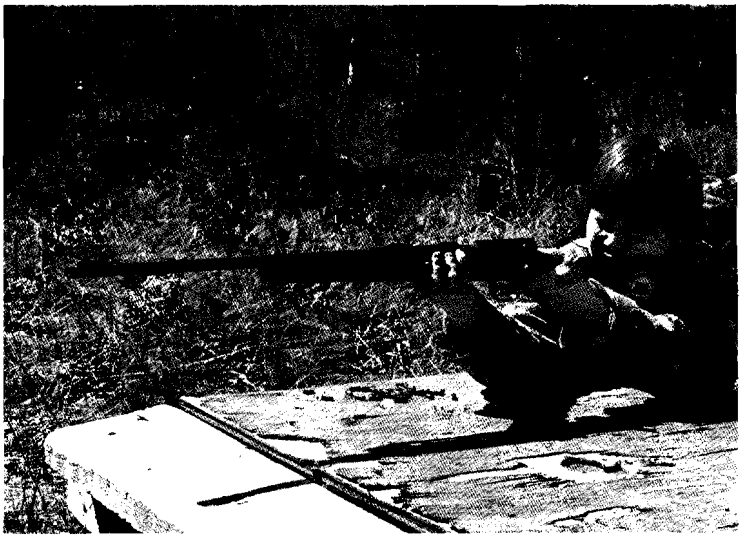
Continuing research on moose, caribou, sheep, black bears and goats provided information necessary for management of these species. A major achievement during 1976 was the development of techniques for quickly identifying moose range problems. These procedures, resulting from intensive physiological studies at the Kenai Moose Research Center over the past eight years, involve capturing a sample of adult cows in March when they are likely to be in poorest condition. Body condition indices, a blood sample, a hair sample and a tooth are collected and a test for pregnancy is conducted. This information is used to compare the health of moose in that population with that of moose living in areas of known good- and poor-quality range. If the moose are not healthy and survival is poor (determined by fall survey flights), it indicates that range problems exist. If, conversely, the moose are healthy and survival is still poor, it indicates that the range is good and some other environmental factor is a problem. This technique is now being applied in several areas where survival of calf moose has been poor. Work is now being conducted at the Moose Research Center to evaluate the effectiveness of artificially improving moose range by crushing poor range to stimulate new growth of moose browse.

Studies designed to assess the effects of wolf predation on moose in the Nelchina Basin were continued and have been expanded to provide more information on the area's moose populations. In recognition of the need for improved moose census techniques a new study was initiated in July to improve our knowledge of moose sightability and daily patterns of moose use of vegetative cover to better understand what proportion of an area's moose are observed during aerial surveys. Analysis of data from recently completed studies of Dall sheep on the Kenai Peninsula and brown bears on the Alaska Peninsula continued through 1976. Both studies employed modern statistical and computer techniques and both have provided an in-depth understanding of the ecological factors influencing these animal populations.

Staff biologists continued to publish results of their studies in professional journals and proceedings of technical meetings during 1976 — six such papers were published. In addition, two division research biologists were honored by being invited to author chapters for a new textbook on big game ecology and management being published during this nation's Bicentennial year by the Wildlife Management Institute.

Hunter Safety

The division's Hunter Safety Program continued its efforts to provide training on the safe handling of firearms. The Rabbit Creek Rifle Range, in Anchorage, remained in operation throughout 1976, with its recorded use exceeding 18,000 people-days.



YOUNGSTERS LEARN — The department's hunter education programs gave many of the state's youngsters their first training in conservation, hunting ethics and the safe handling of firearms.

MOOSE STUDY — Radio collars were placed on moose in several study areas. The locator beacons helped provide information on range, movement patterns and habitat used.

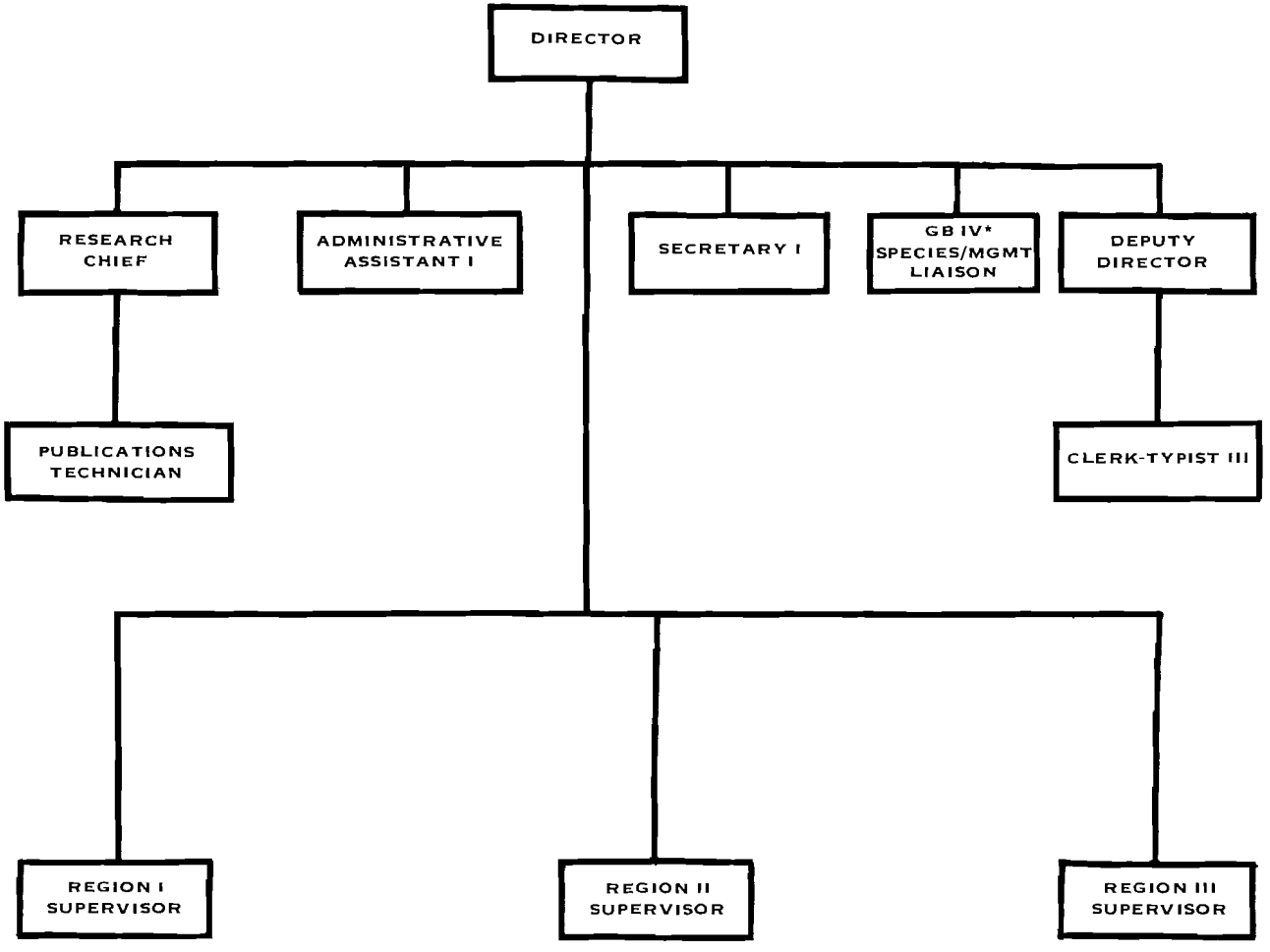
Planning

Proposed wildlife management plans were completed during 1976 and were ready for distribution to the public by March 1977. The public review and comment phase of the division's planning operations is expected to extend through much of 1977.

What's in Store for 1977

The wolf issue will undoubtedly continue to plague division efforts to manage Alaska's severely depleted big game herds. Needed control programs in the Western Arctic had already begun to receive immense public criticism by year's end and doubtless this issue will result in several court battles before it can be remedied. The d-2 land settlement problem will continue to require much divisional input through 1977 as will the Forest Service's proposed programs in southeastern Alaska. Closely allied to d-2 actions is the recurrent problem of native subsistence rights. These two issues will gather momentum through 1977 and together will probably comprise the most urgent and pressing problems facing all Alaskans including the Game Division staff.

On a brighter note, the management authority over Alaska's marine mammals will likely be returned to the state during 1977. If this occurs, many Alaskans will be given the opportunity to hunt seals and other species again — a privilege they lost in 1972. With divisional proposed game management plans now prepared, the Alaska public will be given the opportunity during 1977 to have a very real influence on the future direction of wildlife management within this state. These plans, when endorsed by the public and the Board (with required modifications), will establish goals and objectives for management of Alaska's main game species and stabilize management directions for many years to come.



*Stationed in Region II but with statewide responsibilities.

GAME DIVISION

ORGANIZATIONAL CHART

SPORT FISHERIES

Rupert E. Andrews
Director
Division of Sport Fish

The Sport Fish Division is responsible for the management of the sport fishery resources of the state. It provides the public with information and the opportunity for sport fishing. It establishes needs for regulation of sport fish stocks, and makes recommendations for methods and means of harvest. It conducts research related to more efficient utilization of the resource and it evaluates and recommends guidelines for various industrial developments that may have impacts on the fisheries habitat and fish species in areas affected by such development.

The primary goal of the Sport Fish Division is threefold: to protect Alaska's recreational fishery resources through a well-regulated harvest, to provide guidelines that will minimize the impact on fishery habitat caused by development and technological advances, and to gather pertinent biological data in order to efficiently accomplish the preceding.

The program functions from 15 established field offices and several temporary field stations through the state with Headquarters for the Division in Juneau. The program employs 55 permanent employees of which 40 are professional fishery biologists and one is a biometrician. Approximately 80 temporary personnel are hired on a seasonal part-time basis in conjunction with divisional programs.

The Sport Fish Division provides services to various state disciplines in the departments of Natural Resources (Division of Lands, Parks and Recreation Section), Economic Development (Division of Travel), Health and Social Services (Public Health Laboratory), Environmental Conservation (pesticides, solid waste, water quality), Highways (right-of-way, highway planning, bridge and culvert design), and various federal agencies as well as more than 200,000 anglers per year.

Recreational Fishing is Big Business in Alaska

In excess of 200,000 persons sport fished in Alaska during 1976, and approximately $60 million was generated from these sport fishing activities. Additionally, recreational fishing brings hard cash to the most remote and rural communities of Alaska. The increase in sport fishing in the state has given rise to a burgeoning family-type service industry, providing lodging, guiding, and outfitting services to literally thousands of anglers annually. Our current Sport Fish Guide Register lists over 70 lodges and guides, providing services almost exclusively to anglers.

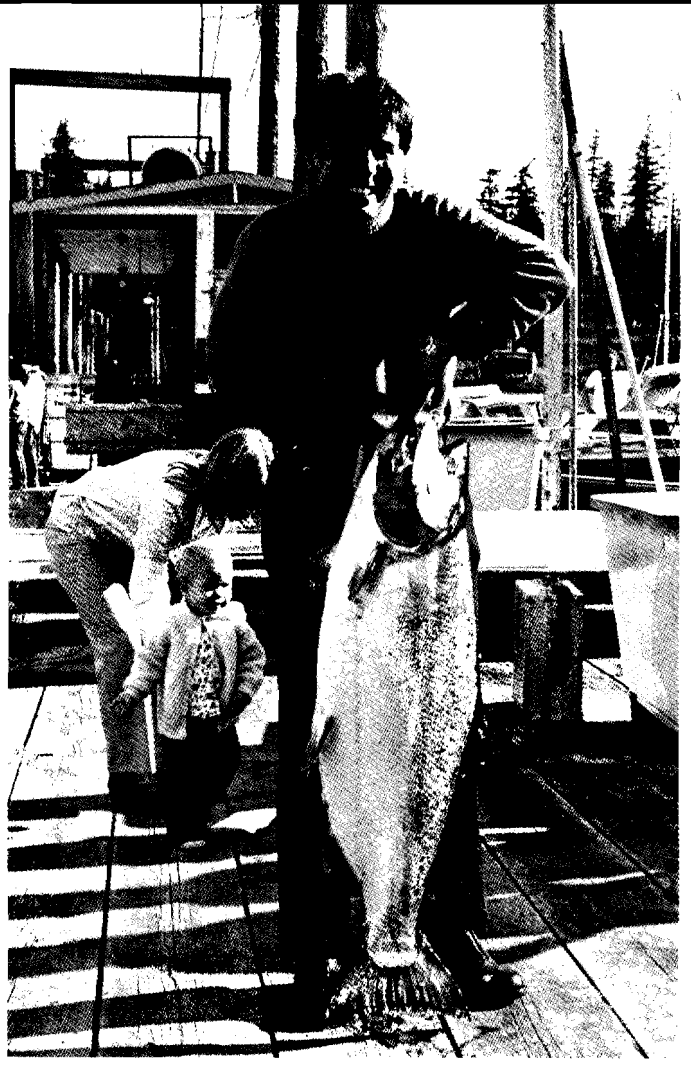
Major Problems

During the past year, Alaska has continued to experience rapid resident population growth, coupled with parallel increases in nonresident visitors. Population figures estimate that about 400,000 persons now reside in Alaska with a projection of 420,000 by 1978. Increasing numbers of people, with increasing impacts on fish habitat and fishery resources, present a double challenge to the division to monitor, regulate and protect natural fish stocks and at the same time, continue to provide increasing opportunities for people to sport fish.

The division is meeting current angler demands for increased and diversified fishing opportunities through progressive research programs, combined with aggressive management. Major research problems do, however, confront the staff. We need to improve our harvest and economic statistics and we need to learn ways to better transmit people needs into fishing opportunities, especially in high-population density areas. Management tools should be developed for quick identification of target species in mixed fisheries and more complete data gathered to establish criteria for allocation decisions.

Because Alaska's population is unevenly distributed, particular problems are apparent in urban centers and adjacent areas. The number of anglers has increased to such an extent in these areas since statehood that unless careful monitoring of these anglers and fisheries is undertaken on an annual basis, serious impacts with long-range consequences will result. Monitoring these high-use fisheries is therefore our most serious management problem.

Public access is another area of concern. As once-public lands become private lands, this management problem will become even more serious. Without public access to the fishery resource, recreational activity is nonexistent. It should also be noted that people of the South 48 look to Alaska as a storehouse of recreational fishing opportunities that will supply a significant portion of the nation's future sport fishing



PROUD MOMENT — Trophy-sized kings continued to top the "most wanted" list of many of the state's 200,000 resident and visiting anglers.

needs, especially for cold water species. How Alaska meets this national responsibility, and to what extent, will depend on the joint effort of state, federal and private organizations.

The Division's Approach

Management tactics to minimize population impact and increase fishing opportunities are many and varied. The division undertakes an aggressive lake stocking program, planting an average of 120 waters per year with some four million fish. Through proper planning, managed lakes are the most productive sport fish waters in the state. Examples are Quartz Lake near Delta, which has produced over 20,000 rainbow trout each year since 1974, and Harding Lake in the Interior Region where the land-locked coho stocking program has produced coho weighing up to 10 lbs. for Fairbanks' anglers. Alaskan anglers will also soon find sheefish, the "Eskimo Tarpon," in selected lakes and streams. This fish is unique in North America to Alaska and Canada. Continued research is still required before the extent of the role this species will play is known, but a controlled lake-stocking and hatchery program is underway.

REGIONAL ACTIVITIES

SOUTHEASTERN REGION

Highlights of this year's accomplishments in Southeastern included: the steelhead-cutthroat project was redirected toward enhancement (Montana Creek was stocked with steelhead smolts and sources for cutthroat and steelhead brood stock were investigated), Mendenhall rearing facility was evaluated and recommendations made for future direction of the project, a method was developed to capture Taku chinook smolts for wire tagging, a logging debris removal study determined that removal of all logging slash from small streams may severely reduce young salmon populations, studies were made of depressed chinook salmon stocks in the Behm Canal area near Ketchikan; use of hydroacoustic gear for determining fish abundance and distribution in lakes was analyzed and a population study was made of eastern brook trout at the Salmon Creek Reservoir near Juneau.

Steelhead — Cutthroat Studies

During 1976 the steelhead-cutthroat project was redirected toward the development of techniques for the enhancement of steelhead and cutthroat trout in Southeast Alaska.

Montana Creek of Juneau was stocked with 7,500 steelhead smolts in June; adult returns are expected during the spring of 1978 if the release proves successful. Indian River in Sitka is scheduled for smolt releases as soon as fish are available. Petersburg Creek and Blind Slough also received experimented plants of steelhead smolts.

Mendenhall Lakes Salmon Rearing Studies

A total of 4,310 coho salmon returned to the Mendenhall rearing facility in the fall of 1976. Salmon returning to the facility were artificially spawned to produce an estimated 1,050,000 eggs for future use at local rearing facilities. Adult coho in excess of our spawning needs were distributed to the public at three "fish giveaways." A total of 2,480 adult and 249 jack coho were given away.

Chinook Salmon Study

Studies conducted during 1976 included development of a method to capture significant numbers of Taku chinook smolts for coded wire tagging. This tagging will commence in the spring of 1977.

Experimental gill nets were fished in the Stikine chinook fishery to determine the selectivity of king gear (8-3/8" stretched mesh) versus chum and coho gear (6-3/8"). The larger mesh gear has been shown to harvest a disproportionately high percentage of females and a low percentage of the males. The fall gear fished a broader segment of the population and

harvested a much higher percentage of the available males. It has been recommended, therefore, that the mesh size in chinook gill net fisheries be restricted to a maximum mesh size of 6½".

Escapement enumeration of important chinook salmon stocks in southeastern Alaska was conducted during the peak of spawning in early August. Escapements were found to be low in all systems surveyed; however, an upward trend from the previous four years of extremely low escapements was noted in the Taku River due to recently enacted management regulations.

Harvest Studies

Three important saltwater fisheries were censused in 1976 to determine sport fish harvest effort and to evaluate contributions to the sport fishery from artificial rearing facilities in Juneau, Sitka, and Petersburg. The three harvest studies are as follows:

1) A sport harvest study was conducted in the Juneau area to monitor the level of angler effort and catch success in that areawide sport fishery. Specimen data were taken from the king, coho, and halibut caught by anglers. Numbers of kings and cohos caught from the natural run as well as other specimen data will be compared to marked kings and cohos returning to the Mendenhall Lakes Salmon Rearing Facility. The results of these analyses will be used to evaluate the facility's contribution to the areawide sport fishery and assist in planning its future operation.
2) The contribution of coho returning to the Starrigavan Bay Saltwater Rearing Facility was evaluated in the Sitka area sport fishery. The level of angler effort and catch success was sampled; and from the number of returning salmon tagged with a coded wire tag, an analysis was made of the contribution of salmon from the rearing pens.
3) The contribution of coho returning to the Crystal Lake Hatchery was evaluated in the Blind Slough area sport fishery. The level of angler effort and catch success was sampled. Results of that analysis based upon the number of marked fish caught will be used to estimate the contribution of coho by the hatchery to that areawide sport fishery.

Catch statistics and specimen data collected from Pacific halibut in the Juneau and Sitka sport fisheries will be used to recommend management policy and will also be forwarded to the International Pacific Halibut Commission for their information.

Land-Use Studies

The Land Use Project is a multiple-purpose program providing management guidelines during development activities, such as logging or mining. It also conducts research on the effects of industrial development on aquatic ecosystems. Research findings supplement our knowledge of the effects of land use and augment the quality of our recommendations to the developing agency. The project places much of its emphasis on cooperative work with the Forest Service through the Inter Disciplinary Team (IDT), a group of specialists from various state and federal agencies. IDT recommendations form the data base for Environmental Impact Statements written for proposed development.

FISH CHECK — An on-going creel census program was conducted to determine success ratios and sport fishing pressure, and to evaluate user needs and desires.

SOUTHCENTRAL REGION

Razor Clams

Recreational harvest of razor clams on lower eastside Cook Inlet beaches remained popular in 1976. A total of 29,320 man-days were expended by sport diggers to harvest 939,340 razor clams. The Clam Gulch area is the most popular single area and provides approximately 75% of the total annual harvest. Sport Fish personnel continued to closely

monitor these beaches in 1976, sampling the beaches to determine clam density, size, age and overall population structure. Indications are that a healthy clam population exists on east side Kenai beaches.

Susitna River Studies

Proposed hydroelectric development of the Susitna River in the Devils Canyon area dictated continued studies in 1976 to determine the project's effects upon the fisheries resource. Studies were directed specifically to the mainstem Susitna River and tributaries between the community of Talkeetna and Devils Canyon which is located approximately 50 miles upstream. Biological and limnological parameters were investigated and data compiled. These studies, though definitive in nature, will provide necessary baseline data valuable for implementation of more comprehensive research in the future should this project receive authorization.

Coho Salmon Studies

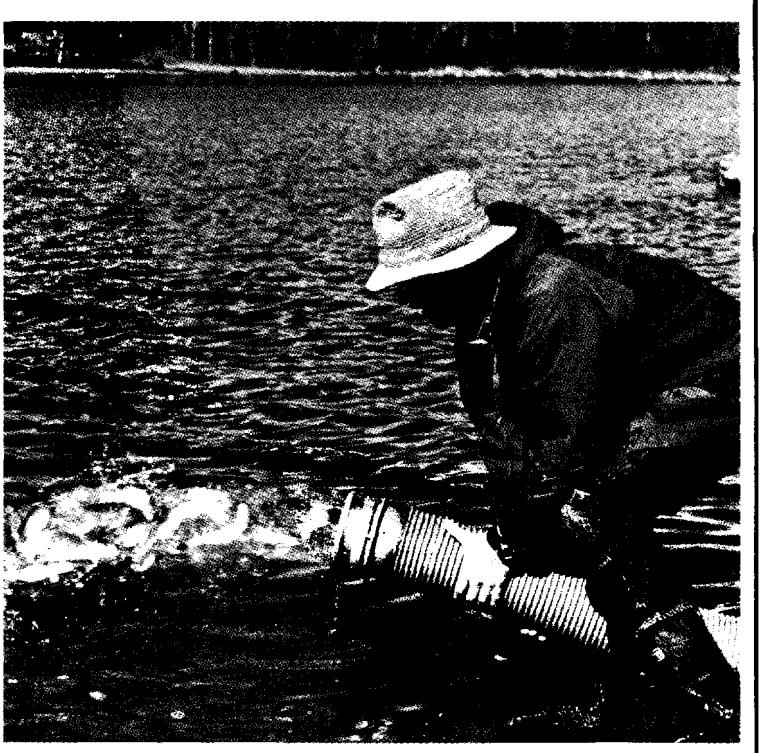
Analysis of Cook Inlet coho salmon stock status was initiated in 1976 to develop an understanding of current coho utilization, both recreational and commercial, before initiating studies involving adult escapements, early life history requirements, environmental influences on adult escapements and juvenile rearing and the multitude of other biological and limnological areas requiring study.

In an effort to establish in-season stock assessment, 1976 sport and commercial harvests were sampled by statistical areas and by seasonal timing. Historical commercial harvest data were analyzed to determine harvest trends. Data accumulated will be applied to the continuing efforts to sort out the complex mixed stock situation in Cook Inlet, in order to enable more precise management for the salmon fisheries.

Egg Takes

A total of 3,791,900 eggs were spawned for artificial rearing purposes in Southcentral Alaska during 1976. The majority of the eggs were coho salmon which will be used for eventual stocking in landlocked lakes, but also included rainbow trout to supplement the developing native Alaska brood stocks, and grayling for selected lake stockings. The following table presents the number of eggs taken and the source:

Source	Number	Species
Talarik Creek	40,000	Rainbow
Swanson River	96,000	Rainbow
Tolsona Creek	1,272,000	Grayling
Seward Lagoon-Bear Lake	1,980,600	Coho
Chignik	180,000	Chinook



NEW HOME — Rainbow trout fingerlings were produced for stocking in interior lakes. Here, yearling rainbows were pumped into a new rearing pond at the Elmendorf AFB complex.

Kenai Peninsula King Salmon Fisheries

A creel census conducted on the Kenai River during the summer of 1976 revealed that 8,136 anglers harvest 6,031 king salmon (exclusive of "jacks") in 44,460 man-days of recreational fishing. An additional harvest of jacks, or those king salmon less than 20" in length, of 1,663 occurred. This fishery, which is closely monitored by the Sport Fish Division, is conducted under a 1975 Board of Fisheries Policy which regulates the total harvest.

The punch card king salmon fishery on Anchor River, Deep Creek, and Ninilchik River opened May 29 and continued each weekend until June 20, allowing eight days of fishing. Harvest was estimated at 1,680 chinook salmon over 20" in length and effort was estimated at 36,920 man-days.

The marine fishery south of Deep Creek was first monitored in 1972. Since then, the Sport Fish Division has conducted a creel census each summer to determine chinook salmon harvest and effort. The fishery is conducted mostly from small "car top" boats or rubber rafts. Fishing takes place within a quarter mile of the beach, from the mouth of Deep Creek along the shore to a point 10 miles south. Weather is the prevailing factor in determining the number of fish caught. Harvest in 1976 was estimated at 6,877 fish with 5,495 taken from the early run and 1,382 from the late run.

State Acquisition of Boat Launching And Camping Site on Kenai River

A new public boat launching and camping site has been acquired by the Sport Fish Division of the Alaska Department of Fish and Game. The new eight-acre park, situated at the junction of the Kenai and Moose rivers on the Kenai Peninsula, will be named the Izaak Walton Wayside. The property, which has 1,700 feet of frontage on the two rivers, will be a recreational area with public access to good fishing water and provide a take-out spot for canoers traveling the Moose and Swanson river canoe route. Acquisition of this property is significant, as public access to this portion of the Kenai River is an important step toward managing the Kenai River for people, as well as for the fishing resource.

Chinook Salmon Escapements

For the fourth successive year, chinook salmon escapement surveys of sufficient magnitude to estimate total spawning escapements were conducted on all major clearwater tributaries of the Susitna River. A dramatic increase of chinook salmon in upper Cook Inlet streams was observed during 1976, with a total of 56,288 salmon actually counted in the major clearwater streams. This number is over four times the previous high of 13,546 chinooks recorded in 1973. The minimum number of chinook salmon spawning in Upper Cook Inlet drainages in 1976 was estimated to be 71,200.

WAYSIDE OPENS — A cooperative venture between the Division of Parks, Sport Fish Division, and the Izaak Walton League resulted in the purchase of 1700 feet of river frontage on the Kenai River near Soldotna. The purchase opened nearly 20 additional miles of good fishing to the general public.

INTERIOR, ARCTIC AND WESTWARD REGION

Egg Takes

Experimental sheefish egg takes in September and October 1976 collected approximately 700,000 eggs for incubation at the Fire Lake Hatchery. The resultant fry will be reared by several methods to test feasibility of enhancing stocks of this game fish.

In October, 206,000 coho eggs were collected from the Delta Clearwater River. After hatching and rearing to fingerling size at the Fire Lake Hatchery, these fish will be stocked in several roadside lakes in the Interior.

Important Fisheries

As a result of transplanting coho smolts from "nursery lakes" to lakes such as Harding and Birch, the Interior now has the largest landlocked coho salmon stock in the state. Netting crews on Harding Lake in September 1976 revealed large numbers of coho ranging up to 10 lbs. Harding Lake also has some large northern pike. A 29-lb. 5-oz. pike (larger than the state sport-caught record) was netted from the lake in 1976. Quartz Lake, near Delta Junction continued to be the most popular stocked lake in the Interior. During the period May 14 to October 8, 18,295 man-days were spent angling for rainbow trout at this 1,500-acre rehabilitated lake. The Chena River again led the list of heavily utilized grayling streams in the Interior. A creel census program conducted during the summer of 1976 on only the upper stretch of the river and Badger Slough showed nearly 14,000 angler hours expended.

Projects

In 1976 a two-year survey of the fishery resources of the lower Kuskokwim River and Kuskokwim Bay was completed. Prior to this study the lakes in and streams of this 10,250-square-mile area had received virtually no study other than salmon counts by the Division of Commercial Fish.

Baseline information gathered on waters and fish populations included physical, chemical and biological data. The streams were found to be swift and clear, providing excellent spawning habitats for salmonids. The northern and westernmost range of rainbow trout in the world occurs here. In addition to rainbow trout in nearly all streams, other important fish include arctic char, grayling, sheefish, pike, and five species of salmon. Lake populations consist mainly of lake trout, arctic char and whitefish. Growth of fishes in the study area compared favorably with growth in the Interior. Salmon in the area are utilized chiefly in subsistence and commercial fisheries, while a light-to-moderate sport fishery pressure is exerted on rainbow trout, lake trout, arctic char, pike and grayling.

During 1976, population estimates of arctic grayling were conducted in four sections of the lower 50 miles of the Chena River. Results show an increase in grayling numbers in two sections, one area remained unchanged, and the fourth indicated a slight decrease. Data collected from fish captured during population estimates included length frequency, age class structure and survival rates.

Work continued on monitoring of the many development projects affecting fish and fish habitat along the Chena River. Projects still under construction during 1976 included: the Chena Flood Control Dam, two bridges spanning the Chena River, the crossing of the Chena by the trans-Alaska pipeline and road construction along the upper portion of the river.

The investigation of nearshore fishes of the Beaufort Sea will near completion following the 1977 summer field season. This study has investigated the seasonal distribution, relative abundance and basic life histories of the major fish species and their habitats along the coast of the Beaufort Sea. Field work has centered near Prudhoe Bay, the oil development and staging area for the trans-Alaska pipeline.

Fifteen species of marine, freshwater and anadromous fish have been investigated. Arctic char and grayling, which are widely distributed throughout the study area, have been of primary concern to the Sport Fish Division. Five species of whitefish that are used in a limited commercial and subsistence fishery also occur in great abundance.

With the aid and use of an underwater television camera, some of the first overwintering life history information on several species occupying under-ice pools of water was obtained. During the summer of 1976, more than 27,000 fish were captured near Prudhoe Bay. Of these, five thousand whitefish and anadromous char were tagged to determine information on the migration patterns and timing of these species. The results of these investigations will be included with many other interdisciplinary studies administered by the Outer Continental Shelf Energy Program and will be evaluated prior to the oil lease sales in the Beaufort Sea.

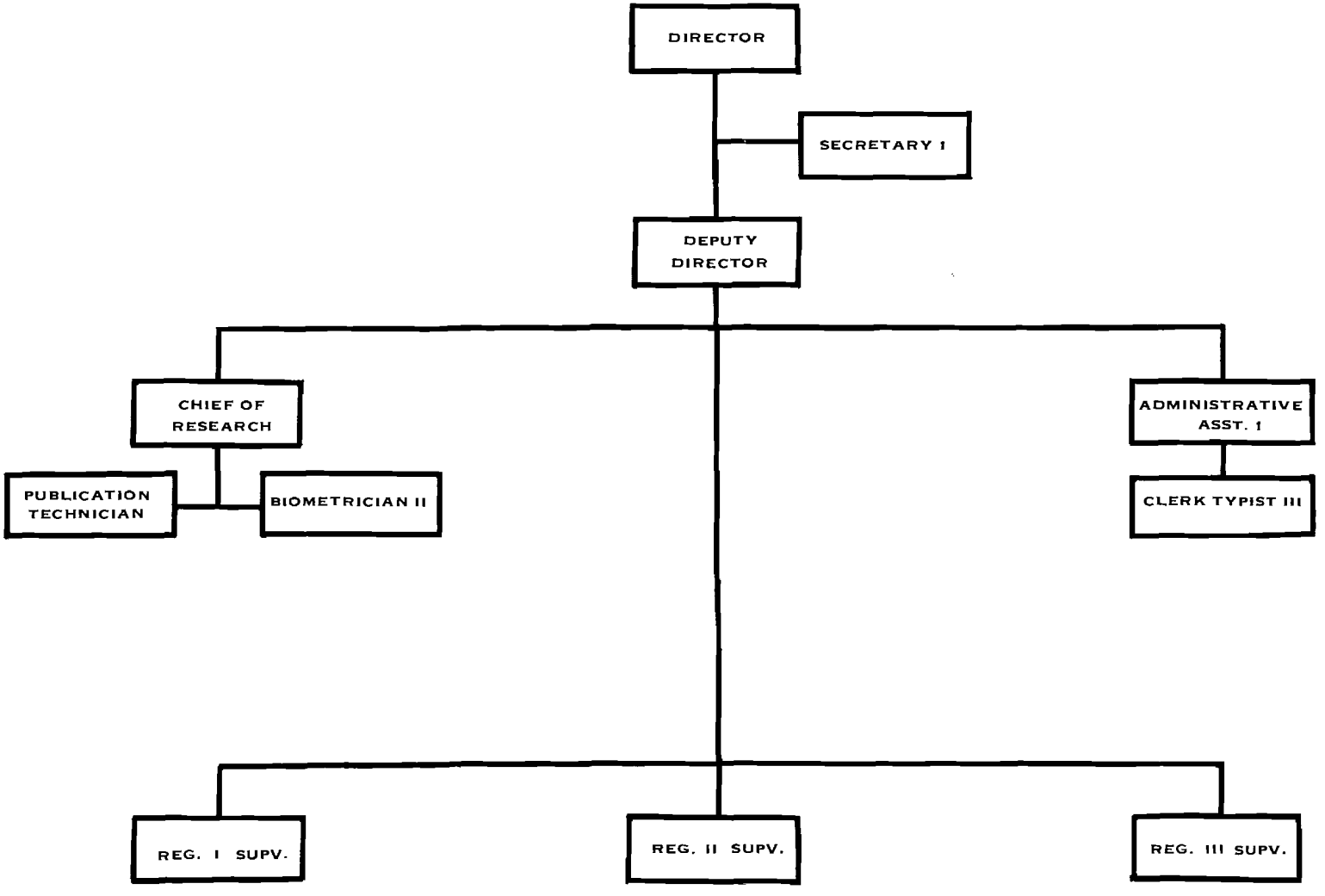
CHILLY WORK — Underwater television cameras were used to investigate mid-winter fish populations and habitat in some interior lakes.

What's in Store for 1977

Approximately 225,000 persons will sport fish in Alaska during 1977. The vast majority of anglers will be fishing in the Cook Inlet basin. This uneven distribution of anglers will continue to magnify the problem of salmon allocation between commercial and recreational users. Until the Board of Fisheries develops criteria and solutions for salmon allocation, then the state can probably expect to see a voter initiative that would attempt to change the existing commercial fishing season on a permanent, inflexible basis in Cook Inlet. Further, the problem of salmon allocation will continue to polarize user groups and cause persons within these groups to seek changes through the political and legislative process. Management by legislation has never been efficient or effective in the long run and poses a considerable threat to the continued welfare of fishery resources.

The redistribution of 44 million acres of public lands to private status as provided by A.N.C.S.A. has defined the paramount issue of public easements on and across conveyed lands. Unless adequate public easements are provided, then the Alaskan fishing public will lose the right to sport fish in some of the state's most outstanding recreational waters. Land conveyances will commence in 1977. Recommendations for easements for all significant fisheries and areas were prepared and forwarded to the Bureau of Land Management for review and processing as directed by A.N.C.S.A.

Resident species of freshwater fish are in good shape populationwise as a general statewide situation. Anglers will find salmon species available in fair numbers with notable exceptions, i.e., upper Cook Inlet coho and southeast chinook salmon. Expansion and improvement of transportation routes and transportation means will continue to act favorably to disperse fishing pressures. However, Cook Inlet will experience its most intensive sport fishing season ever. The Division will intensively monitor this effort.



SPORT FISH DIVISION
ORGANIZATIONAL CHART

DEPARTMENT OF FISH AND GAME

1976-77 Budget Authorization

Administration (includes Vessels)	$ 3,712,700
Hatchery Services	1,157,100
Habitat	1,261,500
Commercial Fisheries	7,308,400
Game	4,359,300
Sport Fisheries	2,847,500
Alaska King Crab Marketing & Quality Control Board	240,800
Fisheries Rehabilitation, Enhancement & Development	3,211,400
Pipeline Monitoring	971,700
DEPARTMENT TOTAL	$25,070,400

TABLE I. SUMMARY OF FISH AND EGGS STOCKED AND TRANSFERRED DURING 1976

Species	Fire Lake/Ft. Rich/Elmendorf Hatchery Complex		Crystal Lake Hatchery		Kitoi Bay Hatchery		Total	
	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
Coho Salmon	2,338,800	26,656	934,900	21,958	0	0	3,273,700	48,614
	0	0	2,110,000	eggs	0	0	2,110,000	eggs
Chinook Salmon	320,100	9,568	12,600	458	22,500	35	355,200	10,061
	560,100	eggs	0	0	0	0	560,100	eggs
Pink Salmon	0	0	0	0	3,254,300	2,175	3,254,300	2,175
Rainbow Trout	490,500	21,488	48,200	785	43,000	39	581,700	22,312
	110,000	eggs	0	0	0	0	110,000	eggs
Grayling	924,400	sac-fry	0	0	0	0	924,400	sac-fry
Steelhead Trout	0	0	16,500	1,462	0	0	16,500	1,462
TOTAL	4,743,900	57,712	3,122,200	24,663	3,319,800	2,249	11,185,900	84,624

TABLE II. SUMMARY OF FISH ON HAND, DECEMBER 31, 1976.

Species	Fire Lake/Ft. Rich/Elmendorf Hatchery Complex		Crystal Lake Hatchery		Kitoi Bay Hatchery		Total	
	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
Coho Salmon	206,000	5,324	1,232,500	31,650	0	0	1,438,500	36,974
	2,309,200	eggs	4,431,700	eggs	0	0	6,740,900	eggs
Chinook Salmon	420,700	1,721	773,300	1,892	142,500	fry	1,336,500	3,613
Pink Salmon	0	0	0	0	5,809,800	fry	5,809,800	sac-fry
Rainbow Trout	61,300	13,690	0	0	0	0	61,300	13,690
	3,282,700	eggs	0	0	0	0	3,282,700	eggs
Steelhead Trout	0	0	900	14	0	0	900	14
Sheefish	219,000	eggs/fry	0	0	0	0	219,000	eggs/fry
TOTAL	6,498,900	20,735	6,438,400	33,556	5,952,300	fry	18,889,600	54,291

TABLE III. DISPOSITION OF FISH AND EGGS IN 1976.

Hatchery	Lakes/Streams	Saltwater Rearing	Controlled Pond/Lake Rearing	Other Rearing/ Incubation	On Hand	Total
Fire Lake/Ft. Rich/Elmendorf Hatchery Complex	3,403,700	345,700	224,600	769,900	6,498,900	11,242,800
Kitoi Bay Hatchery	3,074,000	245,800	0	0	5,952,300	9,272,100
Crystal Lake Hatchery	412,400	54,500	545,300	2,110,000	6,438,400	9,560,600
TOTAL	6,890,100	646,000	769,900	2,879,900	18,889,600	30,075,500

STATE OF ALASKA, DEPT. REVENUE
FISH & GAME LICENSES
240 S. Franklin, Juneau, AK

GROSS SPORT FISH AND GAME LICENSE RECEIPTS 1967 THROUGH 1976

TYPE OF LICENSE	1967 $	1968 $	1969 $	1970 $	1971 $	1972 $	1973 $	1974 $	1975 $	1976 $
R- Fishing	143,095	167,555	177,905	197,210	202,515	220,695	239,415	252,965	272,805	332,045.00
R-Hunting	119,476	135,366	146,475	155,036	150,171	139,699	167,125	137,893	113,435	119.021.00
R-Hunt-Trap	7,320	7,280	9,090	10,420	8,540	8,420	10,590	11,090	11,810	13,280.00
R-Hunt-Fish	182,712	210,252	227,328	275,412	308,232	331,500	359,244	388,728	417,348	448,560.00
R-Hunt-Fish-Trap	32,340	35,850	44,025	59,325	62,505	65,805	80,145	93,585	113,265	144,090.00
NR-10-Day Fish	57,770	70,155	82,495	86,935	88,310	97,430	221,660	217,020	242,280	267,060.00
NR -Fishing	132,200	158,200	175,530	207,900	184,050	192,690	287,480	320,180	399,060	415,540.00
NR-Hunting	58,930	68,150	78,170	90,040	80,330	80,670	141,320	132,720	108,740	107,800.00
NR-Hunt-Fish	36,400	47,400	54,500	70,120	69,520	71,840	65,560	67,200	65,600	68,440.00
NR-Hunt-Trap	400	1,400	1,800	900	1,600	1,000	4,600	4,800	5,200	7,400.00
Reg. & Master Guides	16,600	17,950	17,250	17,300	17,600	18,950	11,650	-0-	-0-	-0-
Ass't Guides	1,195	1,945	2,215	2,290	2,775	2,475	330	-0-	-0-	-0-
R-Fur Dealer-Taxid.	2,580	2,740	3,020	3,180	3,320	3,420	-0-	-0-	-0-	-0-
NR-Fur Dealer-Taxid.	700	600	1,000	1,300	700	600	-0-	-0-	-0-	-0-
Fur-Fish-Game Farm	50	35	40	80	105	90	400	500	100	200.00
Class "A" Ass't Guide	-0-	-0-	-0-	520	650	790	180	-0-	-0-	-0-
Duplicate License	-0-	-0-	-0-	-0-	-0-	2,308	3,074	3,222	2,974	4,436.00
R-Fur Dealer	-0-	-0-	-0-	-0-	-0-	-0-	2,520	2,720	2,420	2,720.00
NR-Fur Dealer	-0-	-0-	-0-	-0-	-0-	-0-	200	300	400	300.00
R-Taxidermist	-0-	-0-	-0-	-0-	-0-	-0-	2,700	2,100	1,800	2,050.00
NR-Taxidermist	-0-	-0-	-0-	-0-	-0-	-0-	450	-0-	300	-0-
R-Blind Spt. Fish.	2	3	1	4	1	1	2	3	5	3.00
R-25¢ Hunt-Fish-Trap	1,088	1,229	1,271	1,339	1,398	1,484	1,664	1,564	1,251	1,320.25
R-Trap only	1,374	1,988	2,571	2,445	2,016	2,466	3,411	2,670	2,277	3,630.00
SUBTOTAL	794,232	928,098	1,024,686	1,181,756	1,184,338	1,242,333	1,603,720	1,639,269	1,761,070	1,937,895.25
Big Game Tags	303,510	346,350	384,975	424,415	393,840	404,410	753,625	744,950	617,025	698,075.00
TOTAL	1,097,742	1,274,448	1,409,661	1,606,171	1,578,178	1,646,743	2,357,345	2,384,210	2,378,095	2,635,970.25
NUMBER SOLD EACH YEAR BY CLASS										
R-Fishing	28,619	33,511	35,581	39,442	40,503	44,139	47,883	50,593	54,561	66,409
R-Hunting	17,068	19,338	20,925	22,148	21,453	19,957	23,875	19,699	16,205	17,003
R-Hunt-Trap	732	728	909	1,042	854	842	1,059	1,109	1,181	1,328
R-Hunt-Fish	15,226	17,521	18,944	22,951	25,686	27,625	29,937	32,394	34,779	37,380
R-Hunt-Fish-Trap	2,156	2,390	2,935	3,955	4,167	4,387	5,343	6,239	7,551	9,606
NR-10-Day Fish	11,554	14,031	16,499	17,387	17,662	19,486	22,166	21,702	24,228	26,706
NR-Fish	13,220	15,820	17,553	20,790	18,405	19,269	14,374	16,009	19,953	20,777
NR-Hunt	5,893	6,815	7,817	9,004	8,033	8,067	7,066	6,636	5,437	5,390
NR-Hunt-Fish	1,820	2,370	2,725	3,506	3,476	3,592	1,639	1,680	1,640	1,711
NR-Hunt-Trap	4	14	18	9	16	10	23	24	26	37
Reg. & Master Guides	332	359	345	346	352	379	233	-0-	-0-	-0-
Ass't Guides	239	389	443	458	555	495	66	-0-	-0-	-0-
R. Fur Dealer-Tax.	129	137	151	159	166	171	-0-	-0-	-0-	-0-
NR-Fur Dealer-Tax.	7	6	10	13	7	6	-0-	-0-	-0-	-0-
Fur-Fish-Game Farms	10	7	8	16	21	18	4	5	1	2
Class "A" Ass't Guides	-0-	-0-	-0-	52	65	79	18	-0-	-0-	-0-
Duplicate License	-0-	-0-	-0-	-0-	-0-	1,154	1,537	1,611	1,487	2,218
R-Fur Dealer	-0-	-0-	-0-	-0-	-0-	-0-	126	136	121	136
NR-Fur Dealer	-0-	-0-	-0-	-0-	-0-	-0-	2	3	4	3
R-Taxidermist	-0-	-0-	-0-	-0-	-0-	-0-	54	42	36	41
NR-Taxidermist	-0-	-0-	-0-	-0-	-0-	-0-	3	-0-	2	-0-
R-Blind Spt. Fish	2	3	1	4	1	1	2	3	5	3
R-25¢ Hunt-Fish-Trap	4,354	4,919	5,085	5,359	5,595	5,936	6,658	6,256	5,004	5,281
R-Trap only	458	638	857	815	672	822	1,137	890	759	1,210
Big Game Tags	8,640	9,814	11,055	12,602	11,955	11,866	8,339	8,331	6,956	7,415
TOTAL	110,463	128,810	141,861	160,058	159,644	168,301	171,544	173,362	179,936	202,656

STATE OF ALASKA, DEPT. OF REVENUE
FISH AND GAME LICENSES
240 S. FRANKLIN, JUNEAU, AK 99801

GROSS COMFISH RECEIPTS 1967 THROUGH 1976

RECEIPT CODE	TYPE OF LICENSE	1967	1968 RESTRICTED SALMON NET	1969 MORATORIUM POSSIBLE RESTRICTED SALMON NET	1970 ANTICIPATED RESTRICTION NET GEAR	1971 GEAR ELIGIBILITY REQUIREMENT REMOVED	1972 REGISTRATION IN AREA	1973 BRISTOL BAY SLIDING GEAR SCALE	1974 LEC INTERIM-USE PERMIT REQUIRED	1975 PERMITS REQUIRED	1976 PERMITS REQUIRED
		$	$	$	$	$	$	$	$	$	$
126	Vessel	138,366.00	143,955.00	146,898.00	161,863.00	156,490.00	156,624.00	164,194.00	152,486.00	158,704.00	163,180.00
127	Troll Line	33,515.00	36,605.00	42,740.00	48,450.00	42,965.00	43,185.00	56,910.00	59,780.00	49,920.00	47,835.00
128	Long Line	15,770.00	9,620.00	18,530.00	29,740.00	29,260.00	33,075.00	52,005.00	40,540.00	37,290.00	54,330.00
129	Drift Gill Net	98,410.00	93,820.00	107,100.00	125,800.00	116,490.00	117,100.00	142,075.00	100,655.00	106,210.00	104,275.00
130	Set Gill Net	29,955.00	30,995.00	33,950.00	37,355.00	34,460.00	35,600.00	38,720.00	36,145.00	35,900.00	37,910.00
131	Beach Seine	725.00	600.00	975.00	1,075.00	1,210.00	1,175.00	1,385.00	1,120.00	400.00	455.00
132	Purse Seine	113,270.00	135,080.00	118,790.00	131,150.00	126,160.00	119,290.00	128,590.00	131,700.00	121,180.00	123,795.00
133	Beam Trawl	1,087.50	675.00	650.00	750.00	1,100.00	1,600.00	2,900.00	4,750.00	3,150.00	2,250.00
134	Otter Trawl	3,200.00	1,700.00	1,650.00	2,550.00	4,550.00	5,850.00	7,900.00	14,050.00	14,100.00	12,800.00
135	Shellfish Pots	12,060.00	14,970.00	17,430.00	18,225.00	14,415.00	17,685.00	29,025.00	35,445.00	28,875.00	31,410.00
136-40%	Clam Digger's	290.00	336.00	290.00	382.00	670.00	928.00	904.00	652.00	452.00	296.00
137-40%	Res. Commercial	48,944.00	59,488.00	50,436.00	57,480.00	56,704.00	57,476.00	66,500.00	62,796.00	64,252.00	70,988.00
138-40%	Nonres. Commercial	71,220.00	77,844.00	75,816.00	92,616.00	76,656.00	81,132.00	76,752.00	67,212.00	69,552.00	85,632.00
139	Scallop Dredge	.00	.00	2,500.00	900.00	350.00	350.00	250.00	450.00	300.00	250.00
140	Comfish Ext. Fees	.00	.00	.00	1,665.00	2,925.00	2,970.00	6,750.00	7,920.00	945.00	12,195.00
SUBTOTAL		566,812.50	605,688.00	617,755.00	710,001.00	664,405.00	674,040.00	774,860.00	715,701.00	691,230.00	747,601.00
843-60%	Clam Digger's	435.00	504.00	435.00	573.00	1,005.00	1,392.00	1,356.00	978.00	678.00	444.00
844-60%	Res. Commercial	73,416.00	89,232.00	75,654.00	86,220.00	85,056.00	86,214.00	99,750.00	94,194.00	96,378.00	106,482.00
845-60%	Nonres. Commercial	106,830.00	116,766.00	113,724.00	138,924.00	114,984.00	121,698.00	115,128.00	100,818.00	104,328.00	128,448.00
SUBTOTAL		180,681.00	206,502.00	189,813.00	225,717.00	201,045.00	209,304.00	216,234.00	195,990.00	201,384.00	235,374.00
TOTAL		747,493.50	812,190.00	807,568.00	935,718.00	865,450.00	883,344.00	991,094.00	911,691.00	892,614.00	982,975.00
	NUMBER OF LICENSES SOLD EACH YEAR										
126	Vessel	9,639	9,926	9,972	10,877	10,710	10,791	11,777	11,338	11,630	11,813
127	Troll Line	1,889	2,103	2,303	2,567	2,353	2,413	3,190	3,238	2,810	2,683
128	Long Line	556	342	700	1,109	1,074	1,221	1,918	1,503	1,393	1,988
129	Drift Gill Net	3,765	4,050	4,374	4,710	4,779	4,611	6,425	4,248	4,511	4,457
130	Set Gill Net	2,610	2,708	3,011	3,053	3,062	3,112	3,504	3,137	3,139	3,178
131	Beach Seine	38	38	64	77	86	81	91	76	30	35
132	Purse Seine	1,202	1,291	1,207	1,311	1,323	1,147	1,341	1,372	1,265	1,289
133	Beam Trawl	24	18	13	13	16	32	54	79	57	45
134	Otter Trawl	38	26	30	41	67	87	106	167	172	158
135	Shellfish Pots	474	524	593	617	576	605	959	1,170	936	989
136	Clam Digger's	127	148	135	149	237	336	356	262	168	126
137	Res. Commercial	12,236	14,872	12,609	14,370	14,176	14,369	16,625	15,699	16,064	17,747
138	Nonres. Commercial	5,936	6,487	6,318	7,718	6,388	6,761	6,396	5,601	5,796	7,136
139	Scallop Dredge	0	0	18	8	7	5	5	7	6	3
TOTAL		38,534	42,533	41,347	46,620	44,854	45,571	52,747	47,897	47,977	51,647