



## PRESS RELEASE

NATIONAL WILDLIFE FEDERATION  
1412 SIXTEENTH ST., N. W.  
WASHINGTON 6, D. C.

FOR USE ON OR AFTER:

FOR IMMEDIATE RELEASE

September 14, 1960

### FEDERATION ISSUES NEW COLUMBIA BASIN BOOKLET

Washington, D.C.--The National Wildlife Federation has announced publication of the new booklet, "Conservation of Natural Resources in the Columbia Basin."

The 16-page publication was prepared by staff personnel of the National Wildlife Federation after extensive conferences with officials of federal and state resource agencies and edited by Western Field Representative William L. Reavley of Salt Lake City, Utah.

In brief, the new booklet says: "Orderly development of a balanced civilization in America's Great Northwest must include conservation and rebuilding of the salmon runs, preservation of scenic and wilderness treasures, and conservation of game, along with irrigation, power and flood control." It outlines: facts related to the Columbia River Basin today, significance of developments to all Americans, principles which should be considered in resource-development plans, the Columbia fish sanctuary program, how dams cause fish losses and impoundments limit wildlife habitat, effects upon the recreation industry, and needs for additional research. Maps and tables illustrate data on proposed dams.

Single copies of this booklet may be obtained without charge from Educational Servicing, National Wildlife Federation, 1412 16th St., N.W., Washington 6, D.C. Quantity orders are available at the cost of publication.

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# National WILDLIFE FEDERATION



1412 16th Street, N.W., Washington, D.C. 20036 ★ Tel. (202) 232-8004

January 15, 1968  
FOR IMMEDIATE RELEASE

## NATIONAL WILDLIFE FEDERATION TO HOLD 32ND ANNUAL MEETING IN HOUSTON, MARCH 8 - 10

Washington, D.C. -- The 32nd annual meeting of the National Wildlife Federation, the Nation's largest private conservation organization, will be held in Houston, Texas, March 8 - 10, 1968. Convention headquarters and site of all meetings, business sessions, speeches, and other program activities will be the Continental Houston Hotel. All sessions of the Federation's meetings are open to the public without charge.

Representatives of 49 statewide conservation organizations, associate members, and other citizens interested in conservation affairs will be attending the Houston meeting. In addition, representatives of other conservation organizations, many state and Federal government officials, and Texas sportsmen are expected to attend the three-day meeting. The Federation has met twice before in the "Lone Star" State -- in 1947 at San Antonio and in 1960 at Dallas.

Preliminary registration of convention delegates, participants and guests will start Thursday evening, March 7. The Federation's Resolutions Committee also has scheduled its first meeting that evening. Formal opening of the 32nd annual meeting is scheduled for 9 a.m., Friday, March 8, with Federation president, Dr. Donald J. Zinn, of Kingston, R.I., calling the meeting to order. During the Friday morning session, the Federation will be officially welcomed to Texas and Federation officers will present their annual reports to the membership. Friday afternoon's program will

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NATIONAL WILDLIFE FEDERATION, 1412 16th st., N.W., Washington, D.C. 20036

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be devoted to a report and discussion of resolutions, followed by meetings of various Federation committees.

The program for Saturday, March 9, is being planned to focus public attention on a wide range of conservation problems and issues. Climaxing the Saturday program will be the Federation's third annual Conservation Achievement Banquet, during which individuals and organizations throughout the country will be honored for outstanding contributions to the wise use and management of the Nation's natural resources.

The final business session of the Federation meeting will be held Sunday morning, March 10. Included on the agenda will be reports from Federation committees, election and installation of officers and directors.

# # # # #

1968 EDITION OF CONSERVATION STAMPS  
BEING MAILED BY WILDLIFE FEDERATION

Washington, D.C. -- A colorful preview of Spring -- 36 portraits of American birds, mammals, fish, insects, and plants -- are now being received in millions of American homes as the National Wildlife Federation starts distribution of its 1968 National Wildlife Conservation Stamps.

Carrying on a tradition started 30 years ago by the late J. N. "Ding" Darling, first president of the National Wildlife Federation and the designer of the first stamps issued in 1938, this year's sheet of stamps features true-to-life reproductions of a wide variety of native flora and fauna. They include such well-known and admired species as the Spring peeper, Canada warbler, deer mouse, white trillium and green-winged teal. To acquaint Americans with some of the less conspicuous forms, however, the 1968 Conservation Stamps also feature such species as the wolverine, red wolf, Bahama duck, yellow darter, and spot-breasted oriole. The team of artists, working under the direction of Federation art director, Roger Tory Peterson, who prepared the paintings from which the stamps were reproduced include such famous names as Maynard Reece, Don Eckelberry, Guy Coheleach, Louis Darling, Don Malick, Charles Ripper, Robert Kusserow, and A.E. Gilbert.

The Federation's world famous Conservation Stamps are designed for a wide range of decorative and educational uses. Many school children and teachers use them in nature study and save each set in special stamp albums produced for that purpose by the Federation. The albums contain complete descriptions and life histories of each species depicted on the stamps plus other educational articles about American wildlife. All proceeds received as voluntary contributions from persons receiving these stamps are used to support the National Wildlife Federation's far-reaching conservation education program.



1968 WILDLIFE WEEK MATERIALS  
BEING DISTRIBUTED BY FEDERATION

Washington, D.C. -- Using the theme, "Learn To Live With Nature," the National Wildlife Federation has started shipment of more than 400,000 posters, booklets, leader's kits and publicity materials to private citizens and government officials throughout the country. The materials, including 6,500 leader's kits, will be used in promoting the 1968 observance of National Wildlife Week which this year is aimed at focusing public attention on the need for conservation education. Highlighting the Wildlife Week materials will be a combination full-color poster and booklet developed by James D. Davis, an Assistant Chief in the Federation's Conservation Education Division.

First established by Presidential proclamation in 1938, National Wildlife Week has been sponsored annually by the National Wildlife Federation and its state affiliates. The 1968 observance starts during the first week of Spring, March 17-23, but will be continued throughout the remainder of the year. Previous Wildlife Week themes have centered public attention on such conservation concerns as water pollution control, saving endangered wildlife, use and management of public lands, preservation of natural beauty, chemical pesticides, and protecting wetlands for waterfowl.

"The 1968 Wildlife Week observance," says Thomas L. Kimball, Executive Director of the National Wildlife Federation, "is aimed at solving the most critical conservation problem of them all -- the education of the American people, especially those of school age, in the urgent need to wisely use and perpetuate the Nation's renewable natural resources. Education is the key to good conservation." The chief administrative officer of the world's largest private, non-profit educational organization also emphasized, "Unless we can learn to live with nature by changing our ways to fit natural controls placed on all living creatures by the environment in which they live, America's fast expanding human population may soon be forced to lower our present standard of living. Polluted waters, destruction of wildlife habitat and open spaces, dirty air, and mismanaged soils and forests cannot support an affluent society forever."



# National WILDLIFE FEDERATION



1412 16th Street, N.W., Washington. D.C. 20036 ★ Tel. (202) 232-8004

For Release: January 31, 1968

Contact: Clapper or Johns

INTERNATIONAL ASSOCIATION PRESIDENT TO SPEAK  
AT WILDLIFE FEDERATION MEETING IN HOUSTON

Washington, D.C. -- Walter T. Shannon, President of the International Association of Game, Fish and Conservation Commissioners, will be a principal speaker at the 32nd annual meeting of the National Wildlife Federation in Houston, Texas, March 8-10, 1968. The California wildlife administrator will discuss the "Management of Wildlife on Federal lands -- Reaffirming the Rights of the States" at 2 p.m., Saturday, March 9, in a general session of the Federation meeting at the Continental Houston Hotel.

Shannon's speech will focus attention on one of the Nation's most controversial conservation issues. The International Association he heads this year is seeking to maintain and uphold the traditional rights of the states in the management, control, and establishment of seasons and bag limits for the taking of resident species of fish and game within bounds of their respective states. This concept has been challenged recently by the Federal government which apparently wants to set its own rules and regulations for managing all wildlife on most public lands under Federal control.

A career public servant, Shannon has served as Director of the California Division of Fish and Game since 1959. He joined the state agency as a member of its field warden service in 1936, and later served as a regional manager before being promoted to Deputy Director in 1952. He was elected President of the International Association of Fish, Game and Conservation Commissioners in September, 1967.

The National Wildlife Federation is a private, non-profit educational organization, representing more than two million citizens interested in the wise use and management of America's natural resources. It has 49 state organizations, including the Sportsmen's Clubs of Texas, Inc., affiliated with it, as well as more than 300,000 individual associate members.

# # # #

TEXAS CONGRESSMAN, STATE AND FEDERAL OFFICIALS  
TO DISCUSS GALVESTON BAY PROBLEMS AT HOUSTON MEETING

Washington, D.C. -- Rep. Robert C. Eckhardt, of Harris County, Texas, will be joined by five Federal and state officials in a major discussion of a classic case study in conservation -- "Man's Effect on the Ecology of the Galveston Bay Area" -- during the 32nd annual meeting of the National Wildlife Federation in Houston, March 9, 1968. Moderating the Saturday afternoon discussion will be F. H. "Pete" Farrar, of Atmore, Alabama, the Federation's Southeastern Field Representative.

Panel members, in addition to Congressman Eckhardt, will be: Dr. Thomas E. Pulley, Museum of Natural History Survey, Rice Institute; Col. Franklin B. Moon, District Engineer, Army Corps of Engineers, Galveston; J.R. Singleton, Executive Director, Texas Parks and Wildlife Department, Austin; Eugene T. Jensen, Chief, Office of Estuarine Studies, Federal Water Pollution Control Administration, U.S. Department of the Interior, Washington, D.C.; and Charles R. Chapman, Supervisory Fishery Biologist, Bureau of Commercial Fisheries, U.S. Department of the Interior, Washington, D.C.

Using the Galveston-Trinity Bay as a "case study in conservation," the six member panel will present their viewpoints on a wide range of problems which have arisen in the development of natural resources in the area. These include such controversial matters as commercial dredging for oyster shell, development of facilities for navigation and harbor traffic, pollution from surrounding industrial and municipal installations, protection and management of sport fishing and other outdoor recreation opportunities, and protection of ecological values in the complex estuarine system.

The National Wildlife Federation, a private, non-profit, non-governmental conservation education organization, maintains national headquarters in Washington, D.C. where it represents more than two million citizens interested in the wise use and management of America's natural resources. Hundreds of the Federation's associate members, representatives of the 49 state organizations affiliated with it, and other persons interested in conservation will attend the meeting.

OREGON HIGH SCHOOL STUDENT TELLS  
OF ADVENTURE WITH CALIFORNIA CONDORS

Washington, D.C. -- Nick Mariana, a 16-year-old sophomore at Parkrose High School in Portland, Oregon, is one of the few teenagers in America who has seen one of the world's most rare birds -- the California Condor.

Writing in the February issue of "Ranger Rick's Nature Magazine," a new conservation and natural history journal published by the National Wildlife Federation, the young author describes his experiences as a member of a four-man expedition which followed public trails into the "Valley of the Condors" last June to observe and photograph the almost extinct species. Accompanied by his father, a Fish and Wildlife Service information officer, young Mariana spent 10 days in the Sespe National Wildlife Sanctuary near Ojai, California, gathering material and information for his story. Other expedition members were George H. Harrison, Milwaukee, Wis., managing editor of "National Wildlife" magazine, also published by the Federation, and Luther Coldman, official photographer for the Department of Interior's Fish and Wildlife Service.

Son of Mr. and Mrs. Nick Mariana, 3190 N.E. 126th Ct., Portland, Nick, Jr. covers the actual sighting of California Condors, rugged hiking in mountainous areas of the Los Padres National Forest where the condor sanctuary is located, and his report on other birds and animals seen on the trip. The California Condor is officially listed as an endangered species by the Department of the Interior; latest surveys show only about 46 birds still exist in wild, remote mountainous areas about 70 miles north of Los Angeles. They are completely protected by state and Federal laws. Members of the photographic expedition were careful to avoid disturbing the birds at nesting sites.

"Ranger Rick's Nature Magazine" is a full-color, 48-page youth magazine published by the National Wildlife Federation, a private, conservation education organization which maintains its headquarters at 1412 16th Street, N.W., Washington, D. C.

IDAHO STUDY SHOWS MOUNTAIN LIONS  
HAVE NO EFFECT ON GAME POPULATIONS

Washington, D.C. -- A recently completed study of predation by mountain lions on mule deer and elk has shown the big cats have no effect on their population levels, according to the National Wildlife Federation. The field study, made possible by a financial grant from the Federation, was performed by Maurice G. Hornocker, of McCall, Idaho, as part of requirements for his doctoral degree from the University of British Columbia.

In making the study, Hornocker spent a total of 430 days during the past three years in a 200 square mile section of the Idaho Primitive Area which covers parts of four National Forests in central Idaho. He traveled more than 3,700 miles by foot in the rugged wilderness in an attempt to observe and record mountain lion movement and activity. Field work included two to five weeks each summer and fall on the study area, as well as continuous on-the-ground studies each year from late November until late April or early May. Assisted by Wilbur Wiles, an experienced lion hunter and long-time resident of the Primitive Area, Hornocker maintained contact with the "outside" world by short-wave radio during the long periods of time he lived with the mountain lions and other wildlife.

Mountain lion population numbers were stable during the three-year study period, Dr. Hornocker reports, while specific hunting territories were shared but never used by more than one lion or family of lions at a time. Although he recorded 44 elk and 39 deer as definite lion kills during the study period, Hornocker found that "predation by lions was inconsequential in determining ultimate numbers of elk and deer." He concluded that winter food supply was the real limiting factor in elk and deer populations. Because of mild winters, in fact, his study indicated the number of elk on the study area actually increased from 799 in 1964-65 to 1,130 in 1966-67. Deer showed a comparable increase, from 1,359 to 2,595. During the three years, Hornocker's census work showed a minimum of 22 mountain lions in the same area.



**REVIEW COPY**

# **Conservation of Natural Resources in the COLUMBIA BASIN**



**Orderly development of a balanced civilization in America's Great Northwest must include conservation and rebuilding of the salmon runs, preservation of scenic and wilderness treasures, and conservation of game, along with irrigation, power and flood control.**

*Published by*  
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## THE COLUMBIA RIVER—

WAS A MIGHTY SOURCE OF SALMON when Lewis and Clark first pierced its wilderness mystery and blazed the trail for white man's development.

Natural obstructions such as waterfalls blocked off only small areas of the 259,000 square mile basin from the spawning runs of migratory fishes.

Salmon was the principal source of food for the native Indians, whose tribes at one time were estimated to total about 50,000 persons. They took their catches as the fish moved upstream from the sea to spawning areas, and historians estimate they used some 18 million pounds annually. The Indian harvest in those days failed to affect the abundance of a naturally renewable resource.

White settlers of the 1800's found salmon a splendid source for food and quickly developed an industry. This activity attained a peak canned pack of around 40 million pounds in 1883. With some fluctuations the catch was sustained at a high average level until the early 1940's when the effects of over-production, dams, pollution and other manifestations of civilization drastically reduced the fish runs.

ITS WATERSHEDS COMBINED BREATH-TAKING SCENERY WITH A GREAT STOREHOUSE OF NATURAL RESOURCES AWAITING DEVELOPMENT.

The promise has come true. The Basin is now world-renowned as a fine place to live. Numerous resources provide a high standard of living. The beautiful scenery and the unexcelled outdoor playground make the Basin a place of happy homes.

## THE COLUMBIA RIVER BASIN TODAY

The Columbia River Basin of North America is uniquely blessed in the variety and richness of its natural resources. Its torrents, collected in far-flung tributaries from the high and forested slopes of the Rocky Mountains and the Cascades, pour 180 million acre-feet annually in a rapid drop to the Pacific Ocean, making this river system potentially one of the world's richest sources of hydroelectric power.

In any basin the least expensive hydroelectric sources are developed first. While Columbia Basin planners are contemplating proposals on more expensive hydroelectric sites other sources of power such as the fossil fuels and atomic power are exhibiting promise of catching up cost-wise.

Lands irrigated by its waters in four states produced \$264,561,421 worth of agricultural products in 1958. These included wheat and other grains, milk and meat, wool, fruits and vegetables, a veritable outpouring from a "horn of plenty."

Attracted by the region's timber, minerals and other resources, including the hydroelectric supply, manufacturing has made great strides in recent decades, doubling and re-doubling the demands for more and more electric power. The coming of the aluminum industry is an example. The new Dalles dam on the main stem of the Columbia, whose turbines started turning in 1957, had a major share of its power output pre-sold to one aluminum company.

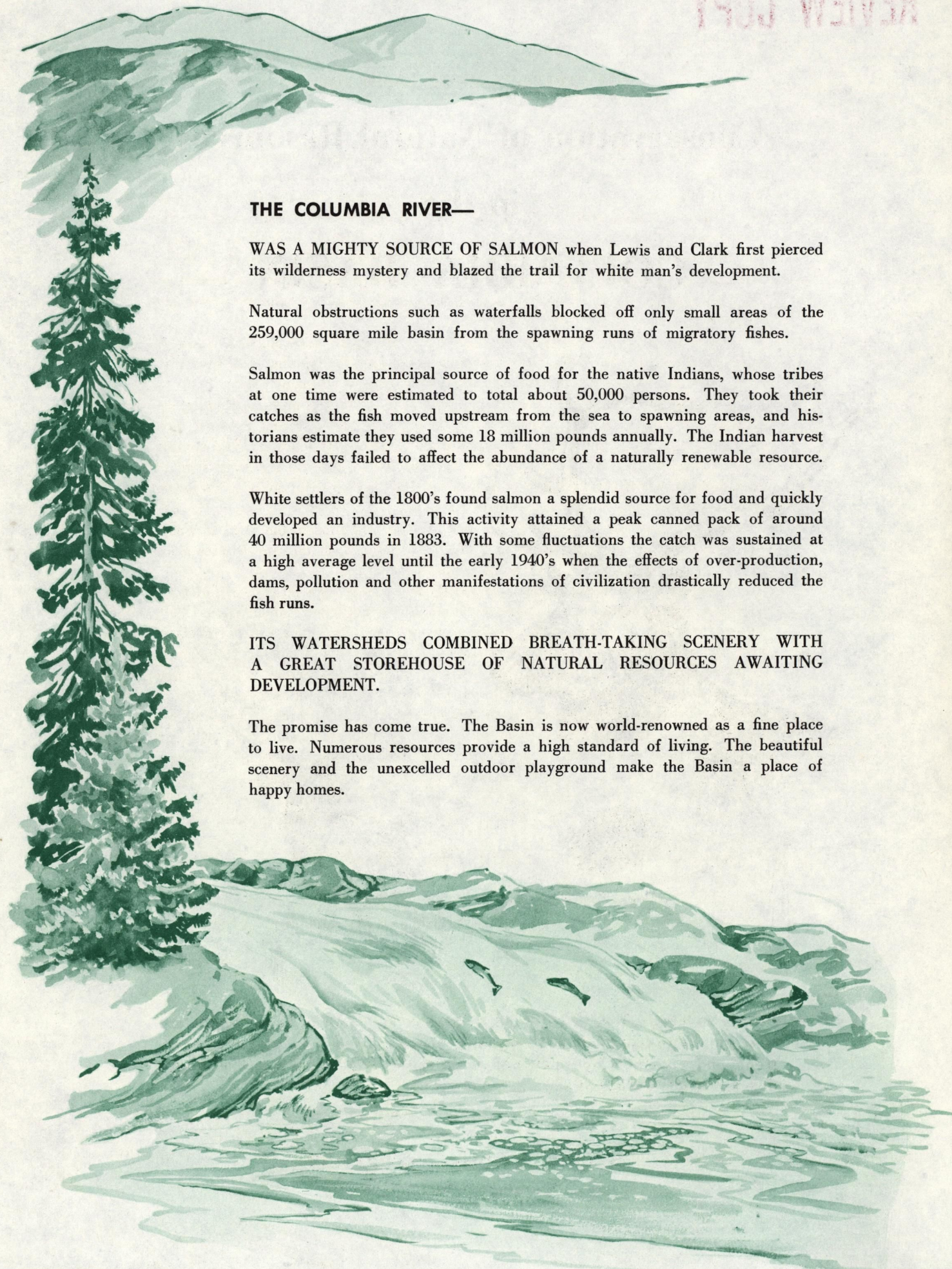
Human population increased 65 per cent to about 3 million in the State of Washington, and by the same rate to about 2 million in Oregon, in the two decades since 1940.

Although greatly reduced and now cut off from more than 60 per cent of their original spawning areas by man-made obstructions, the Columbia's anadromous\* fisheries—five kinds of salmon and steelhead trout—still support a major industry. Since the middle 1940's a greatly accelerated sports fishery has entered the picture. As the economy of the sport fishery approaches that of the commercial it is inevitable that changes in philosophy and regulations will occur. Regardless of how the salmon are taken the demand for more of them gets greater. Up to the present, much of the development of the Basin has been at the expense of the salmon and steelhead.

The forested watersheds and headwater valleys are the summer and winter ranges of the Nation's greatest herds of elk, major herds of mule deer and whitetail deer, bighorn sheep, mountain goats and other game. These resources provide sport and tourist attractions worth millions of dollars to local business and service establishments.

Within this great basin of infinitely varied landscape lie all or parts of three National Parks—Glacier, Yellowstone and Grand Teton. Within the National Forests that protect its mountainous watersheds are eleven Wilderness and Primitive areas and several wild areas, all adding to the wonders that attract millions of recreation-seekers.

\* ANADROMOUS FISH (salmon, steelhead, shad, etc.) are those fish that run up rivers and streams from the sea, at certain seasons, to spawn.





### A TASK FOR ALL AMERICANS

The Columbia can be developed in such a way as to utilize the energy of its falling waters, to control its floods, to manage its fisheries and other renewable resources on a sustained-yield basis, and at the same time to save the best of its great scenic and wilderness attractions.

If so sensibly developed and conserved in the public interest, the resources of the Basin can add immeasurably and permanently to the national security and to the welfare of all Americans.

It is a challenge to the best of American planning genius. It is a call for political statesmanship. It is a task requiring knowledge and cooperation that places regional and national interest above local interest, public interest above selfish interest.

The purpose of this publication is to set forth the conservation guide lines upon which this kind of planning must be built. It is to outline the pattern for development in the long-range, public interest.

Here is a task for democracy at its best: the kind of democracy that springs from informed citizens, demanding the best of their public servants.

The importance of the Columbia Basin task requires the active interest of all American citizens, from Key West to the Yukon, from Maine to Honolulu. Congress may make the decisions but local people hold the key to Congress.

### THE PRINCIPLES

1. Since some resources of the Columbia Basin have been developed at the expense of others the American public should insist that in the future all development will proceed only when it can be demonstrated that it is unnecessary to completely destroy important resources in order to utilize others.
2. Tributaries now open or relatively open to migrations of anadromous fish and presently supporting important percentages of the remaining salmon and steelhead fisheries, or which have high fish-producing potentials, must be kept open. Anadromous fish populations must not only be saved but should be enhanced and enlarged.
3. Until such time as new fish-passage devices have been discovered and proved to be effective in surmounting the deleterious effects now caused by dams on migratory fish survival, any new reservoirs authorized or constructed in the Columbia Basin must be confined to reaches and tributaries already closed to substantial runs of anadromous fishes by existing dams or natural barriers.
4. Research must be accelerated on problems related to the effect of dams on fish survival and on ways to overcome these problems. Complete answers to fish passage problems must be found before permission is granted to construct dams that now present barriers beyond man's ability to solve.
5. The lower Columbia Fish Sanctuary Program, as planned and endorsed by interested federal and state agencies and approved by the legislatures of Washington and Oregon, has already been breached by rulings of the Federal Power Commission. What is left of this sanctuary must be respected, developed and maintained in good faith by the Congress and executive agencies of the United States, especially the Federal Power Commission and by the states.
6. Future reservoir construction must avoid sites that would invade National Parks or Wilderness Areas or despoil outstanding scenic values.
7. Future reservoir construction must avoid sites that would flood out natural winter ranges of important big game herds.
8. Reservoir projects which would yield important benefits in the public interest, while avoiding destructive and offsetting effects upon other resource values, should be granted high priority and scheduled for early development.
9. Research findings by the technical staffs of the state and federal agencies responsible and qualified to manage the resources must be the basis for appraising the effects of dams as well as regulations governing the harvest and utilization of fish and wildlife. The emotional appeal should have no bearing on scientific findings.
10. Political and ideological warfare between public-power and private-power interests must not be permitted to prevent or delay sound development or to pressure public agencies into unsound decisions. Paralyzing controversies such as surrounded the Hells Canyon reach of the Snake River for years are not in the public interest.
11. In the development of the Columbia Basin all of the natural laws which contribute to sound development must be coordinated so sustained yield benefits from ample supplies of soil, water, forests, minerals, fish and wildlife can be enjoyed by all. Watershed welfare has received scant consideration compared to down-stream dam structures and major water developments.



## THE PATTERN

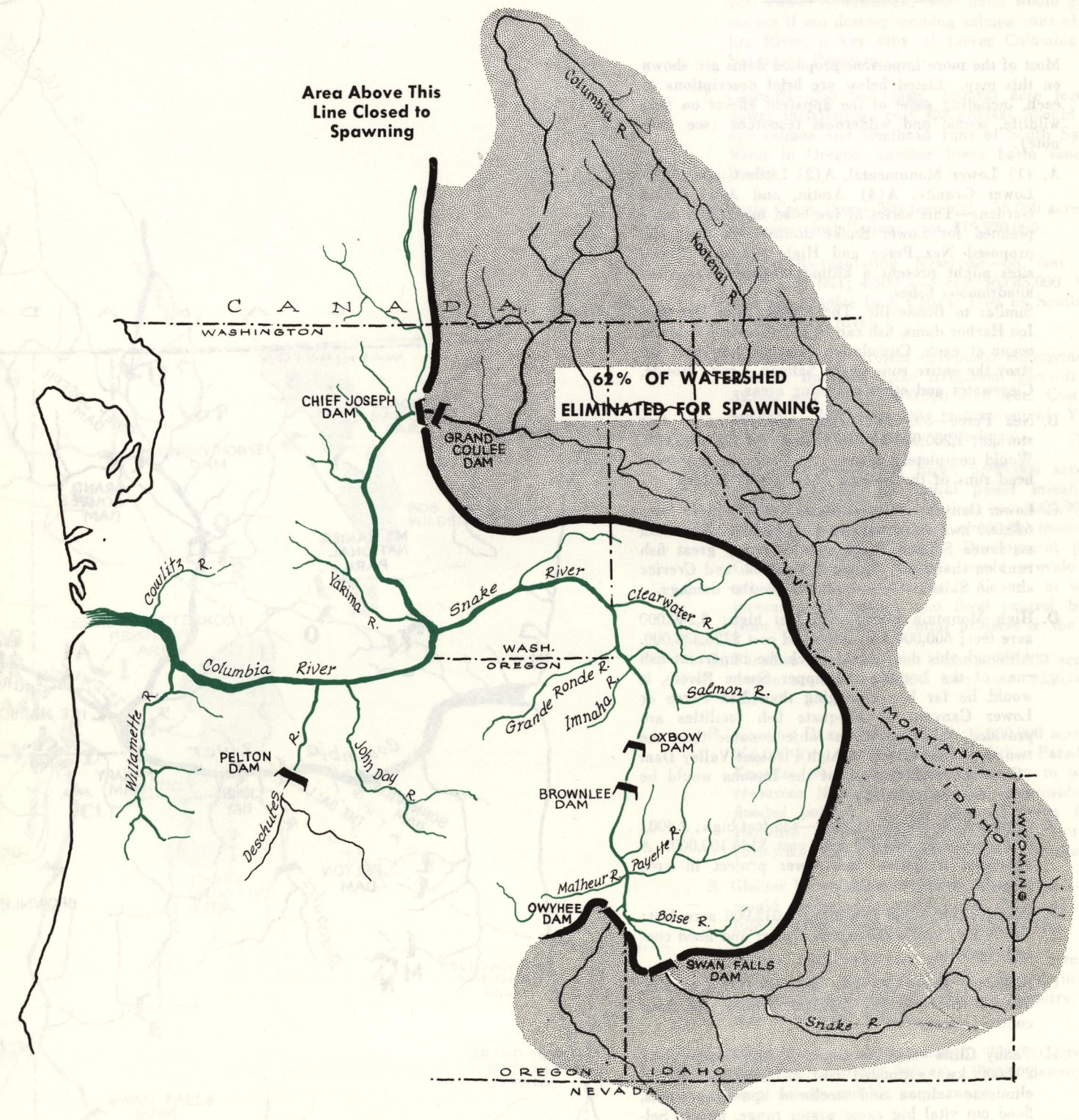
Maps and sketches on the following pages are designed to acquaint the reader with a ready reference to help clarify a complicated picture. Basin planning presents a constantly changing picture due to increased technical knowledge, changing demands by the public and for numerous other reasons.



62 percent of the Columbia Basin, including thousands of miles of first-class spawning waters, is now unavailable to Salmon and Steelhead—blocked off by Chief Joseph and Grand Coulee, Owyhee, Swan Falls, and other dams. The available spawning waters have been further restricted—how seriously is not yet known—by the new Brownlee and Oxbow dams on the Snake River, by Pelton dam on the Deschutes, Mayfield on the Cowlitz and others.

Suggestions to save salmon include full development of dam sites within the blocked off area for greatest power and flood control, while at the same time keeping the Clearwater, Grand Ronde, Imnaha, Salmon and Middle Snake as sanctuaries for fisheries production. Writing off any section unless the runs have been completely destroyed is not entirely necessary in all instances.

Other ways to help meet Northwest power needs beside building fish-killing dams might include: Hasten U. S.-Canadian cooperation in developing international parts of the Columbia; use steam generation to firm up large amounts of secondary power now wasted from existing dams; invest more money in atomic power research.



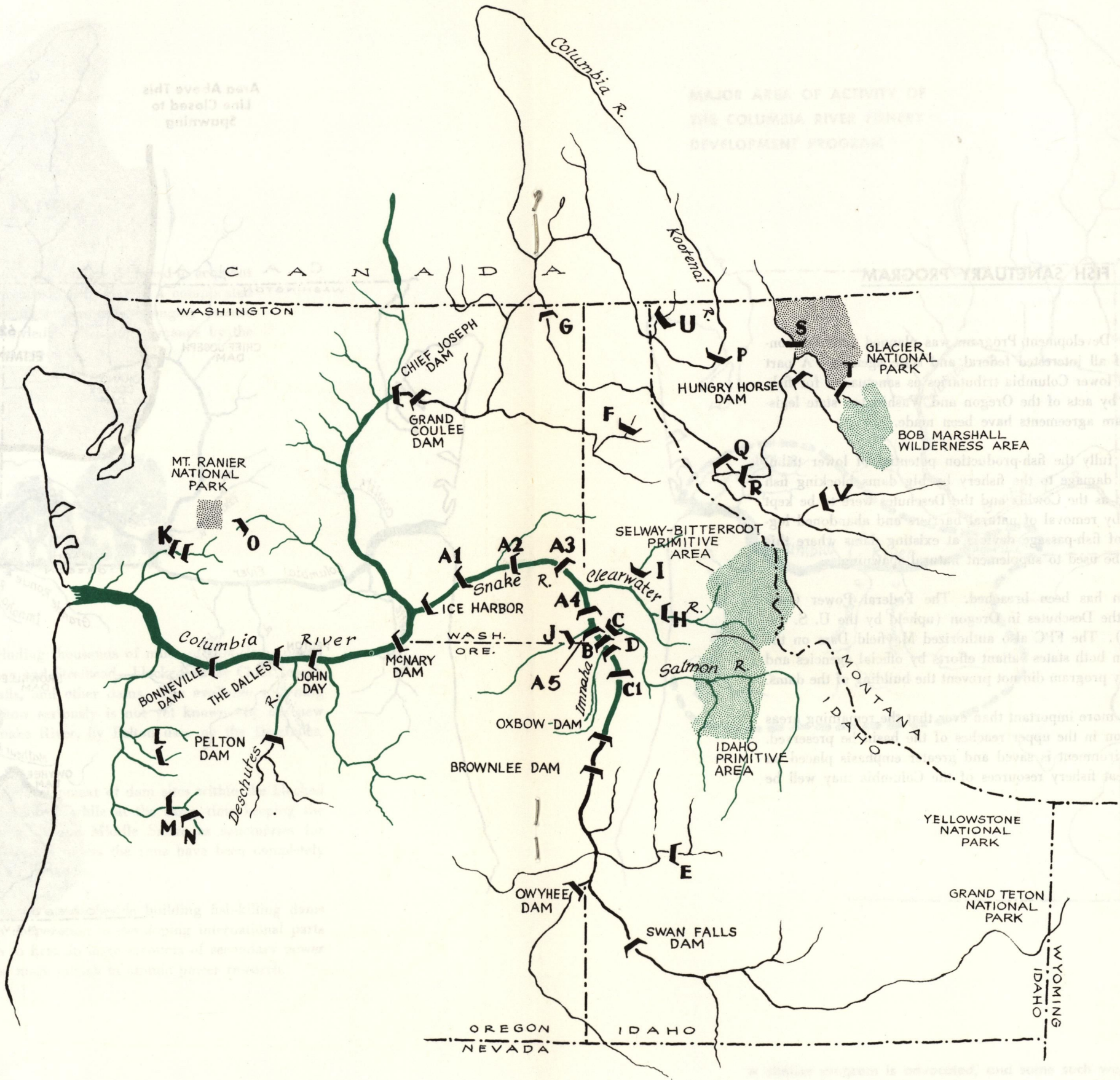
62% of the Columbia Basin—including thousands of miles of the finest spawning waters—is now unavailable to salmon and steelhead—blocked off by dams.



**PROPOSED DAMS**

Most of the more important proposed dams are shown on this map. Listed below are brief descriptions of each, including some of the apparent effects on fish, wildlife, scenic and wilderness resources (see footnote).

- A. (1) Lower Monumental, A(2) Little Goose, A(3) Lower Granite, A(4) Asotin, and A(5) China Gardens—This series of low-head navigation dams planned for Lower Snake downstream from the proposed Nez Perce and High Mountain Sheep sites might present a killing obstacle course for anadromous fishes. Similar to Bonneville, The Dalles, John Day and Ice Harbor dams, fish can be passed over but losses occur at each. Cumulative damages may well destroy the entire runs to the Salmon, Grand Ronde, Clearwater and other spawning areas.
- B. Nez Perce—595 feet high; 6,000,000 acre feet storage; 1,200,000 kw; estimated cost \$284,820,000. Would completely destroy great salmon and steelhead runs of the Salmon and Imnaha Rivers.
- C. Lower Canyon—670 feet high; 3,700,000 acre feet; 640,000 kw; estimated cost \$194,520,000. This dam on lower Salmon River would destroy great fish runs on that river. Dams at Freedom and Crevice sites on Salmon River would do similar damage.
- D. High Mountain Sheep—660 feet high; 3,240,000 acre feet; 600,000 kw; estimated cost \$226,333,000. Although this dam would block the important fish runs of the Imnaha and upper Snake Rivers, it would be far less damaging than Nez Perce or Lower Canyon. If adequate fish facilities are provided, this dam is less objectionable than the two mentioned above. A high Pleasant Valley Dam (C-1) above the mouth of the Imnaha would be even less objectionable.
- E. Garden Valley-Scriver Creek—435 feet high; 2,400,000 acre feet; 286,000 kw; cost \$146,100,000. A beneficial irrigation and power project in area already closed to salmon.
- F. Enaville Dam—280 feet high; 1,012,000 acre feet; 30,000 kw; cost \$78,036,000. Power and flood control benefits.
- G. Boundary Dam—385 feet high; 94,000 acre feet, 540,000 kw; cost \$134,216,000. Power and flood control benefits.
- H. Penny Cliffs—596 feet high; 3,430,000 acre feet; 292,000 kw; estimated cost \$210,036,000. Would eliminate salmon and steelhead spawning areas, flood out vital big game winter range, invade Selway-Bitterroot Wilderness Area.
- I. Bruce's Eddy—600 feet high; 2,460,000 acre feet; 240,000 kw; cost \$127,166,000. Would flood out important big game range, block salmon and steelhead runs. Opposed in U. S. Fish and Wildlife Service Report issued June, 1960.
- J. Wenaha—570 feet high, 1,250,000 acre feet; 134,000 kw; cost \$94,574,000. Would block runs of salmon and steelhead in Grand Ronde River; destroy big game range.



- K. Mayfield and Mossyrock Dams — Licensed by Federal Power Commission, these dams would greatly reduce if not destroy teeming salmon runs of Cowlitz River, a key area of Lower Columbia Fish Sanctuary Program.
- L. Cascadia—255 feet high, 160,000 acre feet; no power installation; cost \$28,270,000. Would damage salmon and steelhead runs of South Santiam River in Oregon, another lower basin sanctuary stream.
- M. Gate Creek Dam—270 feet high; 55,000 acre feet; no power installation; cost \$15,920,000.
- N. Strube Re-regulating Reservoir—68 feet high; 5,900 acre feet; 4,500 kw; cost \$6,685,000. Would increase benefits from Cougar Dam on South Fork of McKenzie River.
- O. Bumping Lake Project—proposed enlargement of existing Bumping Lake irrigation reservoir from 32,600 acre feet to 400,000 acre feet. Cost \$19,163,000. Would permit restoration of Yakima River as important salmon producer.
- P. Libby Dam—344 feet high; 5,985,000 acre feet storage; 344,000 kw initial power installation; 688,000 kw ultimate installation; cost \$307,900,000. A highly beneficial project, presently involved in negotiations with Canada. Development of the Columbia Basin in Canada would provide great power and storage benefits in Canada as well as increasing the power and flood control benefits from existing and potential projects in the U. S.
- Q. Paradise Dam—270 feet high; 4,080,000 acre feet usable storage; 432,000 kw; cost \$450,000,000 OR—
- R. Knowles Dam—266 feet high; 5,000,000 acre feet; 256,000 kw; cost \$234,910,000. Either Paradise or Knowles would do minimum damage to wildlife resources if substitute acreage is provided for flooded portions of the National Bison Range. Paradise would inundate railroads, increasing costs; Knowles would avoid railroad damage.
- S. Glacier View Dam or Smokey Range Dam—Either would damage Glacier National Park and constitute invasion of the National Park System.
- T. Spruce Park—405 feet high; 410,000 acre feet; 78,000 kw; cost \$77,317,000. Would inundate big-game range, despoil wilderness country, eliminate wild trout fishery.
- U. Long Meadows—280 feet high; 726,000 acre feet; 9,000 kw; cost \$25,709,000. Would destroy wild trout fishery and big game range.
- V. Nine-Mile Prairie—300 feet high; 1,000,000 acre feet; 60,000 kw; cost \$54,813,000.

**FOOTNOTE**

Figures quoted have been verified with the U. S. Departments of Interior and Defense. They indicate the height of the dam from foundation to crest, maximum storage pool unless otherwise noted, initial hydroelectric output, and cost of initial structure including the hydroelectric plant.



## THE COLUMBIA FISH SANCTUARY PROGRAM

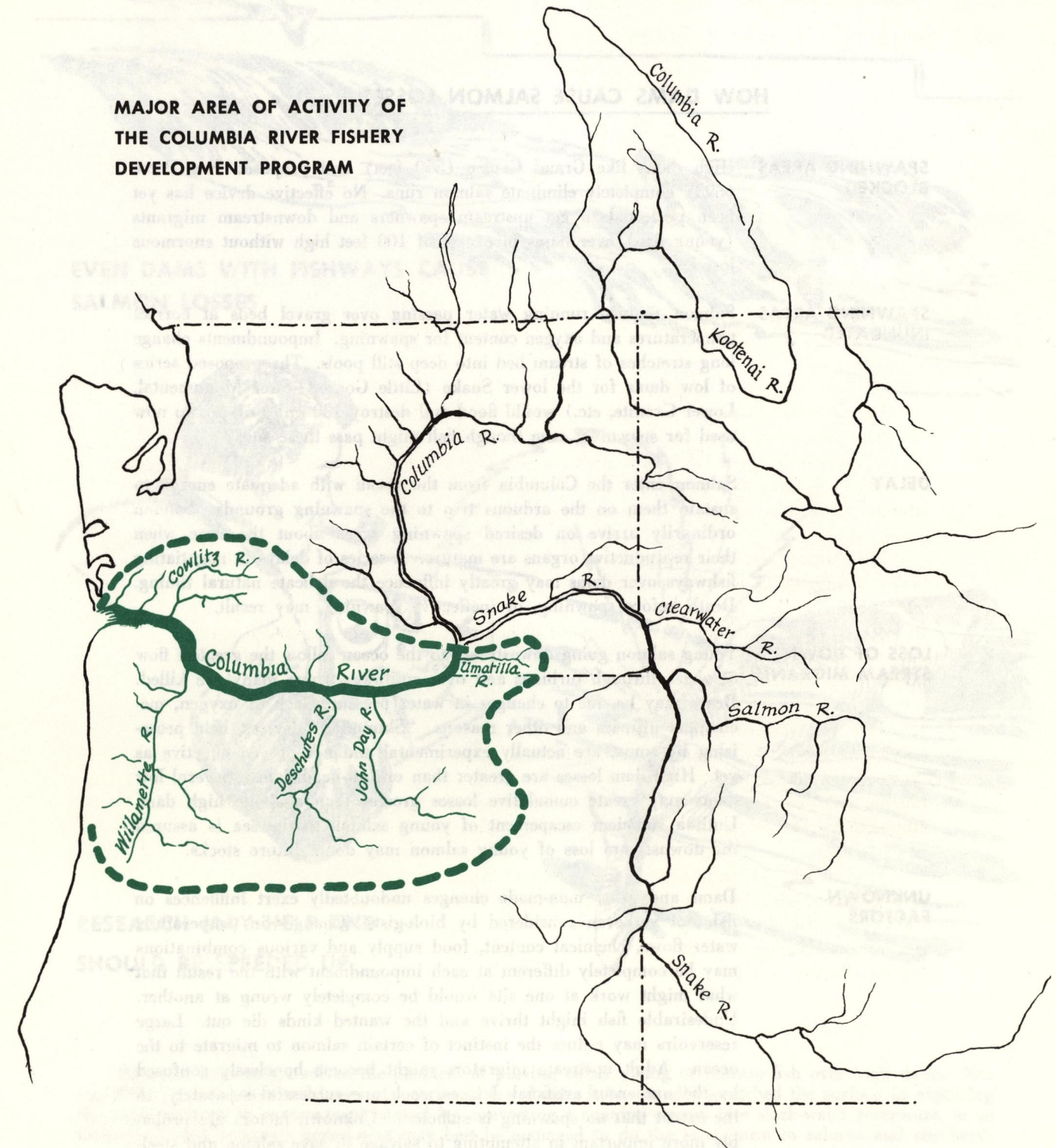
The Columbia River Fishery Development Program was planned with the concurrence (at least at the time) of all interested federal and state agencies. A part of the program designated certain lower Columbia tributaries as sanctuaries for fish. This plan was formally endorsed by acts of the Oregon and Washington state legislatures. Since then other up-stream agreements have been made.

The purpose was to develop fully the fish-production potential of lower tributaries to mitigate in part the damage to the fishery by big dams blocking fish migration. Excellent streams such as the Cowlitz and the Deschutes were to be kept free of new dams, and improved by removal of natural barriers and abandoned logging dams, and by construction of fish-passage devices at existing dams where this would work. Hatcheries were to be used to supplement natural spawning.

This fish sanctuary program has been breached. The Federal Power Commission licensed Pelton Dam on the Deschutes in Oregon (upheld by the U. S. Supreme Court after long litigation). The FPC also authorized Mayfield Dam on the Cowlitz and Mossyrock as well. In both states valiant efforts by official agencies and citizen groups to save the sanctuary program did not prevent the building of the dams.

This breach of faith makes it more important than ever that the remaining areas of salmon and steelhead production in the upper reaches of the basin be preserved. Unless the remaining natural environment is saved and greater emphasis placed on research to enhance runs, the great fishery resources of the Columbia may well be lost for all time.

## MAJOR AREA OF ACTIVITY OF THE COLUMBIA RIVER FISHERY DEVELOPMENT PROGRAM



A similar program is advocated, and some such work has been started, on the Salmon, Clearwater and other high-producing tributaries of the Middle Snake Basin.



## HOW DAMS CAUSE SALMON LOSSES

### SPAWNING AREAS BLOCKED

High dams like Grand Coulee (550 feet) and proposed Nez Perce (595) completely eliminate salmon runs. No effective device has yet been perfected to get upstream spawners and downstream migrants (young fish) over dams in excess of 100 feet high without enormous losses.

### SPAWNING AREAS INUNDATED

Salmon require running water passing over gravel beds at correct temperatures and oxygen content for spawning. Impoundments change long stretches of stream bed into deep still pools. The proposed series of low dams for the lower Snake (Little Goose, Lower Monumental, Lower Granite, etc.) would flood and destroy 130 miles of stream now used for spawning, even though fish might pass these sites.

### DELAY

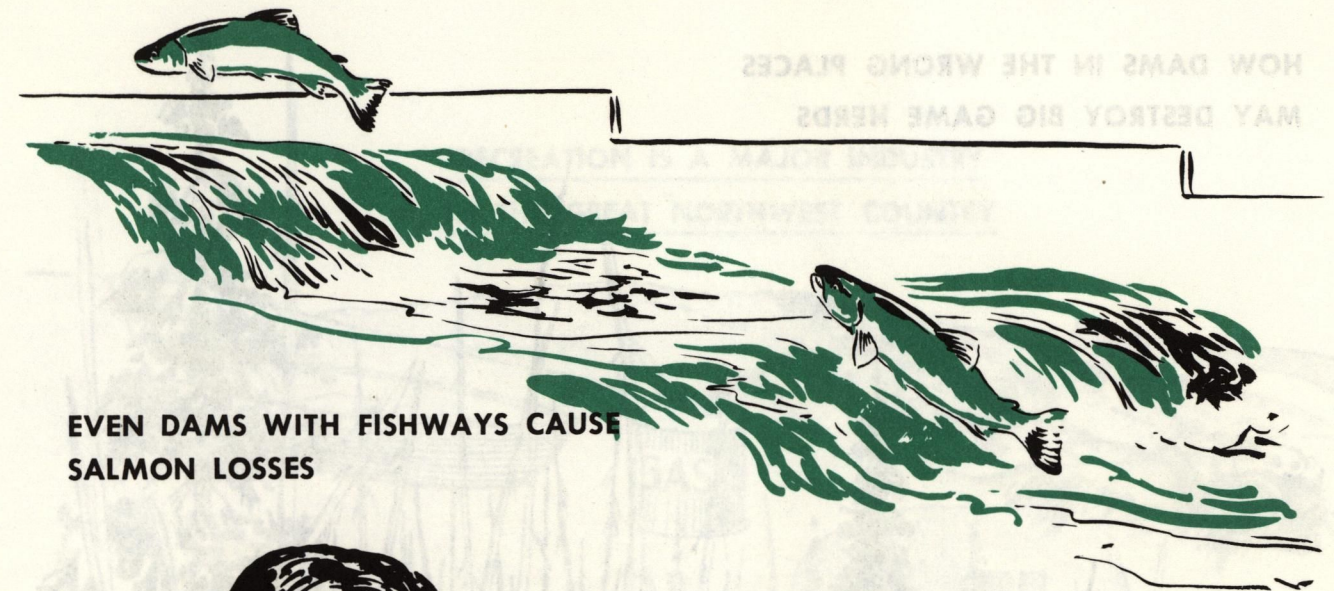
Salmon enter the Columbia from the ocean with adequate energy to sustain them on the arduous trip to the spawning grounds. Salmon ordinarily arrive on desired spawning areas about the time when their reproductive organs are mature. A series of delays in negotiating fishways over dams may greatly influence the delicate natural timing. Death before spawning, or ineffective spawning, may result.

### LOSS OF DOWN-STREAM MIGRANTS

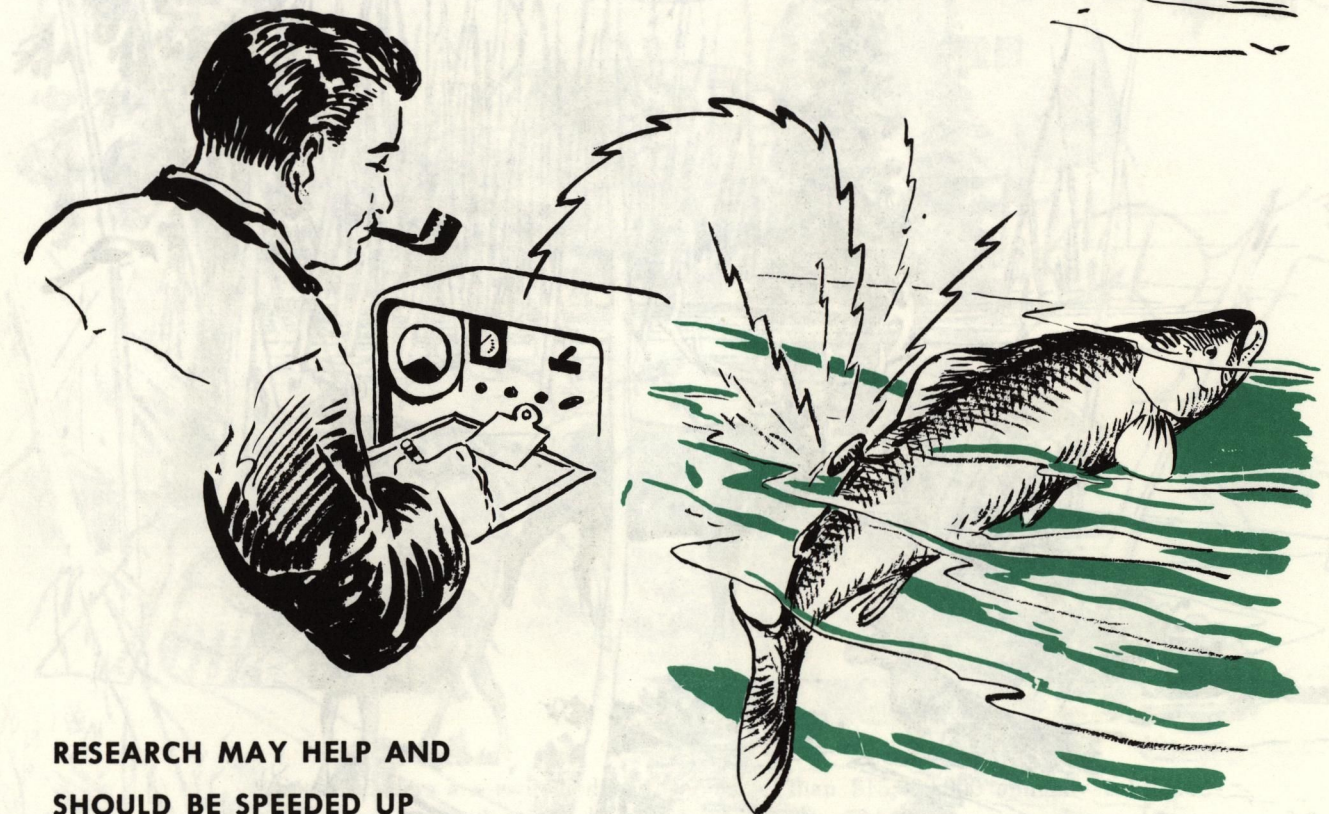
Young salmon going downstream to the ocean follow the greatest flow of water through turbines and over spillways where many are killed. Death may be due to changes in water pressure, lack of oxygen, mechanical injuries and other reasons. "Skimming" devices, held promising by some, are actually experimental and not proven effective as yet. High dam losses are greater than on low-head dams. Several low dams may create cumulative losses greater than a single high dam. Until a sufficient escapement of young salmon to the sea is assured the downstream loss of young salmon may doom future stocks.

### UNKNOWN FACTORS

Dams and other man-made changes undoubtedly exert influences on fish not yet even considered by biologists. Changes in temperature, water flows, chemical content, food supply and various combinations may be completely different at each impoundment with the result that what might work at one site would be completely wrong at another. Undesirable fish might thrive and the wanted kinds die out. Large reservoirs may reduce the instinct of certain salmon to migrate to the ocean. Adult upstream migrators might become hopelessly confused by the numerous artificial devices, each one successful separately, to the extent that no spawning is sufficient. Unknown factors are probably more important in attempting to salvage or save salmon and steelhead than are the obvious problems.



## EVEN DAMS WITH FISHWAYS CAUSE SALMON LOSSES



Research has not yet solved the problem of passing either young or mature fish over high dams. Nor has it eliminated delays and losses at a series of low dams. It has hardly scratched the surface in exploring the basic changes in environment caused by converting a running stream into slack-water reservoirs, or in finding out how reservoir drawdowns may best be managed to do the least harm to salmon and steelhead.

Biologists and engineers are working on devices which are intended to provide passage for adult and young anadromous fish over dams with minimum mortality and injury. They are experimenting with fish losses at turbines, studying electrical barriers, sonic guides, light attractors and other devices. Other work involves artificial spawning facilities. Little of this research is far enough along for proof positive breakthroughs on major problems. No one can predict when the answers may be found.

More research is absolutely necessary. Applied studies and basic fish behavior information are both vital if migratory fish are to remain a part of the grand plan for comprehensive development of the Columbia Basin. Even with unlimited funds and facilities the solving of these tremendous fish problems would tax the very best of America's reputed know how. An even greater challenge is posed in the question of whether the public is willing to provide the funds for research or lose forever a vital resource and heritage.

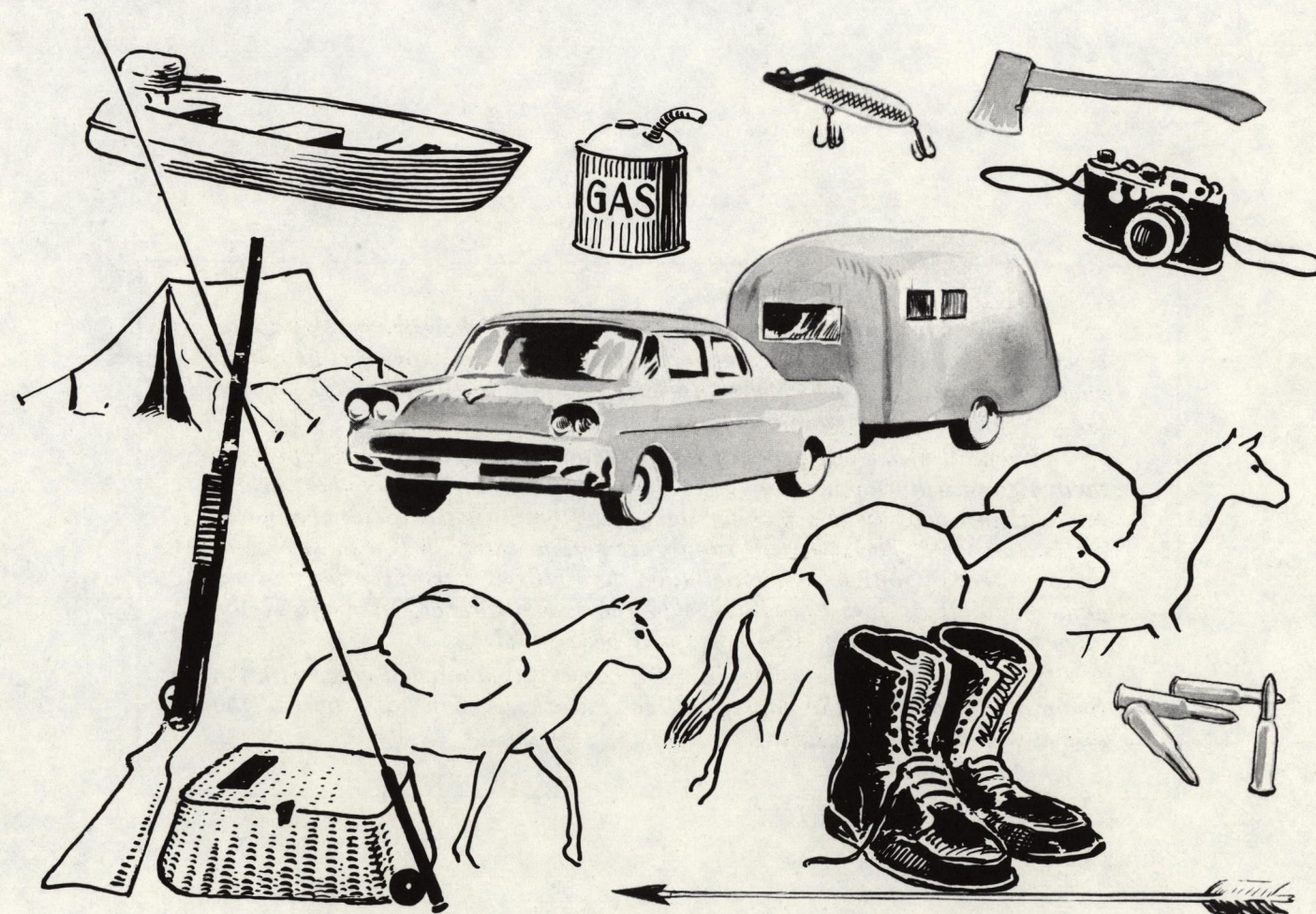


## HOW DAMS IN THE WRONG PLACES MAY DESTROY BIG GAME HERDS



An impoundment that floods out the winter feeding grounds of an elk or deer herd will eventually destroy that herd. If a portion of essential winter range is wiped out, the herd will be reduced proportionately. Big game populations may also be damaged and depleted if a reservoir disturbs migration routes to summer or winter ranges.

## RECREATION IS A MAJOR INDUSTRY IN THE GREAT NORTHWEST COUNTRY



Sports anglers are estimated to spend more than \$15,000,000 annually fishing for salmon and steel head in the Columbia Basin. This money goes for tackle, clothing, camping equipment, boats, motors, automobiles and other travel, food and lodging. Anglers are attracted from many states and even from foreign countries to ring local cash registers.

Big game hunters spend other millions. An Idaho study showed \$15,000,000 spent by elk and deer hunters in that state in 1958. Considerable of this hunting was for animals depending strongly on game ranges that would be adversely affected by proposed dams on the Salmon and Clearwater rivers.

National Parks in the Columbia Basin drew over three million visitors in 1958. Pack trips and other wilderness recreation lure thousands to the playgrounds of the inviting Northwest. Recreation is an economic and social necessity to this great country.



HOW DAMS IN THE WRONG PLACES

MAY DESTROY BIG GAME HERDS

RECREATION IS A MAJOR INDUSTRY

IN THE GREAT NORTHWEST COUNTRY

*Special-interest jousting, political bickering and shortsighted selfishness cannot be abolished. The effects of such maneuvers can, however, be dampened to the degree to which an informed public is willing to work toward the give and take principle of comprehensive development.*

*When all of the resources of the Columbia Basin can be developed for their highest use without completely destroying one to have another, everyone will prosper. In this manner dams may be designed to supply power needs, to control floods and to supply irrigation water. When these waters are kept free of soil and other pollution the welfare of the fisheries, the big game populations, forest products, wilderness, agricultural endeavors, scenic attractions and all other necessities will be assured.*

*These things can be accomplished if conservation-minded citizens in the Basin and throughout the nation will go to work. A significant part of the task is making yourself heard.*