

Division of Fish and Wildlife Management Plan

**Technical Report
1984**



This Document should be cited as follows:

*Bonneville Power Administration, "Division of Fish and Wildlife Management Plan", 1984
Technical Report, Project No. 999900099, 31 electronic pages, (BPA Report DOE/BP-0003-I)*

Bonneville Power Administration
P.O. Box 3621
Portland, OR 97208

This report was funded by the Bonneville Power Administration (BPA), U.S. Department of Energy, as part of BPA's program to protect, mitigate, and enhance fish and wildlife affected by the development and operation of hydroelectric facilities on the Columbia River and its tributaries. The views in this report are the author's and do not necessarily represent the views of BPA.

BONNEVILLE POWER ADMINISTRATION'S
FISH AND WILDLIFE PROGRAM

1984



DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
DIVISION OF FISH & WILDLIFE

July 1984

FOREWORD

In 1978, the Bonneville Power Administration funded its first pilot fishery research projects. Administrator Don Hodel initiated this program in response to a Memorandum of Understanding (MOU) he had signed in 1976. The MOU established a cooperative effort between the Chairman of the Confederated Tribes of the Umatilla, Warm Springs, Yakima, and Nez Perce Indian Reservations and the governors of Oregon, Washington, and Idaho to restore Columbia River salmon and steelhead.

Two years later the Office of Power and Resources Management appointed a Fish and Wildlife Program Manager to lead a more comprehensive program for protection of migratory (anadromous) fish. Staff members also worked to include fishery considerations in power planning.

In December of 1980, Congress passed the Pacific Northwest Electric Power Planning and Conservation Act (Power Act). The Northwest Power Planning Council was established through provisions in the Act in April of 1981. The Council's first task was the development of a program to "protect, mitigate, and enhance fish and wildlife including related spawning grounds and habitat on the Columbia River and its tributaries."

Once the Council authored the Columbia River Basin Fish and Wildlife Program, it became BPA's responsibility to fund and implement major parts of it. In anticipation of this responsibility, BPA elevated the Fisheries and Wildlife Program Unit to the Division of Fish and Wildlife in June 1982.

The Division's responsibilities include managing and coordinating a program of project work activities designed to protect fish and wildlife and reduce damage related to the development and operation of the hydroelectric facilities of the Columbia River Basin. The Division also provides special expertise in planning power marketing activities so BPA can operate the electrical energy system in balance with the needs of fish and wildlife.

INTRODUCTION

The Division of Fish and Wildlife acts to restore fish and wildlife resources affected by development and operation of hydroelectric power generation on the Columbia River and its tributaries. To resolve inequities, the Division has developed and will continue to manage a comprehensive program through the Biological Studies and Systems Integration Branches.

Biological Studies Branch responsibilities include:

- biological studies and related activities aimed at protecting, mitigating, and enhancing fish and wildlife resources;
- implementation of areas of BPA responsibility in the Northwest Power Planning Council's Fish and Wildlife Program;
- coordination with the region's state and Federal fish and wildlife agencies, Indian tribes, land management agencies, and utilities;

Systems Integration Branch functions include:

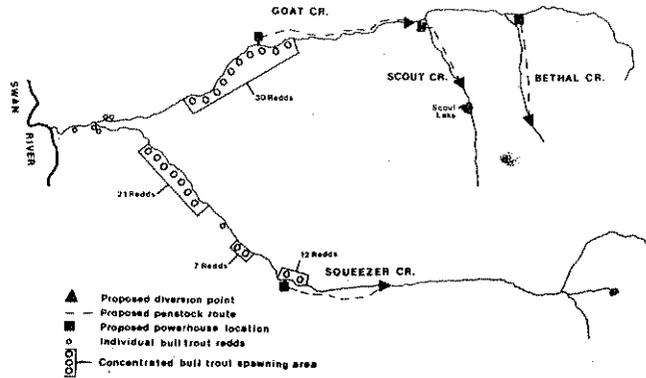
- Water Budget
- evaluation of hydroelectric operations for fish and wildlife impacts;
- recommendations integrating equitable treatment of fish and wildlife in to BPA plans and programs
- development of policies needed to carry out BPA's fish and wildlife responsibilities under the Northwest Power Planning Act.

SYSTEMS INTEGRATION BRANCH

Hydroelectric Planning and Acquisition

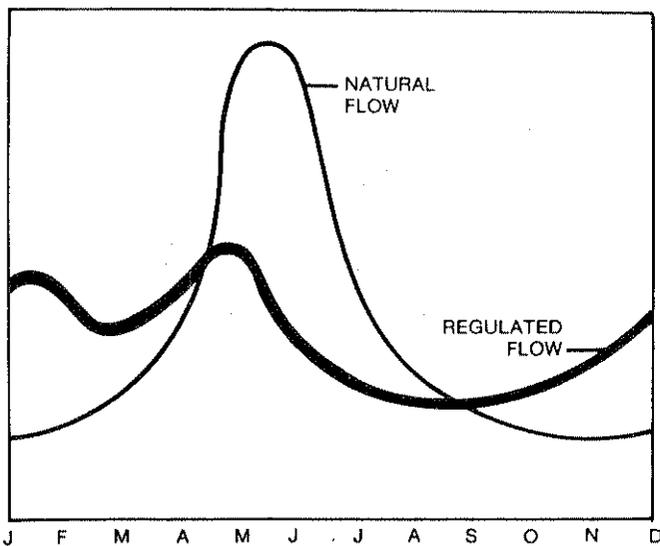
Numerous small (less than 5 megawatts) hydroelectric projects are planned for the region. When considered individually, such projects may have little effect on fish and wildlife; but as a group, impacts may be much greater. The Systems Integration Branch (PJI) works with the Assessment & Evaluation Branch of the Division of Power Resources Planning (PRT) and the Northwest Power Planning Council develop to methods to:

- designate critical habitat requiring protection from further hydroelectric development;
- determine the cumulative effects of multiple hydroelectric projects; and
- evaluate hydroelectric projects submitted for potential acquisition to ensure consistency with the Power Act.



FCRPS Operations

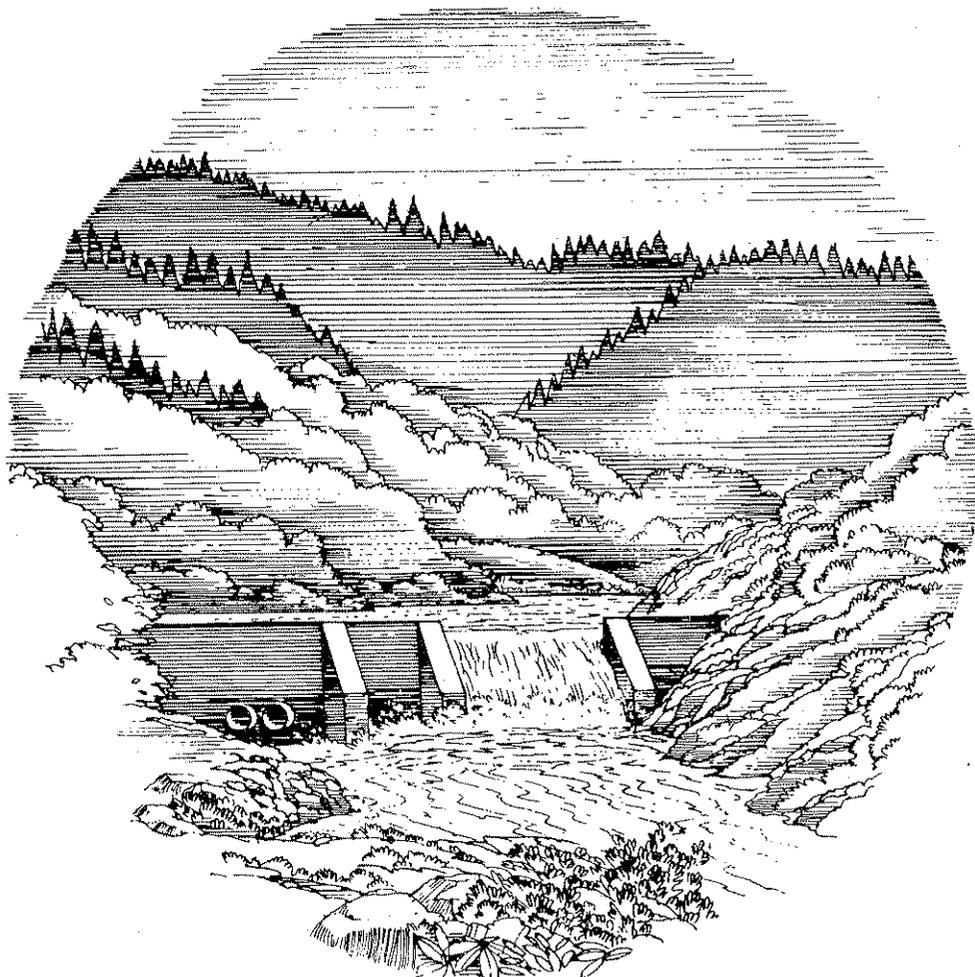
Operation of the FCRPS calls for seasonal transfer of water to generate electricity when required throughout the year. This results in changes in flows which endanger the survival of juvenile fish. To meet a balance between fishery and power needs, BPA funds the Water Budget Center whose officers "shape" selected water flows between April 15 and June 15. PJI also analyzes proposed power marketing activities and strategies to determine the effects of new flows, spills, and water levels on fish and wildlife resources. PJI will analyze and initiate the development of new standards and strategies for equitable power/fish and wildlife treatment.



Major Policy Development

As BPA implements the Fish and Wildlife Program, PJI will develop plans to:

- compensate non-Federal electric power projects for appropriate power losses and costs; and
- fulfill consultation responsibilities outlined in the Northwest Power Planning Act by involving fish and wildlife agencies, Tribes, and project operators in solving hydroelectric system management fish and wildlife issues.



BIOLOGICAL STUDIES BRANCH

The Division's Biological Studies Branch manages and coordinates a program of fish and wildlife restoration projects. These projects make up for losses caused by the development and operation of the Columbia River hydroelectric dams and protect fish and wildlife from future harm. Projects are drawn from the protection, mitigation, and enhancement measures outlined in the Columbia River Basin Fish and Wildlife Program. To accomplish the tasks outlined in each of the Program's measures, the Branch solicits proposals from tribes, agencies, operators, and private consultants. Staff members work closely with representatives from the scientific community to translate Program measures into specific projects, to clearly define project objectives, and to ensure that adequate time and dollars will be devoted to the work.



As technical representatives for BPA's Contracting Office, Branch biologists monitor project activities throughout the life of the project. Project work activities are coordinated with other agencies' plans so that the Division's efforts will be consistent with other efforts throughout the Columbia River Basin. The final project reports are published or presented at workshops in order to share information, discoveries and accomplishments, and to make best use of research results. Such information can help prevent duplication and provide a basis for further enhancement and restoration efforts throughout the region.



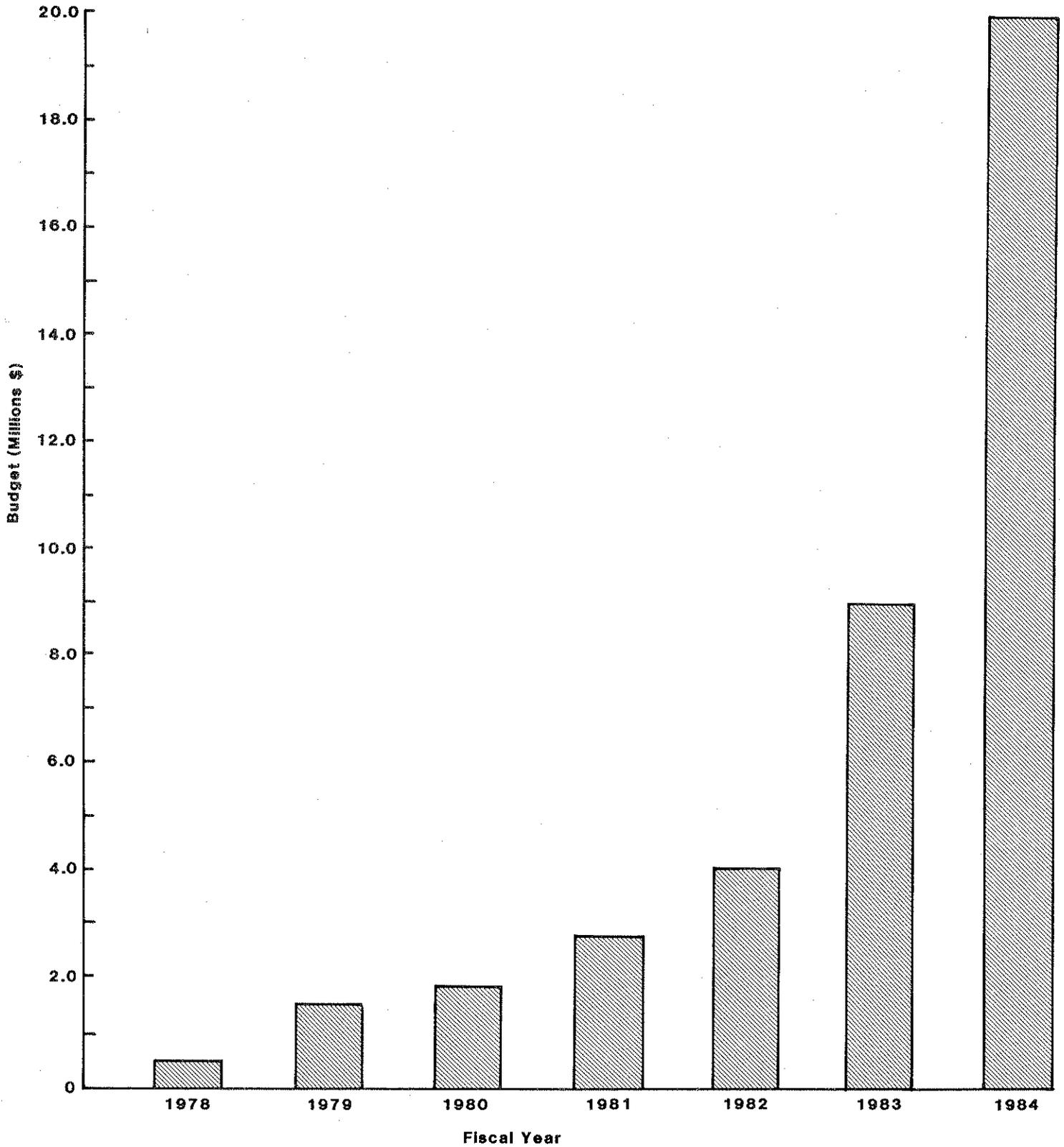
FISH AND WILDLIFE BUDGETS

The Division of Fish and Wildlife's activities are not supported by taxes or Congressional appropriations. Fish and wildlife expenditures are funded through revenues from power sales, as part of the cost of running the Federal Columbia River Power System (FCRPS). The Federal Columbia River Transmission System Act of 1974 made BPA a "self-financing" agency and gave it the authority to borrow Treasury funds to finance major capital construction. BPA must secure Congressional approval to build facilities with a life expectancy of more than 15 years and costing more than \$1 million to construct.

Budget approval is a 2-year process. For example, planning for FY 1985 expenditures began in 1983. Estimates are presented to the Department of Energy and the Office of Management and Budget for review. Budget figures and program plans are refined to incorporate these comments. Subsequently a final budget is presented to Congress for its approval. Parties interested in and affected by the fish and wildlife program may also scrutinize Division funding levels in BPA's electric power ratesetting process.

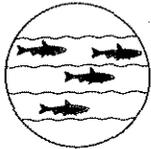
Since 1978, the Division of Fish and Wildlife has spent nearly \$30 million on activities designing fish and wildlife enhancement and mitigation projects. In FY 1983, Fish and Wildlife initiated 93 contracts totalling \$9 million. In FY 1984, the Division's budget doubled to \$20 million to fund a total of 141 new and ongoing projects. Subsequent funding levels are expected to increase as certain projects move into the construction phase.

**BPA'S FISH & WILDLIFE
R & D PROGRAM BUDGET
FY 1978 - 1984**

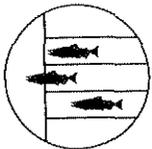


PROJECT EXPENDITURES

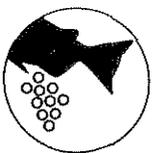
At the present, the Division spends 95 percent of its budget on fishery research studies and restoration projects. Anadromous fish activities include:



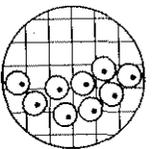
- 23 projects to protect young fish (smolts) as they move downstream. Several projects track smolts during the critical migration period (April 15 to June 15) to properly time Water Budget releases. These water releases shorten the time it takes for a smolt to travel to the ocean. BPA-funded contractors examine the stress caused by migrating through reservoirs and passing through dam structures. Others determine the number of salmon lost to predator fish thriving in dam-created reservoirs. Project biologists also tag fish and collect important data at strategic times in the life cycle.



- 17 projects to correct manmade passage problems for adult migrants. BPA dollars will be used to rebuild or install new fish screens and ladders in the Yakima and Umatilla Basins. Adults will use ladders to return to historic spawning sites. Screens will steer young fish clear of irrigation diversion canals.



- 34 projects to increase wild fish runs. Hydroelectric dams eliminated much of the natural spawning and rearing habitat in the mainstem Columbia and, in some cases, altered habitat in basin tributaries. Rehabilitation of tributary spawning sites make up for these losses. In streams where natural barriers prevent migrating adults from moving onto existing spawning grounds, contractors design fish passage. Other studies assess areas potentially suitable for future anadromous fish runs.



- 22 projects to improve the quality of hatchery-reared fish. Hatcheries were built to make up for losses to hydroelectric development. BPA-funded studies measure their contribution to the Columbia River fishery. Researchers seek answers to questions on nutrition, stress, disease control, smolt hardiness, and strategies for releasing smolts in an effort to increase hatchery production.

Another 18 projects will investigate the impacts of hydroelectric development and operation on white sturgeon in the lower Columbia River, warmwater game fish in upriver reservoirs of Idaho, and wildlife in western Montana.

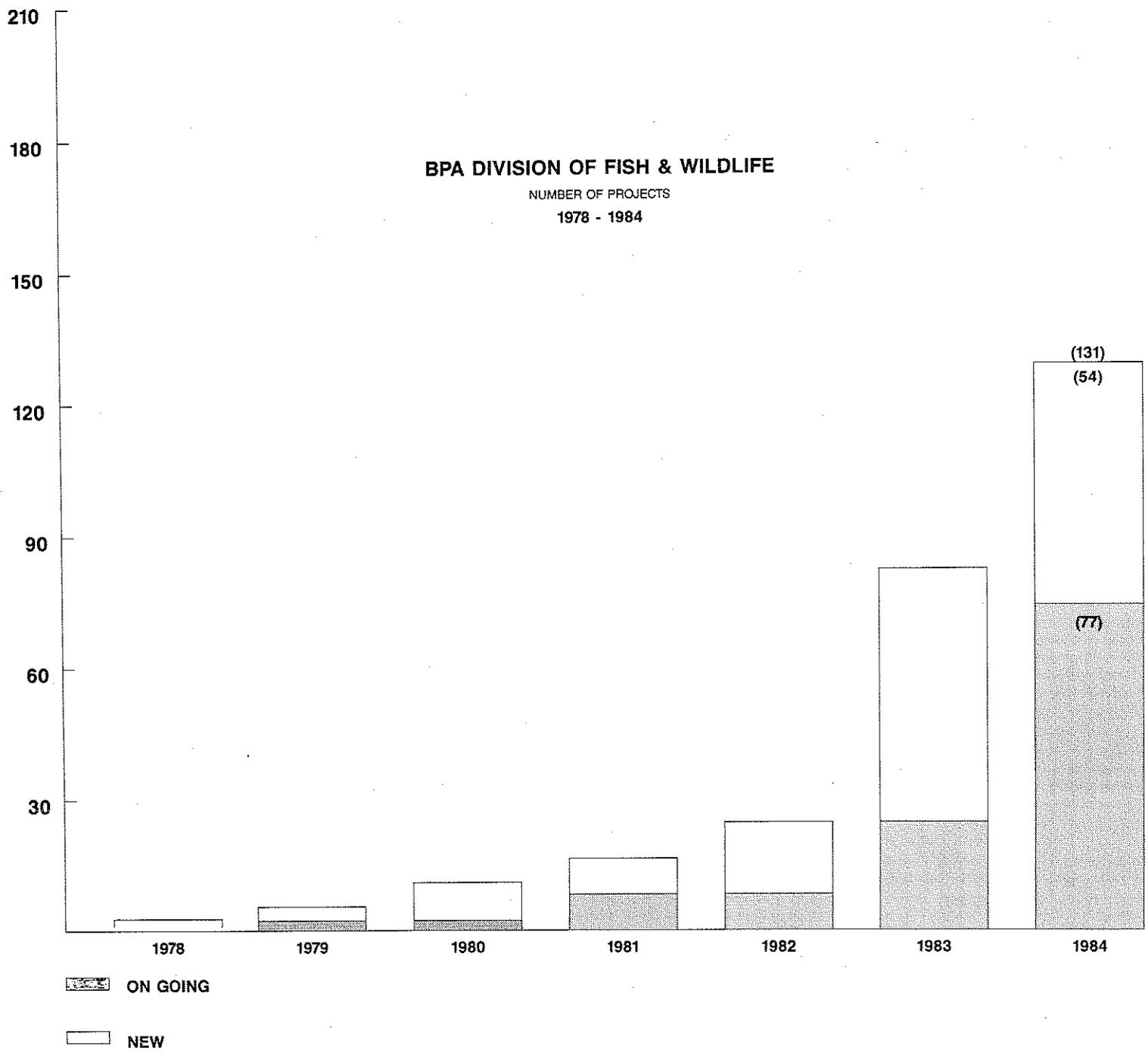
The Division also funds a major effort to establish anadromous fish goals for the Columbia Basin Fish and Wildlife Program. A second investigation will determine BPA's part in meeting those goals.

Restoration projects address each section of BPA responsibility within the Program. Present expenditures represent BPA's effort to address the immediate need and protect the severely depleted anadromous fish runs remaining in the Columbia. Our projects also seek solutions to long-standing problems.

Division staff judge all projects on their ability to produce results. In many cases, dollars spent on research or habitat enhancement in one state enhance fish runs in another. Dollars spent on this year's fish and wildlife projects will eventually benefit the entire region.

SBlair:klm (WP-PJS-3454N)

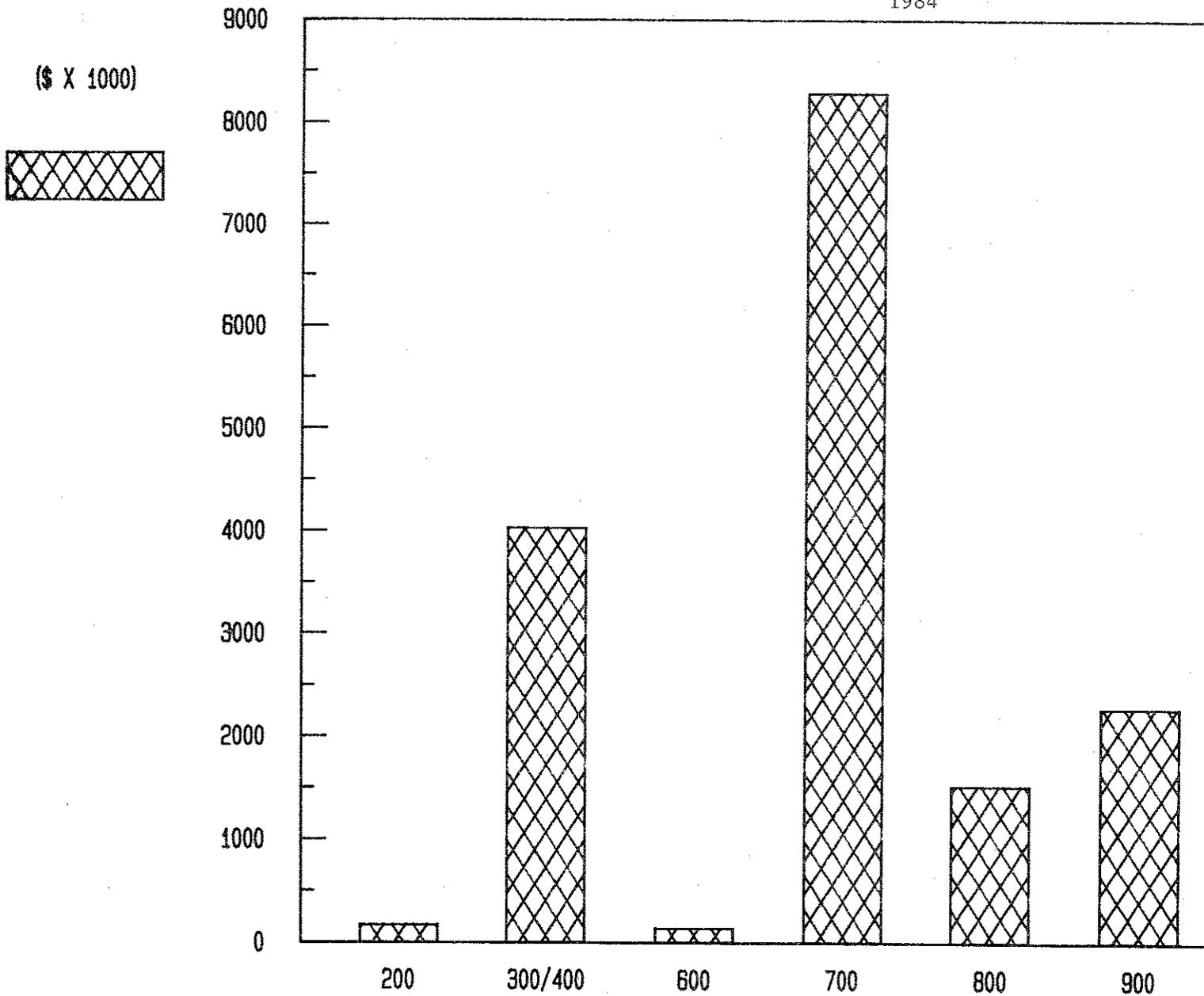
BPA DIVISION OF FISH & WILDLIFE
NUMBER OF PROJECTS
1978 - 1984



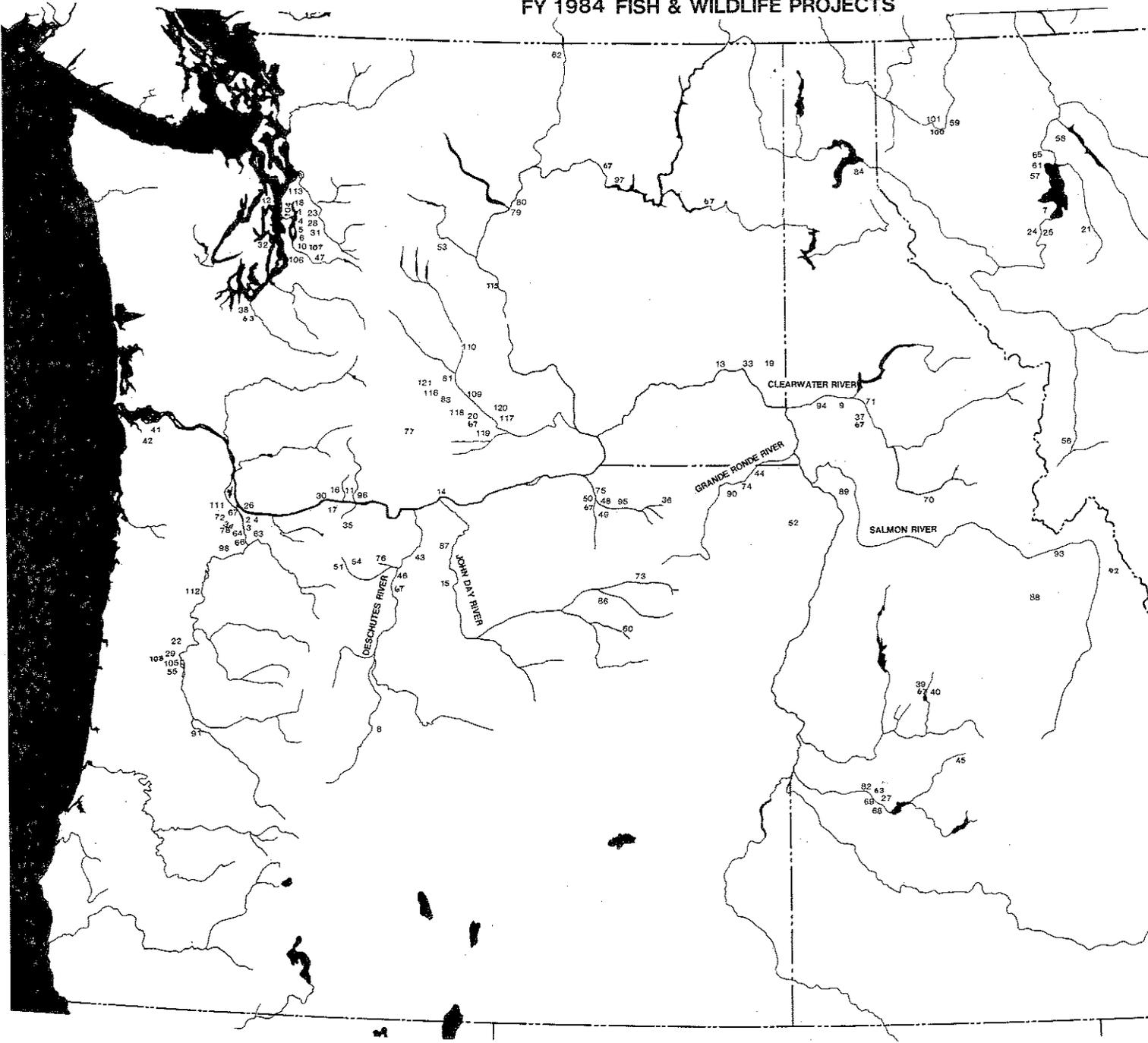
DISTRIBUTION OF PROJECT FUN

BPA DIVISION OF FISH AND WILDLIFE

1984



FY 1984 FISH & WILDLIFE PROJECTS



1983 FISH AND WILDLIFE PROJECTS

<u>Map Location</u>	<u>Project Number</u>	<u>COTR</u>	<u>Agency</u>	<u>Project Title</u>
1	78-1	Tom Vogel	NMFS Emil Slattick Seattle, WA	Imprinting of Hatchery-Reared Salmon and Steelhead Trout for Homing of Transported Fish.
2	79-2	Gerry Bouck	NMFS Bill Gordon Portland, OR	An Evaluation of the Contribution of Chinook Salmon Reared at Columbia River Hatcheries to the Pacific Salmon Fisheries
3	79-4	Larry Everson	ODFW Bob Lindsay Portland, OR	Study of Wild Spring Chinook in the John Day River
4	80-1	Dick Harper	PMFC Larry Six Portland, OR	Coordination of Smolt Monitoring
5	81-1	Tom Vogel	NMFS Carl Sims Seattle, WA	Flow and Spill Requirements for Juvenile Fall and Summer Chinook Salmon in John Day Reservoir
6	81S-2	Dick Harper	NMFS Wes Ebel Seattle, WA	Migrational Characteristics of Juvenile Salmonids in the Columbia River Estuary
7	81S-5	Tom Vogel	MDFWP Pat Graham Helena, MT	Effects of Operation of Kerr and Hungry Horse Dam on Reproductive Success of Kokanee in the Flathead System
8	81S-8	Tom Vogel	Warm Springs Tribes Terry Luther Madras, OR	Establishment of Baseline Information for the Warm Springs Indian Reservation
9	82-1	Tom Vogel	Nez Perce Tribes Jim Johnson Lapwai, ID	A Biological and Physical Inventory of the Streams Within the Nez Perce Reservation

<u>Map Location</u>	<u>Project Number</u>	<u>COTR</u>	<u>Agency</u>	<u>Project Title</u>
10	82-2	Tom Vogel	NMFS Emil Slatick Seattle, WA	Use of a Fish Transportation Barge for Increasing Returns of Steelhead Trout Imprinted for Homing
11	82-3	Dale Johnson	USFWS Gerry Gray Cook, WA	Feeding Activity, Rate Consumption, Daily Ration, and Prey Selection of Major Predators in the John Day Reservoir Pool
12	82-4	K. Anderson	USFWS Gary Wedemeyer Seattle, WA	Development of an Effective Transport Media for Juvenile Chinook Salmon
13	82-7	Dick Harper	NMFS Lee Harrell Seattle, WA	Snake River Fall Chinook Brood Program
14	82-8	Tom Vogel	NMFS Carl Sims Seattle, WA	Smolt Passage Behavior and Flow Net Relationships in the Forebay of John Day Dam
15	82-9	Larry Everson	ODFW Bob Lindsay Portland, OR	Habitat Evaluation: John Day River
16	82-11	Gerry Bouck	USFWS Bill Nelson Cook, WA	Bioenergetics of Juvenile Salmon During the Spring Outmigration
17	82-12	Dale Johnson	ODFW Tony Nigro Portland, OR	Estimate Abundance and Growth Characteristics of Squawfish and Walleye in John Day Reservoir and Tailrace
18	82-13	Dick Harper	PMFC Larry Six Seattle, WA	Coded Wire Tag Sampling
19	82-14	Tom Vogel	WSU Jack Orsborn Pullman, WA	Development of New Concepts in Fish Ladder Design
20	82-16	Tom Vogel	Yakima Tribes Lynn Hatcher Toppenish, WA	Natural Production Assessment and Rehabilitation of Spring Chinook in the Yakima River

Map Location	Project Number	COTR	Agency	Project Title
21	82-19	Larry Everson	MDFWP Steve Leathe Kalispell, MT USFS Mike Enk Kalispell, OR	Cumulative Impact Study of Microhydro Sites, Swan River
22	82-20	Gerry Bouck	OSU JoAnn Leong Corvallis, OR	Rapid Diagnosis of IHN Virus
23	82-21	Gerry Bouck	USFWS Dan Mulcahy Seattle, WA	Control & Development of Hatchery Practices & Antiviral Drugs to IHN Virus in Sockeye, Chinook Salmon, and Steelhead Trout.
24	83-1	Tom Vogel	Salish/ Kootenai Tribes Jim Paro Pablo, MT	Lower Flathead River Fisheries Study
25	83-2	Jim Meyer	Salish/ Kootenai Tribes Jim Paro Pablo, MT	Impact of Water Levels on Canada Geese
26	83-6	Tom Clune	USFWS Vancouver, WA	Fish Tagging Trailer Operation & Maintenance
27	83-7	Larry Everson	IDFG Herb Pollard Boise, ID	Offsite Mitigation Credit
28	83-304	K. Anderson	USFWS Dan Mulcahy Seattle, WA	Development of a Rapid Serodiagnostic Test for the Detection, Surveillance, and Diagnosis of Five Important Pathogens of Fishes in the Columbia River Basin
29	83-312	Gerry Bouck	OSU John Fryer Corvallis, OR	Epidemiology and Control of Infection Disease of Salmonids in the Columbia River Basin

<u>Map Location</u>	<u>Project Number</u>	<u>COTR</u>	<u>Agency</u>	<u>Project Title</u>
30	83-313	Tom Clune	USFWS Bill Nelson Cook, WA	Pen Rearing and Imprinting of Fall Chinook Salmon
31	83-316	Dale Johnson	UW Ernest Brannon Seattle, WA	Columbia River White Sturgeon Enhancement
32	83-319	Dick Harper	NMFS Earl Prentice Seattle, WA	Biological Feasibility of a New Fish Tagging System
33	83-323	Tom Vogel	IDFG Dave Ortman Boise, ID	Smolt Condition and Timing of Arrival at Lower Granite Reservoir
34	83-335	Larry Everson	ODFW Dennis Scarneccia Portland, OR	Stock Assessment of Anadromous Salmonids of Columbia River Basin
35	83-341	Dale Johnson	ODFW Jim Newton Portland, OR	Hood River Passage
36	83-345	Tom Vogel	Umatilla Tribes Elwood Patawa Pendleton, Oregon	Minthorn Springs Steelhead Facility
37	83-350	Tom Vogel	Nez Perce Tribes Jim Johnson Lapwai, ID	Low Technology Fisheries Facilities
38	83-353	Gerry Bouck	FMC Harry Senn Olympia, WA	Low Cost Salmon and Steelhead Production Systems for the Columbia River Basin
39	83-357	(Combined with 83-359)		
40	83-359	Dale Johnson	Shoshone/ Bannock Tribes Rick Konopacky Fort Hall, ID	Rehabilitate and Protect Critical Anadromous Salmonids Spawning and Rearing Habitat in Bear Valley Creek

<u>Map Location</u>	<u>Project Number</u>	<u>COTR</u>	<u>Agency</u>	<u>Project Title</u>
41	83-363	Tom Clune	OSU-Seafoods Lab David Crawford Astoria, OR	Development for Rations for the Enhanced Survival of Salmon
42	83-364	Tom Clune	CEDC Jim Hill Astoria, OR	Evaluation of Low-Cost Salmon Production Facilities
43	83-373	Dale Johnson	Buell Jim Buell Beaverton, OR	Deschutes River Spawning Gravel and Degradation Study and Rehabilitation Plan
44	83-392	Larry Everson	FS Wallowa- Whitman Mike Leonard Baker, OR	Peavine Creek Spawning Habitat Improvement
45	83-415	Dale Johnson	FS Sawtooth Harvey Forsgren Twin Falls, ID	Alturas Lake Creek Flow Augmentation
46	83-423	Dale Johnson	N.W. Bio Scott English Ashland, OR	Trout Creek Riparian Habitat Restoration
47	83-428	Dale Johnson	Rulifson Bob Rulifson Seattle, WA	Investigation of the Process for Registration of Squoxin for Control of Squawfish
48	83-434	Tom Vogel	COE Dale Smelcer Walla Walla, WA	Lower Umatilla River Channel Modifications to Allow Restoration of Upriver Bright Fall Chinook and Enhance Summer Steelhead Production in the Umatilla River Basin
49	83-435	Tom Vogel	Umatilla Tribes Elwood Patawa Pendleton, OR	Umatilla Release, Collection, and Holding Facilities
50	83-436	Tom Vogel	Bureau of Reclamation Larry Vinsenholer Boise, ID	Modification of Three Mile Dam to Improve Adult Salmon and Steelhead Passage in the Lower Reaches of the Umatilla River
51	83-440	Larry Everson	ODFW Robert Lindsay Portland, OR	White River Fisheries Habitat Inventory

<u>Map Location</u>	<u>Project Number</u>	<u>COTR</u>	<u>Agency</u>	<u>Project Title</u>
52	83-441	Larry Everson	ODFW Ken Witty Enterprise, OR	Develop Brood Stock of Native Snake River Coho Salmon
53	83-446	Larry Everson	OTT Water Ron Ott Bellevue, WA	Tumwater Falls and Dryden Dam Fish Passage
54	83-450	Larry Everson	OTT Water Ron Ott Bellevue, WA	White River Falls Fish Passage Project
55	83-451	Gerry Bouck	OSU Carl Schreck Corvallis, OR	Stock ID of Columbia River Chinook and Steelhead
56	83-463	Greg Draiss	MDFWP Dennis Workman Missoula, MT	Evaluation of Water Releases at Painted Rocks Reservoir
57	83-464	Jim Meyer	MDFWP Arnie Olsen Helena, MT	Evaluation of the Effects on Wildlife and Wildlife Habitat Associated with Development of Hydroelectric Projects in Montana
58	83-465	Jim Meyer	MDFWP Pat Graham Helena, MT	Quantification of Hungry Horse Reservoir Levels Needed to Maintain or Enhance Reservoir Fisheries
59	83-467	Jim Meyer	MDFWP Pat Graham Helena, MT	Quantification of Libby Reservoir Levels Needed to Maintain or Enhance Reservoir Fisheries
60	83-473	Larry Everson	BLM Burns Ron Wiley Burns, OR	Cottonwood Creek Summer Steelhead Habitat Improvement
61	83-476	Jim Meyer	USFWS Larry Peterson Kalispell, MT	Montana Waterfowl Habitat Enhancement
62	83-477	Larry Everson	IEC Beak M. L. Fanning Richmond, B.C.	Similkameen River Salmon Habitat Inventory

<u>Map Location</u>	<u>Project Number</u>	<u>COTR</u>	<u>Agency</u>	<u>Project Title</u>
63	83-478	Jim Meyer	WDG Jack Howerton Olympia, WA USFWS Dick Giger Portland, OR ODFW Dan Carlson Portland, OR IDFG Ralph Pehrson Boise, ID	Status Report on Wildlife Mitigation at Columbia Basin Hydroelectric Projects
64	83-491	Dick Harper	CRITFC Mal Karr Portland, OR	Water Budget Manager
65	83-498	Jim Meyer	MDFWP Arnie Olsen Helena, MT	Impacts of Water Level Fluctuations on Canada Geese; Flathead River Valley, Montana
66	83-536	Dick Harper	PMFC Mark Maher Portland, OR	Water Budget Manager
67	83-801 83-802 83-803 83-804 83-805 83-806 83-807 83-808 83-809	Tom Clune	Colville Tribe Spokane Tribes Nez Perce Tribe Yakima Indian Nation Warm Springs Tribes Umatilla Tribes Shoshone-Bannock Tribes Shoshone-Piute Tribes CRITFC	Anadromous Fish Program Goals
68	84-1	Tom Clune	Bureau of Reclamation Dennis Hudson Boise, ID	Pre-design Studies: Yakima Basin Projects
69	84-2	Gerry Bouck	IDFG Dave Ortman Boise, ID	Protection of Wild Steelhead In the Upper Snake River, Idaho

<u>Map Location</u>	<u>Project Number</u>	<u>COTR</u>	<u>Agency</u>	<u>Project Title</u>
70	84-5	Larry Everson	FS Nez Perce Rick Stowell Grangeville, ID	Red River/Crooked River Fish Passage Habitat Improvement
71	84-6	Larry Everson	FS Clearwater Al Espinosa Orofino, ID	Clearwater Habitat Enhancement (Lolo, Crooked Fork, & El Dorado Creeks) Idaho
72	84-7	Dale Johnson	USSCS Jim Cornwell Portland, OR	Coordination of Trout Creek Riparian Restoration
73	84-8	Larry Everson	FS Umatilla John Andrews Portland, OR	John Day Habitat Enhancement (Clear, Granite, North Fork) Oregon
74	84-9	Larry Everson	FS Wallowa- Whitman Rod Miller Baker, OR	Grande Ronde Habitat Enhancement (Joseph, Peavine, Elk & Chesnimus Creeks) Oregon
75	84-10	Tom Vogel	ODFW Rich Berry Portland, OR	Comprehensive Plan for the Restora- tion of Salmon and Steelhead in the Umatilla River Basin
76	84-11	Larry Everson	FS Mt. Hood Dave Heller Gresham, OR	Habitat Enhancement: Collawash Falls, White River, Fish & Lake Branch Creeks
77	84-12	Tom Clune	Hosey & Ass. Harry Hosey Bellevue, WA	Cost Determination For Fish Screen Construction, Sunnyside, Wapato, & Topponish Creek/Satus Unit (Yakima Basin)
78	84-13	Dick Harper	COE (North Pacific Division) Herbert Kennon Portland, OR	Dissolved Gas Model
79	84-14	Dick Harper	NMFS Carl Sims Seattle, WA	Smolt Monitoring at Federal Hydroelectric facilities
80	84-15	Dick Harper	Bjasonics John Ehrenberg Seattle, WA	Hydroacoustic Monitoring of Downstream Migrating Salmon at Wells Dam
81	84-16	Dick Harper	Washington Dept. of Game Charles Morrill Olympia, WA	Freeze Branding of Steelhead for Water Budget Studies--Yakima

<u>Map Location</u>	<u>Project Number</u>	<u>COTR</u>	<u>Agency</u>	<u>Project Title</u>
82	84-17	Dick Harper	IDFG John Coon Boise, ID	Freeze Branding of Salmon and Steel-head for Water Budget Studies--Idaho
83	84-18	Tom Clune	Sunnyside Valley Irrigation Dist. Jim Trull Sunnyside, WA	Design Data - Fish Screen Final Design, Sunnyside (Yakima Basin)
84	84-19	Dale Johnson	IDFG Monte Richards Boise, ID	Design and Costruct a Fish Hatchery to Supplement the Declining Fishery in Lake Pend Orielle
85	84-20	Dale Johnson	TBA	Assessment of Basic Sturgeon Information
86	84-21	Larry Everson	ODFW Errol Claire John Day, OR	John Day Habitat Enhancement (Main Stem, Middle Fork), Oregon
87	84-22	Larry Everson	FS Malheur Brady Green John Day, OR	John Day Habitat Enhancement (East Fork Beech Creek, Canyon, Big Boulder Granite Boulder Creeks), Oregon
88	84-23	Larry Everson	FS Salmon Bruce May Salmon, ID	Camas Creek, Idaho Habitat Enhancement
89	84-24	Larry Everson	FS Region IV Don Duff Ogden, UT	Upper Salmon and Middle Fork River Habitat Enhancement (Marsh, Elk Creeks)
90	84-25	Larry Everson	ODFW Ken Witty Portland, OR	Grande Ronde River Habitat Enhancement
91	84-26	Larry Everson	TBA	Fish Passage on Little Falls Creek, Willamette River, Oregon
92	84-28	Larry Everson	TBA	Lemhi River Habitat Rehabilitation, Idaho
93	84-29	Larry Everson	TBA	Panther Creek Habitat Rehabilitation, Idaho
94	84-31	Larry Everson	FS Region I Don Barthe Missoula, MT	Habitat Improvement Clearwater Basin

<u>Map Location</u>	<u>Project Number</u>	<u>COTR</u>	<u>Agency</u>	<u>Project Title</u>
95	84-33	Tom Vogel	ODFW Larry Korn Portland, OR	Umatilla River Summer Steelhead Hatchery--Feasibility Study
96	84-34	Tom Vogel	USFWS Curt Burley Vancouver, WA	John Day Acclimation Pond, Phase I-- Feasibility Study
97	84-35	Jim Meyer	WDG Jack Howerton	Wildlife and Wildlife Habitat Loss Assessment for Grand Coulee Dam
98	84-36	Jim Meyer	ODFW Mike Weland Portland, OR	Wildlife and Wildlife Habitat Loss Assessment for the Willamette River Projects
99	84-37	Jim Meyer	IDFG Lou Nelson Boise, ID	Wildlife and Wildlife Habitat loss Assessment for Palisades Dam
100	84-38	Jim Meyer	FS Region I Alan Christenson Libby, MT	Ural-Tweed Bighorn Sheep - Wildlife Mitigation Project
101	84-39	Jim Meyer	MDFWP Arnie Olson Helena, MT	Ural-Tweed Bighorn Sheep - Wildlife Mitigation Project
102	84-40	Steve Smith	TBA	Critical Habitat Methodology
103	84-41	Steve Smith	TBA	Cumulative Effects Methodology
104	84-42	Tom Vogel	NMFS Ken Liscom Seattle, WA	Evaluate Sources of Loss of Adult Salmon Between Bonneville and McNary Dams (Parts and Development of Radio Tags)
105	84-43	Gerry Bouck	OSU JoAnn Leong Corvallis, OR	Development of a Subunit Vaccine Against Infectious Hematopoietic Necrosis (IHN) Virus
106	84-44	Gerry Bouck	USFWS TBA	Etiology of Early Lifestage Diseases
107	84-45	Gerry Bouck	USFWS TBA	Influence of Nutrition on the Immune Response Hatchery Reared Salmonids (Ceratomyxosis, Kidney Disease and Furunculosis)

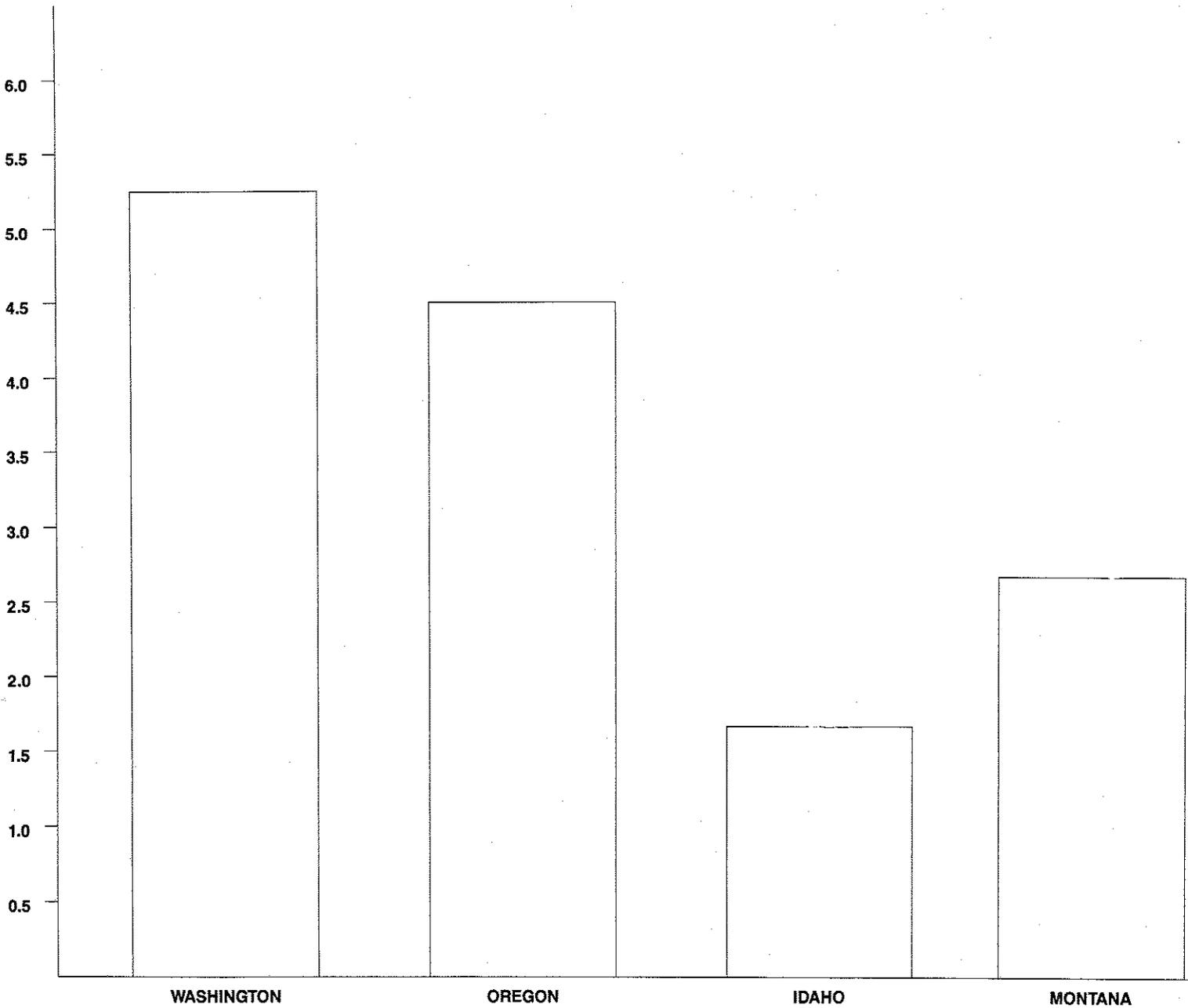
<u>Map Location</u>	<u>Project Number</u>	<u>COTR</u>	<u>Agency</u>	<u>Project Title</u>
108	84-46	Gerry Bouck	OSU John Rohovec Covallis, OR	Evaluate Vaccines for Bacterial Kidney Disease in Salmon
109	84-47	Tom Clune	U.S. Bureau of Reclamation Dennis Hudson Boise, ID	Final Design, Fish Screens & Ladders: Horn Rapids, Sunnyside & Wapato (Yakima Basin)
110	84-48	Tom Clune	U.S. Bureau of Reclamation Dennis Hudson Boise, ID	Pre-design for the Construction of Renovations to Satus Creek, Upper Toppenish Creek, Marion Drain, Taneum, Snipes/Allen Canal, Westside Ditch, Thorpe, Ellensburg Town Diversion, and Stevens Ditch (Yakima Basin)
111	84-49	Stan Detering	Resources for the Future Allen Kneese Portland, OR	Process for Determining the Adminis- trator's Obligation for Mitigation of Fish & Wildlife
112	84-50	Larry Everson	ODFW Max Smith Eugene, OR	Willamette River Spring Chinook Study
113	84-51	Gerry Bouck	GAIA Percy Washington Bothell, WA	Survey of Artificial Production of Salmonids in Columbia River
114	84-52	Gerry Bouck	TBA	Workshop on Smoltification Research
115	84-54	Dick Harper	Chelan Co. PUD Dick Nason Wenatchee, WA	Juvenile Salmonid Monitoring at Rock Island Dam Bypass Sampler
116	84-55	Tom Clune	Sunnyside Irrigation District James Trull Sunnyside, WA	Sunnyside Screen Construction (Yakima Basin)
117	84-56	Tom Clune	WDF John Easterbrook Yakima, WA	Horn Rapids Screen Construction (Yakima Basin)

<u>Map Location</u>	<u>Project Number</u>	<u>COTR</u>	<u>Agency</u>	<u>Project Title</u>
118	84-57	Tom Clune	U.S. Bureau of Reclamation Dennis Hudson Boise, ID	Wapato Screen & Ladder Construction (Yakima Basin)
119	84-58	Tom Clune	U.S. Bureau of Reclamation Dennis Hudson Boise, ID	Toppenish Creek/Satus Unit Screens & Ladder Construction (Yakima Basin)
120	84-60	Tom Clune	U.S. Bureau of Reclamation Dennis Hudson Boise, ID	Horn Rapids Screen Construction (Yakima Basin)
121	84-61	Tom Clune	U.S. Bureau of Reclamation Dennis Hudson Boise, ID	Sunnyside Ladder and Old Reservation Canal Screen Construction

BPA DIVISION OF FISH & WILDLIFE

DISTRIBUTION OF PROJECT FUNDS BY STATES

1984

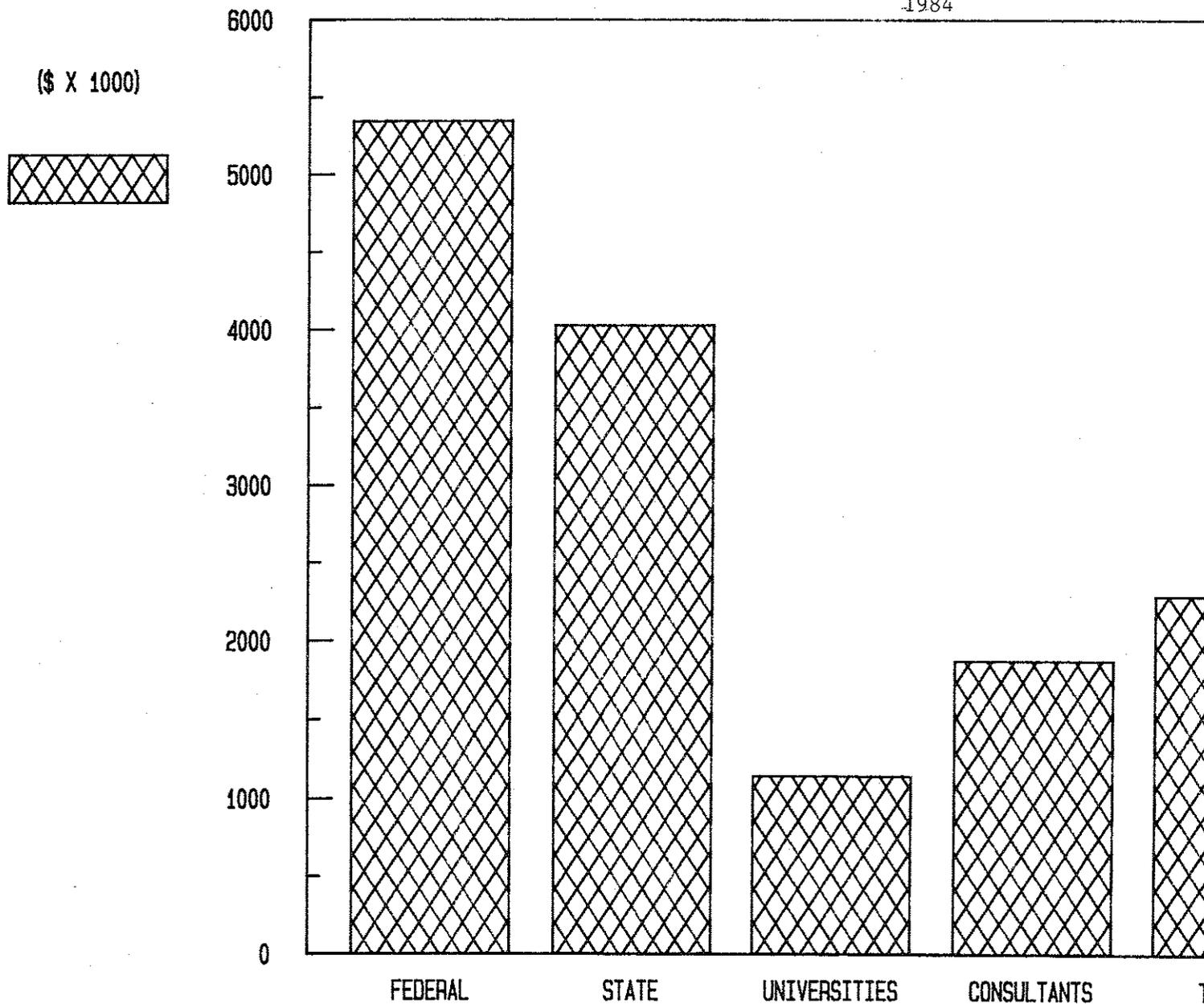


COST (MILLION \$)

DISTRIBUTION OF PROJECT FUNDS

BPA DIVISION OF FISH AND WILDLIFE

1984



BY ORGANIZATION

BONNEVILLE POWER ADMINISTRATION

Office of Power Resources Management
Division of Fish & Wildlife

Director: John R. Palensky

Office of The Director (PJ)

Marge Sweet, Secretary	x4981
Sharon Blair, Public Affairs Specialist	x5200
John Kelly, Program Analyst	x5210

Systems Integration Branch (PJI)

Steve Smith, Chief	
Neva Boyles, Secretary	x4978
Stan Detering, Industry Economist	x5206
Dick Harper, Hydro Operations Biologist	x5204
Dale Johnson, Fishery Biologist	x3111
Lee Miller, Public Utilities Specialist	x4979
Brad Thomas, Computer Analyst	x5208

Biological Studies Branch (PJS)

Greg Drais, Chief	
Marcella O'Riley, Secretary	x5549
Kathy Anderson, Fishery Biologist	x5495
Gerry Bouck, Senior Biologist	x5199
Dayna Brinkman, Clerk-typist	
Tom Clune, Program Analyst	x5496
Larry Everson, Fishery Biologist	x5497
Kevin Ward, Environmental Specialist	x5213
Jim Meyer, Wildlife Biologist	x5885
Vetta Uraine, Contracts and Budget Assistant	x5201
Tom Vogel, Fishery Biologist	x5239
Altrina Walker, Student Aide	x4982

**BPA DIVISION OF FISH & WILDLIFE STAFFING LEVELS
1978 - 1984**

