



ALBERT D. ROSELLINI
GOVERNOR

STATE OF WASHINGTON
Department of Conservation

335 GENERAL ADMINISTRATION BUILDING
OLYMPIA

DIVISIONS:
RECLAMATION
FLOOD CONTROL
WATER RESOURCES
MINES AND GEOLOGY
COLUMBIA BASIN PROJECT
POWER RESOURCES
WEATHER MODIFICATION
SOIL & WATER CONSERVATION
COMMITTEE

December 8, 1964

*W. H. Ted Robertson, Publisher
Yakima Morning Herald
Yakima, Washington*

Dear Mr. Robertson:

I am pleased to provide the enclosed copy of the Biennial Report of the Department of Conservation for the period July 1, 1962 to June 30, 1964.

I particularly invite your attention to proposed legislation commencing on page 52 to 58 inclusive and pages 101 to 103 inclusive.

The watermaster and fee bills are explainable, briefly, as being adjuncts needed to administer the present water laws.

The registration and forfeiture bills are new proposals, and are deeply vital for the progress and economy of our State. There are movements under way to take water from Washington for use in other Western States. We are in no position now to state how much of our water, if any, is excess to our needs. There are two basic causes for this deficiency; our water codes do not provide for:

- a. Recording of all claimed water rights; or*
- b. Extinguishment of abandoned or unused water rights.*

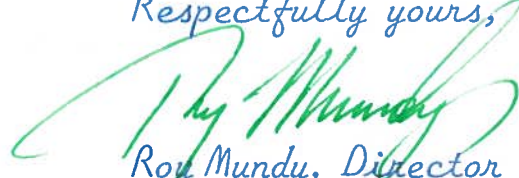
It is the purpose of these two bills to establish authority to correct these deficiencies in our State water codes.

The compilation of these data would be time-consuming projects, completion of which would be necessary before the State could be in a position to contest, with any certainty of success any action aimed at appropriation of our waters by outside agencies.

A secondary, but no less important, result of this legislation would be the establishment of means by which the proper management of our State water resources could be accomplished.

If we can be of any further service, please advise.

Respectfully yours,



Roy Mundy, Director
Department of Conservation

RM:fg

1 enc.

[Enclosure. 8 Dec 64]

State of Washington
ALBERT D. ROSELLINI, Governor

Twenty-Second Biennial Report

of the

DEPARTMENT OF CONSERVATION

(Including also the reports of the Columbia Basin
Commission, the State Soil and Water Con-
servation Committee and the State
Canal Commission)

July 1, 1962 – June 30, 1964



ROY MUNDY
Director

State of Washington
ALBERT D. ROSELLINI, *Governor*

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ROY MUNDY
Director

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LETTER OF TRANSMITTAL

Department of Conservation

Olympia, Washington
July 1, 1964

To: Honorable Albert D. Rosellini
Governor of the State of Washington.

Sir:

I submit herewith, in accordance with the law, the Twenty-Second Biennial Report of the Department of Conservation covering the period from July 1, 1962 to June 30, 1964. Included herein are reports of the Columbia Basin Commission, the State Soil and Water Conservation Committee, and the State Canal Commission.

Respectfully,
ROY MUNDY, Director

FOREWORD

This twenty-first biennial report covers the period from July 1, 1962 to June 30, 1964.

The Department of Conservation and Development consists of eight divisions or code-specified functions and is headed by a director appointed by the Governor. The eight categories of activity are Division of Mines and Geology, Division of Power Resources, Division of Flood Control, Division of Reclamation, Division of Water Resources, Columbia Basin Commission, State Weather Modification Board, and State Soil and Water Conservation Committee.

The primary objective of the department is to develop a master plan of utilization of the state's water and mineral and geological resources. Such a program is directed, by law, to promote the economical and orderly development of the natural, agricultural and industrial resources of the state.

The director serves as chairman of the Columbia Basin Commission, the Pollution Control Commission, the State Weather Modification Board, and the State Canal Commission established by the 1961 Legislature. He is also an ex-officio member of the State Soil and Water Conservation Committee and a member of the Power Advisory Committee, Interstate Oil Compact Commission, the State Oil and Gas Conservation Committee and the State Administrative Board.

As the principal water resources development agency of the state, the policy decisions formulated by the director have a direct relationship to regional and national resource planning activities.

A major means of implementing such policy decisions lies in developing the state's views through the various federal agencies of the Department of the Interior, Department of Health, Education and Welfare, Department of the Army and Department of Agriculture on related water and land resource programs.

The department has taken the lead through the Columbia Basin Inter-Agency Committee in seeking stronger coordination between the states and federal agencies of the region in all phases of resource planning.

A main goal of the state has been to increase the effectiveness of the Columbia Basin Inter-Agency Committee. The C. B. I. A. C. is composed of the seven states in the Basin (Washington, Oregon, Idaho, Montana, Wyoming, Utah and Nevada) and the seven federal agencies active in this field. These agencies include the Department of the Interior, Army Corps of Engineers, Department of Agriculture, Department of Health, Education and Welfare, Department of Commerce, Department of Labor and the Federal Power Commission.

Members of the department participate actively on such C. B. I. A. C. technical groups as the power, hydrology, water management and coordinated planning subcommittees. The director serves as a member of the C. B. I. A. C. executive subcommittee.

The type of strong, direct-line authority from the Governor received by the department has been demonstrated as far superior to proposals to establish special-interest commission forms of operation in the water resource field.

Budget requests will be presented to the 1965 session of the Legislature representing a continued emphasis on code functions which have been critically under-financed in the past. Requests will be made for continuing programs, especially water resource and mineral resource surveys, which are vitally needed for orderly development of the natural, economic and industrial resources of the state. Such basic information has not been compiled previously and is especially needed for the work in industrial expansion being conducted by the Department of Commerce and Economic Development.

ROY MUNDY

DIVISION OF RECLAMATION

Biennial Report July 1, 1962 to June 30, 1964

JOHN A. RICHARDSON, Supervisor

Major activities of the Division of Reclamation during the biennium continued to concern administration of the State Reclamation Revolving Fund and assistance to irrigation, diking, drainage and other reclamation districts of the state.

During the two-year period ending June 30, 1964, the revolving fund account showed an increase of \$38,641.60, placing assets of the fund at \$3,011,952.29. Bond payments of all districts are current and many have paid several years in advance, reflecting the generally stable condition of the reclamation districts of the state.

For the biennium, agreements were made for bond purchases with districts, as follows:

County	District	Date	Amount
Klickitat	North Dalles Irrigation District	10-31-62	\$50,000
Klickitat	White Salmon Irrigation District	10-31-62	\$50,000
Whatcom	Whatcom County Drainage Imp. District		
	No. 25	4-20-63	\$22,000
Skagit	Drainage District No. 19	9-1-63	\$70,000

Development of new irrigation areas in the state continued to proceed with continuing construction of the federal Greater Wenatchee Project in Douglas and Chelan Counties.

During the biennium, construction was started on the re-authorized Spokane Valley Project and the definite plan was completed on the Oroville-Tonasket Project.

Authorization legislation for the Whitestone Coulee Project rehabilitation was passed by the United States Senate. Bills also were before the Congress during the biennium to authorize the Chelan and Kennewick Extension Projects. At the close of the period, the report of the Secretary of the Interior on the Touchet Project also was awaited.

To carry out local responsibilities in connection with the Spokane Valley Project Consolidated Irrigation District No. 18 was organized. Similarly, Touchet Valley Irrigation District No. 16 for support of the proposed project in Walla Walla and Columbia Counties was formed during the biennium.

RECLAMATION REVOLVING ACCOUNT

Table No. 1—Comparative Statement of Assets
June 30, 1962 and June 30, 1964

ASSETS:	June 30, 1962	June 30, 1964
Cash on Hand with State Treasurer.....	\$1,047,107.34	\$1,097,328.79
Bonds on Hand with State Treasurer.....	1,746,969.20	1,725,339.20
Advances to Districts (unsecured).....	179,234.15	189,284.30
	<u>\$2,973,310.69</u>	<u>\$3,011,952.29</u>
Increase in period ending June 30, 1964.....	38,641.60	
	<u>\$3,011,952.29</u>	<u>\$3,011,952.29</u>

Table No. 2—General Ledger Trial Balance
For Year Ending June 30, 1964

	Debits	Credits
Cash, State Treasurer.....	1,097,328.79	
Bond Investments.....	1,725,339.20	
Advances to Districts.....	189,284.30	
Reclamation Revolving Account.....		\$2,987,262.05
Bond Interest Income.....		45,170.94
Interest Earned on Advances.....		4,878.49
Miscellaneous Revenue.....		11,418.96
Revenue from Sale of Yelm Irrigation Assets.....		382.11
Power License Fees.....		109,767.46
Other Appropriation Expenditures.....	146,927.72	
TOTALS.....	<u>\$3,158,880.01</u>	<u>\$3,158,880.01</u>

Table No. 3—Profit and Loss Statement

Reclamation Revolving Account, July 1, 1962.....		\$2,973,310.69
Income: Bond Interest Income.....	\$ 86,821.43	
Interest Earned on Advances to Districts.....	8,407.77	
Miscellaneous Revenue.....	11,354.05	
Revenue from Sale of Yelm Irrigation Dist. Assets..	2,011.06	
Power License Fees.....	199,953.73	
Investments—Profits.....		308,548.04
		<u>\$3,281,858.73</u>
Expense: Appropriation Expenditures.....	\$ 269,906.44	269,906.44
Reclamation Revolving Account, June 30, 1964.....		<u>\$3,011,952.29</u>

Table No. 4—Assets

Cash, State Treasurer.....	\$1,097,328.79
Reclamation District Bonds (Book and Par Value).....	1,725,339.20
Advances to Districts.....	189,284.30
TOTAL.....	<u>\$3,011,952.29</u>

Table No. 5—Reclamation Revolving Account
Bonds on Hand June 30, 1964

County	District	Par and Book Value	Interest Rate
Chelan	Beehive Irrigation District.....	\$ 35,000.00	2%
Kittitas	Cascade Irrigation District.....	40,000.00	3%
Clark	Clark County Drainage Improvement District No. 5	39,000.00	3%
Clark	Clark County Drainage Improvement District No. 11	2,000.00	3%
Clark	Clark County Drainage Improvement District No. 12	2,000.00	3%
Clallam	Cline Irrigation District.....	14,000.00	1½%
Cowlitz	Drainage Improvement District No. 1.....	55,000.00	3%
Walla Walla	Gardena Farms Irrigation District No. 13.....	179,500.00	3%
Benton	Kennewick Irrigation District.....	3,000.00	3%
Okanogan	Methow Valley Irrigation District.....	40,000.00	1%
Spokane	Model Irrigation District.....	14,400.00	3%
Spokane	Model Irrigation District No. 18.....	64,000.00	3%
Yakima	Naches-Selah Irrigation District.....	447,000.00	3%
Yakima	Naches-Selah Irrigation District, L.I.D. No. 2. P.H.	4,000.00	3%
Klickitat	North Dalles Irrigation District.....	48,000.00	3%
Okanogan	Oroville-Tonasket Irrigation District (Refunding)...	21,000.00	1%
Okanogan	Oroville-Tonasket Irrigation District.....	4,000.00	1%
Douglas	Palisades Irrigation District.....	40,500.00	3%
Okanogan	Pateros Irrigation District.....	8,800.00	3%
Pierce	Drainage District No. 10.....	1,569.20	3%
Skagit	Drainage District No. 19.....	70,000.00	3%
Snohomish	Diking District No. 1.....	7,000.00	2%
Snohomish	Drainage District No. 6.....	7,500.00	3%
Franklin	South Columbia Basin Irrigation District, L.I.D. No. 1.....	750.00	3%
Spokane	Spokane Valley Irrigation District (Refunding)....	121,500.00	2%
Spokane	Spokane Valley Irrigation District (General).....	136,500.00	2%
Spokane	Stemilt Irrigation District.....	40,500.00	1½%
Chelan	Stemilt Irrigation District.....	38,000.00	3%
Benton	Sunnyside Irrigation District.....	36,500.00	2%
Spokane	Vera Irrigation District.....	4,000.00	3%
Whatcom	Drainage Improvement District No. 15.....	3,000.00	3%
Whatcom	Drainage Improvement District No. 25.....	20,000.00	3%
Klickitat	White Salmon Irrigation District.....	48,000.00	3%
Okanogan	Whitestone Reclamation District (January 1, 1949)...	19,250.00	2%
Okanogan	Whitestone Reclamation District (January 1, 1948)...	28,000.00	2%
Okanogan	Wolf Creek Reclamation District (January 1, 1948)...	36,000.00	1%
Okanogan	Wolf Creek Reclamation District (January 1, 1954)...	19,000.00	3%
Yakima	Yakima-Tieton Irrigation District, L.I.D. No. 2....	27,000.00	3%

TOTAL PAR VALUE..... \$1,725,269.20

Total Book Value — \$1,725,339.20

Table No. 6—Advances to Districts—June 30, 1964

County	District	Date Contract	Amount Due	Interest Rate
Benton	Diking District No. 1.....	Dec. 31, 1959	\$ 35,541.00	3%
Clallam	Cline Irrigation District.....	Dec. 15, 1961	1,928.50	3%
Cowlitz	Consolidated Diking Imp. Dist. No. 3.....	Aug. 25, 1961	11,165.00	3%
Douglas	Greater Wenatchee Irr. Dist. L.I.D. #1.....	Sept. 5, 1962	18,611.28	3%
Douglas	Greater Wenatchee Irr. Dist. L.I.D. #2.....	Apr. 26, 1963	8,034.43	3%
Douglas	Greater Wenatchee Irr. Dist. L.I.D. #3.....	Apr. 26, 1963	2,271.73	3%
Douglas	Greater Wenatchee Irr. Dist. L.I.D. #4.....	Apr. 26, 1963	45,894.74	3%
Douglas	Greater Wenatchee Irr. Dist. L.I.D. #5.....	Nov. 6, 1963	48,368.65	3%
Douglas	Greater Wenatchee Irr. Dist. L.I.D. #6.....	Nov. 6, 1963	10,182.87	3%
Snohomish	Diking District No. 2.....	Mar. 5, 1963	4,350.00	3%
Chelan	Wenatchee-Chewawa Irrigation District.....	July 3, 1956	2,936.10	3%

TOTAL..... \$189,284.30

LETTER OF TRANSMITTAL
COLUMBIA BASIN COMMISSION
of the
STATE OF WASHINGTON

To the Governor and the Legislature
of the State of Washington.

Sirs:

Respectfully submitted herewith is the 1962-64 biennium in compliance
with the requirements of Chapter 283 of the 1943 Session Laws of the State
of Washington.

Respectfully,

THE COLUMBIA BASIN COMMISSION
OF THE STATE OF WASHINGTON

By Roy Mundy, *Chairman*

Rogers Neff

George Hamilton

Earl Terwilliger

Richard Hendrick

Melvin Stepon

Joseph Lux

Members of the Columbia Basin Commission

Roy Mundy, Director, Department of Conservation.

Mel Stepon, Quincy, Chairman of the Board, Quincy Columbia Basin Irrigation District.

Earl Terwilleger, Warden, Director, East Columbia Basin Irrigation District.

Rogers Neff, Pasco, Director, South Columbia Basin Irrigation District.

George Hamilton, East Wenatchee, past-President, Douglas County Public Utility District.

Richard Hendrick, Omak, Director, Okanogan Irrigation District.

Joseph Lux, Spokane, farmer.

Commission Staff

John A. Richardson, Secretary.

Paul Hamilton, Field Secretary.

COLUMBIA BASIN COMMISSION

Biennial Report July 1, 1962 to June 30, 1964

Foreword

The Columbia Basin Commission was concerned primarily with matters relating to the Columbia Basin Project and authorization of other projects in the state during the biennium.

The long fought struggle to complete a new repayment contract between the Columbia Basin Project landowners and the United States was virtually ended on April 17, 1964, when the period for rehearing of the consolidated proceedings of the Quincy and South Columbia Basin Irrigation Districts by the United States Supreme Court expired. This placed the terms of the new contract in full force for these two districts. The East District confirmation proceedings are under study by the State Supreme Court and final confirmation is anticipated in the fall of 1964. The Commission has been active through the years in bringing about an equitable solution to the many problems involved.

The new amendatory repayment contract (signed into law by President John F. Kennedy, October 1, 1962) removed project construction ceilings imposed by the 1945 contract, thus permitting a renewed orderly development program for the Columbia Basin Project. In consideration of this development, a field office was opened in the project area at Ephrata to assist with organization of a sound development program for the balance of the project in cooperation with other basin agencies and local interests.

On January 28, 1963, the amendatory repayment contract between the United States and the East Columbia Basin Irrigation District was signed in an unique ceremony with President Kennedy participating from the White House in Washington, D. C. Remarks by President Kennedy, Secretary of the Interior Stewart L. Udall and Senators Warren G. Magnuson and Henry M. Jackson at the White House and Governor Albert D. Rosellini at the ceremonies at the Grant County Public Utility District Auditorium, Ephrata, were exchanged by a telephone hook-up.

During 1963, water was available to 457,872 acres in the project, and 370,322 acres were under irrigation, an increase of approximately 30,000 acres over 1962, one of the largest annual increases in farmed land in recent years on the project.

Generally, in 1963, per acre income and yields were relatively high. Sugar beet production was at a record level of 27.8 tons per acre, alfalfa hay increased from 4.8 to 5.1 tons per acre, and the quality of the 1963 bean crop was the highest in years due to good harvest weather, with an average return of \$6.50 per cwt for the season.

New Authorization

The Whitestone Coulee Unit, Chief Joseph Dam Project, was acted on favorably by the Senate Interior Committee in March of 1963. A multipurpose project, it will serve 2,660 acres, of which 750 are presently not under irrigation, reconstruct and enlarge the present system, include a 4-mile long syphon, and increase the storage capacity of Spectacle Lake. There will also be a considerable recreation benefit by enhancement of the fishing potential in Spectacle Lake. The Commission took an active part in the

promotion of this project. In March, Commission secretary John Richardson testified before the Senate Interior Committee in Washington, D.C. on behalf of Whitestone Coulee, and later in June Commission member Dick Hendrick testified before the House Interior Committee. Both accompanied delegations from the project area in Okanogan County.

The Senate committee has reported favorably on the project.

Wahluke Slope

The Commission continued to seek release of the AEC Primary Control Zone for inclusion in the development schedule of the Wahluke Slope.

The Commission also successfully sought an increase in the size of the first extension of the Wahluke Branch Canal so it would have sufficient capacity to serve all portions of the Wahluke Slope, including the control zone.

Project Roads

The Commission was advised in December, 1963, by Franklin and Grant Counties that the bonding authority for project road construction would be exhausted by contracts anticipated to be let in 1964, and appealed to the Commission for assistance.

A study was conducted by the Commission field office and a report submitted to the three project counties in February, 1964, which indicated the counties had a capability of repaying an increased bonded indebtedness. In May the Commission supported the three project counties in an appeal before the highway legislative interim committee in Wenatchee for additional bonding authority of approximately \$1.8 million, an amount anticipated to take care of needs through 1970.

Publicity

The Commission joined with the Columbia Basin Development League and the Bureau of Reclamation in telling the project story to the Seattle Chamber of Commerce.

An article on success of Veterans on the project by the field staff appeared in an April issue of a northwest magazine section, and another about the Wahluke Slope along with numerous press releases and articles have appeared in northwest news media.

Appropriations

Governor Albert D. Rosellini on behalf of the State and the Commission appeared before the Senate and House appropriation committees supporting the \$6.8 million in the President's budget for project construction, and an increase of \$1.5 million that would insure new land coming under irrigation each year in the project. This supplemental request would provide funds to start Blocks 21 and 48.

The Governor's testimony also supported appropriations for Corps of Engineer projects for the full FY 1965 capabilities of the Corps.

In 1963, the Commission actively supported a supplemental appropriation of \$1 million for project construction in addition to the President's budget of \$4.3 million which started construction on Block 81. This block will have its test year during FY 1965.

East Area, Columbia Basin Project.

The Commission was requested by landowners in the East area of the project to provide information about the proposed irrigation of the East area (the East high, East low extension, and Snake River pump area).

DIVISION OF POWER RESOURCES

Biennial Report

Truman P. Price, Supervisor

I. CREATION AND RESPONSIBILITIES

The Division of Power Resources was created by the 1957 Legislature (Chapter 284, Laws of 1957), primarily to fill the void created by the abolishment of the Washington State Power Commission (Chapter 295, Laws of 1957). The legislation transferred certain powers of the abolished State Power Commission to the division and established a Power Advisory Committee.

The principal responsibilities of the division are to represent the state in power matters through the Director of Conservation and to aid and assist the public utilities to the end that the state's power resources shall be properly developed in the public interest.

II. POWER ADVISORY COMMITTEE

The Power Advisory Committee consists of five members appointed by the Governor to serve at his pleasure. Their responsibility is to consult with and advise the Director of Conservation of matters pertaining to the Division of Power Resources.

Three members of the committee are experienced in the field of utility operation and two members have experience in natural resource development. Shirley Marsh, chairman of the committee, is Chief Counsel of the Cowlitz County Public Utility District; George Brunzell is President of the Washington Water Power Company, and A. Clifford Tyler is Director of Commercial Activities, Seattle City Light. S. Ernie Miller is a Cle Elum businessman, with experience in the field of coal and power resource development; and Ted Lloyd is Deputy Master of the Washington State Grange.

The Power Advisory Committee has provided the Division of Power Resources valuable assistance in formulating power policies, especially in connection with its thermal-electric development program.

III. GENERAL PROGRAM

The division is following a four-part program which reflects the responsibilities placed upon the division by the legislature.

Part I is to encourage and assist federal and non-federal agencies in construction of new hydroelectric projects in the state.

Part II concerns development of the thermal-electric power resources of the state.

Part III involves participation in regional planning of resource development.

Part IV is the compilation of basic hydro-meteorological data and research in the field of weather modification.

IV. HYDROELECTRIC POWER DEVELOPMENT

Abundant, low-cost hydroelectric power has been a key to Washington's accelerated industrial and economic growth since 1940. It has brought to the state electro-process industries as well as associated fabricating and manufacturing plants. Washington has the highest per capita use of electricity

in the world which provides our residents an electrical mode of living unsurpassed by any area.

Washington continues to lead the nation in hydroelectric generation. In 1963, its plants generated 44.7 billion kilowatt-hours of energy which was 68 percent of the energy generated in the region.

During the biennium 977,250 kilowatts of nameplate capacity was installed. The following tabulation indicates the progress made in hydroelectric development during the period of this report, July 1, 1962-June 30, 1964.

Plants Completed:

Project	Owner	Nameplate Capacity	In Service
Wanapum	Grant County PUD	831,250 kw.	Jan. 1964
Packwood	W.P.P.S. ¹	26,000 kw.	Mar. 1964
Mayfield	Tacoma City Light	120,000 kw.	June 1963

Plants Under Construction:

Project	Owner	Nameplate Capacity	Date of Completion
John Day	U. S. Corps of Engrs.	1,350,000 kw.	Oct. 1969
Lower Monumental	U. S. Corps of Engrs.	405,000 kw.	Dec. 1967
Little Goose	U. S. Corps of Engrs.	405,000 kw.	June 1969
Mossyrock	Tacoma City Light	300,000 kw.	Feb. 1968
Boundary	Seattle City Light	551,000 kw.	Aug. 1968
Sultan 1	Snohomish County PUD	84,000 kw.	Feb. 1970
Wells	Douglas County PUD	619,400 kw.	June 1967

Projects Licensed or Authorized:

Project	Owner	Nameplate Capacity	Licensed or Authorized
Sultan 2 & 3	Snohomish County PUD	56,000 kw.	Licensed
Lower Granite	U. S. Corps of Engrs.	405,000 kw.	Authorized
Asotin	U. S. Corps of Engrs.	384,000 kw.	Authorized
Wynoochee	U. S. Corps of Engrs.	66,000 kw. ²	Authorized

Partial List of Projects Under Consideration:

Project	Agency Interested	Capacity	River
Grand Coulee ³	U. S. Bureau of Reclamation	3,600,000 kw.	Columbia
Beaver Creek	Chelan County PUD	9,000 kw.	Wenatchee
Leavenworth	Chelan County PUD	120,000 kw.	Wenatchee
Dryden	Chelan County PUD	8,000 kw.	Wenatchee
Ben Franklin	W.P.P.S. ¹	352,000 kw.	Columbia
China Gardens	U. S. Corps of Engrs.	180,000 kw.	Snake
Trout Creek	Klickitat County PUD	40,000 kw.	White Salmon
Little White Salmon	Skamania County PUD	31,000 kw.	Little White Salmon
Meadows Lower Drop	Pacific Power & Light	25,000 kw.	Rush Creek
Muddy	Pacific Power & Light	110,000 kw.	Lewis
Carnation	King Co. Wtr. Dist. No. 97	34,000 kw.	Snoqualmie

¹Washington Public Power Supply System

²Project power facilities subject to further justification.

³Third Powerhouse.

Little White Salmon Project

The Division assisted the Skamania County Public Utility District in its effort to obtain a license for the Little White Salmon Project. Testimony was prepared for the Federal Power Commission proceedings and the Supervisor participated in the hearings.

The Examiner denied the license on August 8, 1963 primarily on the basis that Skamania County P.U.D., being a public agency entitled to preference power, did not need the output from the project.

Exceptions were taken to the Examiner's decision and the matter is now before the Federal Power Commission for final decision.

Federal Multiple Purpose Development

The Department has energetically supported the concept of multiple-purpose development of our state and regional water resources. Testimony was prepared for Congressional hearings supporting appropriations for authorized multiple-purpose projects and delineating the need for the authorization of additional projects.

Middle Snake River Development

In October 1960, the Department intervened in the FPC licensing proceedings of the High Mountain Sheep and Nez Perce projects on the Snake River.

Testimony was presented supporting the license application of the Washington Public Power Supply System for the construction of the Nez Perce project. Department witnesses were: Earl Coe, Truman Price and Clarence Shain of the Department staff, Bertram Thomas and Wayne Lincoln, engineering consultants, and Douglass North, economic consultant.

Mr. Coe's testimony summarized the position of the Department:

"The State of Washington has interest in the comprehensive development of the various natural resources of the Columbia River and its tributaries. Thus my department has the obligation to support the licensing of applications which best utilize all of the resources in question and will result in the best overall economic benefit to the region in general and the State of Washington in particular. My assistants and members of our staff have studied at length the proposals of both applicants. We have concluded unequivocally that the proposal of the Washington Public Power Supply System in Project No. 2273 best provides for the control of floods, improvement of navigation, development of natural resources and supply of power.

"We therefore contend and will show that the Washington Public Power System proposal provides the greatest general economic benefit to the public interests of the region, and of the State of Washington, and best provides for the full and comprehensive development of the Columbia River System as prescribed by applicable law of the United States of America."

The Department submitted its initial brief in the proceedings on February 27, 1962. The brief covered engineering and economic aspects of the case, and in addition, covered the competency of the Washington Public Power Supply System to construct projects located in other states.

Associated with the FPC proceedings, was an application filed with the Department of Conservation by WPPSS for an order authorizing the construction of High Mountain Sheep. The Pacific Northwest Power Company, and its associated private power utilities, requested that a hearing be held on the matter and that the application be dismissed. After due consideration and in conformity with state law, Director Earl Coe signed an order on July 7, 1961 authorizing WPPSS to undertake construction of either the Nez Perce or High Mountain Sheep, should it be granted the required FPC license.

The Pacific Northwest Power Company appealed to the Superior Court of Thurston County to review the order and dismiss it. On April 30, 1962 the

Superior Court affirmed the order of Director Coe. On May 29, Pacific Northwest Power Company appealed the case to the State Supreme Court.

The Department filed a brief with the State Supreme Court in February 1963. Oral arguments were held shortly thereafter, and on September 26, 1963 the court upheld the Director's Order authorizing WPPSS to construct the High Mountain Sheep project should it obtain the necessary FPC license.

In the FPC proceedings, the Department filed a supplemental brief on July 24, 1962 covering the reopening of the record for the views of the Department of the Interior. The brief rebutted primarily the contention of the Department of the Interior that Federal construction of High Mountain Sheep would provide maximum secondary benefits. The brief re-emphasized the advantages of Nez Perce over High Mountain Sheep from the standpoint of water management.

On October 8, 1962, the FPC Examiner recommended that a license be granted PNPC for the High Mountain Sheep project.

On March 18, 1963, the Oregon Federal District Court issued a declaratory judgment ruling that WPPSS has no authority to develop Nez Perce or High Mountain Sheep in its own name. This ruling was appealed to the U. S. Circuit Court of Appeals, and our department submitted a brief of Amicus Curiae and participated in the oral arguments. On April 30, 1964 the Court ruled that it would not pass on the question until after the FPC decision and court appeal.

On February 5, 1964, the FPC issued a split decision, 3 to 2, granting a license to PNPC to construct High Mountain Sheep. Commissioners Swidler and Black dissented. They stated that the opinion violated the preference clause of the Federal Power Act which would require the Commission to award a license to WPPSS, a preference customer.

The Department of Conservation, WPPSS and the Department of the Interior submitted petitions for stay and review of the decision on March 6, 1964.

When the FPC reaffirmed its decision on April 30, 1964, the Department, together with WPPSS and the Department of the Interior, appealed the decision to the U. S. Court of Appeals. Argument before the court is scheduled for early 1965.

V. THERMAL ELECTRIC POWER DEVELOPMENT

Fossil Fuel Power Development

The Department of Conservation has continued to promote the development of the state's coal resources for power production.

Special consideration was given to the proposed Cle Elum Lake Steam Electric Plant. On July 25, 1962, the public utility districts of Grant and Kittitas Counties filed an application with the Director of the department for the formation of an operating agency to construct the plant. The operating agency would be known as the Central Washington Power Agency.

The Director signed the order forming the power agency on September 13, 1962, and shortly thereafter engineering studies were undertaken to update earlier investigations.

Although the studies showed the proposed plant to be highly feasible, regional power surpluses have prevented the marketing of its power.

The agency expects that construction of interties with California will open up the needed markets.

The Power Advisory Committee has been particularly helpful to the Central Power Agency in maintaining interest in the proposed plant.

Atomic Power Development

Authorization of the proposed Hanford generating plant for Federal construction was defeated decisively in the House of Representatives on three occasions during 1960-61.

When it became apparent that the Congress would not authorize Federal construction of the plant, the Department of Conservation, under the leadership of Director Coe, proposed that the plant be constructed as a state facility. A Memorandum was obtained from the Attorney General which confirmed the authority of the Department to construct the plant.

Negotiations were commenced with representatives of the Atomic Energy Commission and the Bonneville Power Administration and proceeded until the Washington Public Power Supply System offered to construct the plant.

In accordance with administration policy of not entering the generating field if existing agencies are willing to undertake construction of needed thermal plants, the Department withdrew as a sponsoring agency in favor of WPPSS.

Washington Public Power Supply System continued negotiations with AEC and BPA, and formulated the needed contractual relationships needed for construction and operation of the plant.

When legislation to permit nonfederal construction of the plant was presented to Congress in 1962, it encountered severe opposition. The primary opposition came from private power utilities even though the legislation offered them 50 percent of the plant's output. The legislation passed the Senate but was defeated two times in the House of Representatives. Supporters of the project intensified their activity which included an extended trip by Governor Rosellini to Washington, D. C. on behalf of the project.

Reason finally prevailed over blind opposition, and on September 14, 1962 the House approved the project by a margin of 36 votes.

Having obtained congressional approval, WPPSS executed contracts with AEC, BPA and power purchasers. The private utilities exercised their option to purchase 50 percent of the plant's output.

Construction of the Hanford plant is progressing, with completion scheduled for December 1965.

VI. REGIONAL POWER DEVELOPMENT

The division has participated in two groups concerned with regional resource planning—the Bonneville Regional Advisory Council, and the Power Planning Subcommittee of the Columbia Basin Inter-Agency Committee.

The Bonneville Regional Advisory Council provides close contact between BPA and its customers. The Department as well as the Power Advisory Committee are represented on the Council. Important items brought before the council during the biennium were 1) interregional electrical interconnections; 2) revised accounting procedures for federal multiple-purpose projects; 3) installation of power facilities at Hanford; and 4) loads and resources projections.

The Power Planning Subcommittee of the Columbia Basin Inter-Agency Committee is composed of representatives of six federal agencies and seven Columbia basin states. The Subcommittee studies and prepares technical reports upon problems related to power resource development. Four reports were published during the biennium. They are 1) Review of Power Planning in the Pacific Northwest, Calendar Year 1962; 2) Review of Power Planning in the Pacific Northwest, Calendar Year 1963; 3) Operating Pattern of a Large Thermal-Electric Plant in the Pacific Northwest; and 4) Power Areas in the Pacific Northwest.

VII. HYDRO-METEOROLOGICAL RESEARCH

Glacier Project

The division has continued its glaciological study program to determine the feasibility of using heat-absorbing pigments to release glacier-stored water for use during critical stream-flow periods.

During the test periods of 1961 and 1962 coal dust of three particle sizes and lamp black were used as pigments. Coal dust of 1 mm. diameter (14-mesh) was determined to be the most effective size, so this particle size was used in the extensive tests conducted in 1963. Data were collected for concentrations of 100, 200 and 400 pounds of coal dust per acre, under varying meteorological conditions.

The test data for 1962 and 1963 is currently being analyzed. The melt will be correlated to the primary variables, i.e., humidity, temperature, radiation, wind, and particle concentration.

Skagit River Cloud Seeding

The Department, in cooperation with Seattle City Light, undertook a cloud seeding project in the Upper Skagit Basin to determine the efficiency of using ground-based, silver iodide generators to increase precipitation.

The unique climatological conditions prevailing in the North Cascades coupled with the high degree of correlation of the annual runoff of the area's streams, made the Upper Skagit Basin an ideal test area. The evaluation of the program will be based primarily on the comparison of annual runoff of the Sauk River, as a control, to the runoff of the Skagit River at Concrete and Newhalem which reflect the runoff of the target area.

Evaluation of the 1963 seeding is very encouraging, showing an increase of 9.6 percent in the runoff of the Skagit River at Newhalem. The statistical chance that this increase was due to natural causes is 1 in 8.

A detailed coverage of the program is included in the report of the Weather Modification Board.

VIII. PUBLICATIONS

The Division of Power Resources published four bulletins during the biennium.

Bulletin No. 6, "Pacific Northwest Regional Planning—A Review," covers planning and development of the water and power resources of the region during the formative period, 1933-63. Roy F. Bessey, a consultant in the field of resources development and planning was retained to write the review. The report is a valuable reference and has been highly acclaimed by students of resource development.

Bulletin No. 8, "Pacific Northwest Electric Energy Costs With and Without Canadian Treaty Projects," covers the development of power and flood control projects in the Pacific Northwest in event the Columbia River treaty with Canada is not ratified. H. Zinder and Associates were retained to make the study.

Following are major conclusions of the report:

1. Future power requirements of the Pacific Northwest can be met at about the same cost whether the Canadian treaty is ratified or not. Annual power costs of the Columbia River System and the thermal-electric plants coordinated with it in 1985 are estimated at only \$1.3 million less with the treaty than without it.
2. The primary flood control objective of reducing the flow of the Columbia River at The Dalles to 800,000 cfs can be met whether or not the treaty is ratified.
3. If the treaty is not ratified, new multiple purpose projects, together with United States projects existing and under construction, could reduce maximum flows at The Dalles to below 800,000 cfs.

Bulletin No. 9, "The Public Issues of Middle Snake River Development," which covers the issues of the Hells Canyon and Nez Perce controversies, is ready for publication. It will not be printed, however, until the next biennium.

Bulletins No. 8 and 10 are the annual electric power statistic reports for 1962 and 1963.

WEATHER MODIFICATION BOARD**Biennial Report July 1, 1962 to June 30, 1964****STUART E. SHUMWAY, Secretary****ROY MUNDY, Chairman****I. Weather Modification Board**

The Weather Modification Board was created by an act of the 1957 Legislature (Chapter 245, Laws of 1957). Minor amendments were incorporated in Chapter 154, Laws of 1961, by the 1961 Legislature.

The Board is comprised of the Director of Conservation, who is the Chairman, and nine members appointed by the Governor. The Board must include a member of the faculty of the University of Washington, a member of the faculty of Washington State University, and one member from each of the seven congressional districts. In particular, the seven members representing the congressional districts are to be chosen in such a manner as to provide one member experienced in, and actually engaged in the commercial production of horticultural products, three members experienced in, and actually engaged in the commercial production of other agricultural products, and three members representing the general public.

Roy Mundy, Director of the Department of Conservation, is the ex-officio chairman who exercises no vote except in the case of a tie vote. The nine members are constituted in the following manner:

<i>Member</i>	<i>Category</i>	<i>Term Expires</i>
Dr. P. E. Church Executive Officer Department Atmospheric Physics	University of Washington Faculty	November 29, 1965
Dean S. Town Stephenson Vice-President Washington State University	Washington State University Faculty	November 29, 1964
Mr. Michael Katona 3623 - 6th Avenue S. Seattle, Washington	General Public First District	March 2, 1968
E. L. Sandell Bow, Washington	Agriculture Second District	March 2, 1966
Hon. Walter B. Graham Mayor of Chehalis 984 North Street Chehalis, Washington	General Public Third District	March 2, 1967
Julian Steenberg Route 4, Box 304 Yakima, Washington	Horticulture Fourth District	November 29, 1967
Patrick H. Murphy Symons Building Spokane, Washington	General Public Fifth District	March 2, 1965
Jack C. Linn Route 2, Box 200 Puyallup, Washington	Agriculture Sixth District	March 2, 1966

Mrs. Chester Getchell
Route 1, Box 707
Auburn, Washington

Agriculture
Seventh District

November 29, 1966

Judge B. B. Horrigan, Retired
Pasco, Washington

Honorary Member

II. Duties and Functions

Primarily, the Weather Modification Board is a regulatory agency. The absence of any federal statutes governing those activities designed to change or control the natural developments of cloud or precipitation formation placed the responsibility for regulation of these pursuits at the state level.

In assuming jurisdiction over all weather modification and control activities conducted within the boundaries of the State of Washington, the Legislature empowered the Board with licensing and permit procedures to insure that only qualified and competent meteorologists were allowed to engage in weather modification and control operations. Licenses and permits issued by the Board during the biennium are listed below:

LICENSES

License No.	Firm	Address	W.M.B. Fee
1963-1	Water Resources Development Corp. (W.R.D.C.)	Denver, Colo.	\$100.00
1964-1	Water Resources Development Corp. (W.R.D.C.)	Denver, Colo.	100.00
			\$200.00

PERMITS

Permit No.	Firm	Client	Period of Operation	Contract Price	W.M.B. Fee
18	WRDC	Big Bend Water Devel. Corp.	10/ 1/62-9/30/63	\$12,000.00	\$180.00
19	WRDC	Horse Heaven Water Devel. Corp.	9/20/62-9/19/63	10,000.00	150.00
20	WRDC	Eureka Weather Modif. Corp.	2/28/63-3/ 1/64	8,967.00	134.50
21	WRDC	Horse Heaven Water Devel. Corp.	9/20/63-9/19/64	10,000.00	150.00
22	WRDC	Big Bend Water Devel. Corp.	10/ 1/63-9/30/64	12,000.00	180.00
23	WRDC	McGregor Land and Livestock Corp.	10/ 1/63-9/30/64	6,000.00	90.00
24	WRDC	Eureka Weather Modification Corp.	10/ 1/63-9/30/64	9,863.70	147.95
				\$68,830.70	\$1,032.45

In addition to these regulatory responsibilities, the State Legislature has also delegated to the Board, sufficient powers to enable the efficient promotion of research and development activities directed toward the acquisition of an expanding fund of theoretical and practical knowledge in the field of weather modification.

The concept of weather modification designed to stimulate natural precipitation offers tremendous potential benefits as a supplement to the water resources of the State of Washington. Nowhere on the globe are the climatic controls—latitude—air mass source regions and topography—more advantageously blended to provide such promising feasibility for the development of the atmospheric water resource.

The presumption that cloud seeding may increase precipitation is no longer disputed as a scientific fact. However, the exact conditions under which economically feasible amounts of artificial precipitation may be induced are subject to considerable controversy. An orderly development of cloud seeding as an operational adjunct to the management of a water resource now requires the refinements necessary to define the intricate engineering of a program.

In order to accomplish this objective it is necessary for this state to attract competent scientific organizations who are specifically oriented toward atmospheric research.

III. Historical Development of Cloud Seeding

The initial experiments in cloud seeding conducted by the research staff of the General Electric Company back in 1946 were followed by a frantic but premature expansion of commercial "rain-increasing" operations throughout the world. Unfortunately, the development of cloud seeding techniques during this time was seriously encumbered by the dictates of economics. That is, most projects were conducted in areas destitute for water but highly unsuitable for nurturing confidence or refinements in this initial breakthrough to man's age-old dream.

During the period 1950-1957, there occurred a gradual decline in the number of commercial cloud seeding projects and a sharper decrease in the number of private organizations offering this type of professional service. However, in 1957, the report of the "Advisory Committee on Weather Control" ushered in a new era. This Committee, authorized by Congress and appointed by the President, was commissioned in 1953 to write the definitive answer to the feasibility of cloud seeding. Although this committee was frustrated in their attempt to attain the primary objective, the report provided justification for the establishment of a vigorous program of research and development strongly supported at the national level.

Largely due to the findings and recommendations of the "Advisory Committee on Weather Control", the Congress directed the National Science Foundation under Public Law 85-510, July 11, 1958, "to initiate a program of study, research, and evaluation in the field of weather modification." The following year, Fiscal Year 1959, the N.S.F. directed the expenditure of \$1,141,000 for research in weather modification.

This effort has been sustained and increased each succeeding year and has broadened with the involvement of other federal agencies engaged in weather modification research.

In Fiscal Year 1962, the federal government operating through the Departments of Agriculture, Commerce, Defense (Army, Air Force, Navy and Advanced Research Projects Agency), Interior, Federal Aviation Agency and National Science Foundation funded weather modification research programs in the amount of \$4,569,261.

Paramount in importance to the earliest possible attainment of cloud seeding as a valuable asset to the State's economy, is the involvement of the federal government in support of research projects conducted in this region.

In the fourth annual report (1963), the National Science Foundation stated a belief that all the necessary technological support was available for the conduct of at least one definitive test of seeding supercooled, orographic clouds. This complete field experiment utilizing the most recently developed techniques, equipment and knowledge would be designed to reveal the quantitative type of information necessary to define where and when cloud seeding is successful and how much additional precipitation can be induced.

IV. Research and Development Activities

Without question the western slopes of the northern Cascade Mountains in Washington offer an unexcelled atmospheric laboratory for an experiment with supercooled, orographic cloud systems.

The region exhibits many favorable physical attributes such as high incidence of precipitation from supercooled clouds, relatively easy accessibility in a rugged mountainous region and a most desirable natural phenomenon of a wet climate changing rapidly to dry.

One very important requirement of a test area, especially when necessity demands its location in a high rainfall region is that it be remote and downwind from populated areas. In this rapidly advancing scientific age, there is usually considerable unwarranted anxiety concomitant with any complex technical development. The designation of the northern Cascade Mountains as a wilderness area certainly attests to a want of civilization. The suitability of this region for research in atmospheric physics provides the Board with a spectacular asset for the promotion of this state to a dominant role in the development of cloud seeding and eventually in weather control.

National scientific interest was focused on this area in the "Advisory Committee on Weather Control" report which found that the initial cloud seeding activities appeared to be most successful in this region and strongly recommended the Pacific Northwest as an area for future research.

Assisted by these findings, the Weather Modification Board in 1959, was instrumental in obtaining for the Washington State University a \$50,000 grant from the National Science Foundation to conduct a climatologic and hydrologic study of Western Washington as a preliminary step toward an eventual field research program.

In 1962, after the Department of Conservation in cooperation with the City of Seattle, Department of Lighting, initiated an operational research program in the upper Skagit River Basin, the Earth and Planetary Science Division, U. S. Naval Ordnance Test Station, China Lake, California, became an active supporter of this program. This program was designed to test the hypothesis: "cloud seeding from ground based silver iodide generators in a region of favorable climate and topography is economically feasible."

Evaluation of the efficacy of this program is based upon stream flow using the entire water year (October - September) runoff as a unit. The area behind the U. S. Geological Survey stream gage at Newhalem is designated as the "target." Seeding is conducted so as to affect only this area.

The annual water year flow of the Skagit River at this point is then compared to the flow for the same period as measured by the U.S.G.S. stream gage on the Sauk River which is unseeded and is designated as the "control".

Over the past 34 years of record (1929-1962) the stream flow recorded by these two gaging points has exhibited remarkably uniform similarity. By knowing the water year flow of the Sauk River, one can predict the flow of the Skagit River with an average expected error ($Sy.x$) that is less than 5%.

In the first year (1963), seeding was conducted during February and March and was terminated on the 10th of April. The evaluation for the 1963 water year indicated the Skagit River flow was 9.6% above the flow

which was predicted by the Sauk River with a probability of 12 chances in 100 that this increase could have occurred from natural causes.

During the 1964 water year, seeding began on November 1, 1963, and was terminated April 28, 1964. Results from that year's operation will not be available until a computation of the water year flow measurements is completed at the end of September.

The results of the first year's operation were very encouraging, but not conclusive. A decision of whether to continue the same program for a third year must await the evaluation of last year's program. If the results support the initial hypothesis but do not attain the desired statistical significance, a third year would be indicated. However, if the objective has been accomplished, further repetition would be redundant and the experiment should be redesigned to allow evaluation on a much shorter time scale.

This type of program would be considerably more intricate and would involve the type of support that would undoubtedly be forthcoming from the National Science Foundation or other federal agencies, actively engaged in weather modification research.

DIVISION OF WATER RESOURCES

Biennial Report July 1, 1962—June 30, 1964

M. G. WALKER, Supervisor

STAFF

Robert H. Russell.....	Assistant Supervisor
Glen H. Fiedler.....	Deputy Supervisor
Ernest E. LeVasseur.....	Hydraulic Engineer III
M. Edward Garling.....	Hydraulic Engineer III
Dee Molenaar.....	Geologist III
Eugene F. Wallace.....	Geologist III
Edwin R. Henken.....	Dec. 31, 1962**..Hydraulic Engineer II
Benjamin Weisberg.....	*Jan. 1, 1963.....Hydraulic Engineer II
Ernest E. Wolcott.....	Photogrammetrist II
William R. Smith.....	Geologist II
John B. Noble.....	Geologist II
Dean Wood.....	*June 16, 1963.....Legal Secretary
Aileen Jacobs.....	Legal Secretary
Marian Mittge.....	Clerk Stenog. II
Janet Olson.....	April 30, 1964**..Clerk Stenog. II
Beverly Johnson.....	*May 15, 1964.....Clerk Stenog. II
Muriel Bartran.....	Jan. 31, 1963**..Clerk Typist III
Yvonne Woods.....	*Feb. 1, 1963.....Clerk Typist III
Lola Palmer.....	*July 1, 1962.....June 30, 1963**..Clerk Typist II
Sally Hoyt.....	*July 1, 1963.....Dec. 31, 1963**..Clerk Typist II
Colleen Hahn.....	*Jan. 1, 1964.....Clerk Typist II

*Employment Date

**Resignation Date

AUTHORITY

Statutory Authority.

Chapter 117, Laws of 1917, created the office of the Hydraulic Engineer and gave him the power and authority to execute and administer the first comprehensive water code of the state. Chapter 7, Laws of 1921, established the administrative code of the state, created the Department of Conservation and Development and abolished the office of the Hydraulic Engineer. The authority and powers of the abolished office were then transferred to the Division of Hydraulics under the newly created department. Chapter 263, Laws of 1945 added the comprehensive ground water code as a supplement to the 1917 Code. Chapter 57, Laws of 1951, changed the name of the Division of Hydraulics to the Division of Water Resources and likewise changed the Supervisor of Hydraulic's title to the Supervisor of the Division of Water Resources. Chapter 215, Laws of 1957, shortened the name of the department from Conservation and Development to Conservation. All the above statutes and amendments are now encompassed in Title 90, Revised Code of Washington.

Powers and Duties.

(43.21.130) The Director of the Department of Conservation through the Supervisor of the Division of Water Resources, has the following powers and duties:

(1) The supervision of public waters within the state and their appropriation, diversion, and use, and of the various officers connected therewith;

(2) In so far as may be necessary to assure safety to life or property, he shall inspect the construction of all dams, canals, ditches, irrigation systems,

hydraulic power plants, and all other works, systems, and plants pertaining to the use of water, and he may require such necessary changes in the construction or maintenance of said works, to be made from time to time, as will reasonably secure safety to life and property;

(3) He shall regulate and control the diversion of water in accordance with the rights thereto;

(4) He shall determine the discharge of streams and springs and other sources of water supply, and the capacities of lakes and of reservoirs whose waters are being or may be utilized for beneficial purposes;

(5) He shall keep such records as may be necessary in the administration of the division and for the recording of the financial transactions and statistical data thereof, and shall procure all necessary documents, forms, and blanks. He shall keep a seal of the office, and all certificates by him covering any of his acts or the acts of his office, or the records and files of his office, under such seal, shall be taken as evidence thereof in all courts;

(6) He shall render to the governor, on or before the last day of November immediately preceding the regular session of the legislature, and at other times when required by the governor, a full written report of the work of his office, including a detailed statement of the expenditure thereof, with such recommendations for legislation as he may deem advisable for the better control and development of the water resources of the state;

(7) He, the supervisor, and duly authorized deputies may administer oaths;

(8) He shall establish and promulgate rules governing the administration of chapter 90.03;

(9) He shall perform such other duties as may be prescribed by law.

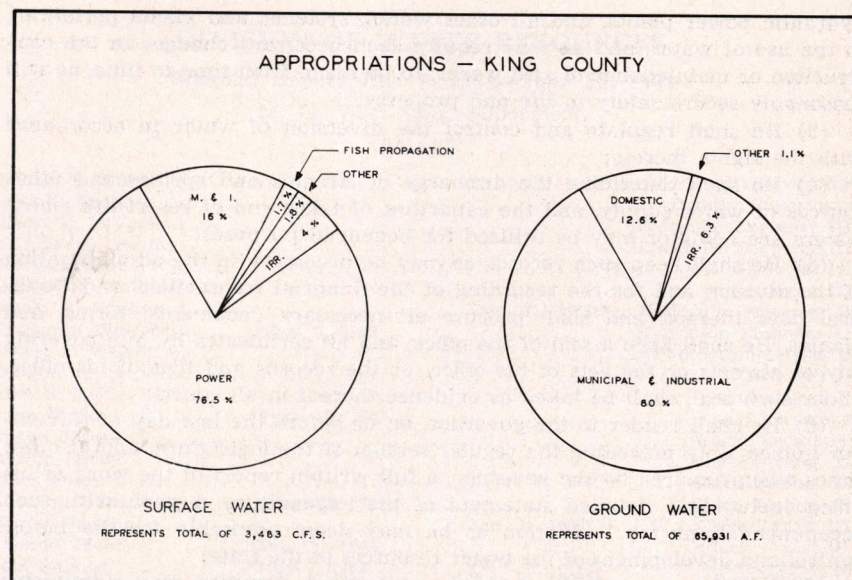
ACTIVITIES

Initiation of New Water Rights.

As is evidenced by the bar graph on page 34, which represents the number of applications processed annually, a marked increase occurred in the past two years, particularly where requests for appropriation of ground waters were concerned. Statistically, the number of surface water applications processed during the report period increased 9% over the previous biennium and a 14% increase was experienced in ground water applications received and processed. At the close of the biennium on June 30, 1964, a total of 18,586 applications for surface water permit and 7,231 applications for ground water permit had been received and processed since the establishment of this office in 1917. Of this total, 9,086 surface water filings and 4,848 ground water applications had been perfected to certificates of water right.

Although the beneficial uses to which the waters of the state are applied are numerous, power generation, irrigation, municipal and industrial uses constitute the major demand upon our rivers and streams; whereas withdrawals for municipal, industrial and irrigation purposes constitute the major draft upon our ground water resources. For illustrative purposes, the following charts indicate the general segregation of use of the appropriated surface and ground waters of King County, as is evidenced by certificates of water right issued since 1917 and known diversions by the City of Seattle and City of Tacoma under claims to prior rights.

During the report period a number of significant filings were recorded and there follows a brief discussion and summary of these major applications.



Power. Of those application filed during the report period, permits issued only under the storage and appropriations filings submitted by Public Utility District No. 1 of Douglas County for development of the Wells Hydroelectric Project. Although Public Utility District No. 1 of Chelan County filed application for modifying and enlarging the Dryden Plant on the Wenatchee River, and Public Utility District No. 1 of Pend Oreille County proposed enlargement and modification of its Sullivan Lake Plant, final action on the applications covering both projects is deferred pending receipt of the comments and recommendations of the Department of Fisheries and Department of Game.

All major projects for which permits were requested are as follows:

HYDROELECTRIC FILINGS

Table I

Appl. No.	Applicant	Source	Quantity	Status
17546	P.U.D. #1 of Chelan County	Wenatchee River	1440 cfs	Pending
18180	P.U.D. #1 of Douglas County	Columbia River	190,000 cfs	Permit issued
R-18181	P.U.D. #1 of Douglas County	Columbia River	237,000 af	Permit issued
18496	P.U.D. #1 of Pend Oreille County	Sullivan Cr., Harvey Cr. and Sullivan Lake Res.	73.0	Pending
R-18497	P.U.D. #1 of Pend Oreille County	Sullivan and Harvey Creeks	29,704 af	Pending
18520	Dale E. Cox	Unnamed Spring trib.		
18556	Otto Acker	Penny Creek	5.0	Pending
18570	P.U.D. #1 of Kittitas County and P.U.D. #2 of Grant County	Washougal River	545	Cancelled
		Cle Elum Lake	405	Cancelled
18571	P.U.D. #1 of Skamania County	White Salmon River	400	Cancelled
18581	P.U.D. #1 of Lewis County	Cowlitz River	1200	Cancelled
18364	P.U.D. #1 of Pend Oreille County	Pend Oreille River	30,000	Cancelled
18303	P.U.D. #1, Klickitat County	White Salmon River	350	Cancelled
18304	P.U.D. #1, Klickitat County	White Salmon River	1400	Cancelled
18305	P.U.D. #1, Klickitat County	White Salmon River	1020	Cancelled
18306	P.U.D. #1, Klickitat County	White Salmon River	1200	Cancelled
18307	P.U.D. #1, Klickitat County	Trout Lake Creek	1000	Cancelled
R-18308	P.U.D. #1, Klickitat County	Trout Creek	80,000 af	Cancelled

A number of the applications listed above also appear in the report of the previous biennium. This is due to the procedure whereby applications are submitted on a monthly basis and the statutory examination fees required to place the applications in proper standing are not submitted. Thus, with rejection of one application on a specific project for nonpayment of fees, a new filing is made as a replacement and the practice is followed on a monthly basis. However, with regard to the Pend Oreille River project proposed by Public Utility District No. 1 of Pend Oreille County, filing was not renewed after February, 1964; and the various filings of Public Utility District No. 1 of Klickitat County were not renewed beyond January, 1964.

During the biennium permits issued under three projects covered by filings in past years. The City of Seattle acquired appropriation and storage permits for development of its Boundary Project on the Pend Oreille River, Public Utility District No. 1 of Douglas County obtained appropriation and storage permits at its Wells Dam site on the Columbia River, and Washington Public Power Supply System initiated its first hydroelectric project through acquisition of appropriation and storage permits on Lake Creek for development of the Packwood Lake Hydroelectric Project.

Irrigation. Of the total number of applications received during the biennium, 47.5% pertained to the development of irrigation projects. Through processing of 991 applications and issuance of 809 permits, projects were authorized for the irrigation of a total of 61,130 acres.

Those applications processed for the appropriation of water for the irrigation of 500 acres or more are as follows:

MAJOR IRRIGATION FILINGS

Table II

Appl. Number	Applicant	Source	Quan.	Acreage	Status
17850	Kenneth Bickelhaupt	Touchet River	12.0	600 a.	Permit Issued
18108	Lee J. Brickey	Snake River	55.0	3,500 a.	Pending
18196	U. S. Bureau of Reclamation	Snake River	40.0	1,319 a.	Pending
18375	P.U.D. #1, Pend Oreille County	Calispel River	50.0	2,071 a.	Pending
18376	P.U.D. #1, Pend Oreille County	Winchester Cr.	15.0	2,071 a.	Pending
R-18377	P.U.D. #1, Pend Oreille Co.	Dorchester Cr.			
6638	J. A. Sim	Winchester Cr.	1,000 af	2,071 a.	Pending
6688	D. Everett Phillips for R. H. Phillips	Dorchester Cr.	3,000 gpm	600 a.	Permit Issued
		Ground Water	3,800 gpm	3,680 a.	Permit Issued
6689	D. Everett Phillips for R. H. Phillips	Ground Water	11,800 gpm	4,640 a.	Permit Issued
		Ground Water	7,500 gpm	920 a.	Permit Issued
6781	U. S. Bureau of Reclamation	Ground Water	67,200 gpm	7,140 a.	Pending
6907	*U. S. Bureau of Reclamation	Ground Water	2,250 gpm	640 a.	Pending
6989	K. C. Barlow	Ground Water	4,580 gpm	474 a.	Pending
7171	*U. S. Bureau of Reclamation	Ground Water	3,550 gpm	1,377 a.	Pending
7172	*U. S. Bureau of Reclamation	Ground Water	10,100 gpm	931 a.	Pending
7173	*U. S. Bureau of Reclamation	Ground Water	5,560 gpm	580 a.	Pending
7174	*U. S. Bureau of Reclamation	Ground Water	18,500 gpm	1,926 a.	Pending
7175	*U. S. Bureau of Reclamation	Ground Water	18,800 gpm	1,958 a.	Pending
7176	*U. S. Bureau of Reclamation	Ground Water			

*These filings are for multiple purposes: Irrigation, municipal, industrial and domestic.

Municipal and Industrial. During the report period considerable attention was focused on the Humptulips River as a future source of industrial and domestic water. Through applications filed in previous bienniums, both the City of Hoquiam and Ocean Shores Estates (Grays Harbor Water District No. 3) were issued permits for diversion of the waters of said river; the City establishing priority to 100 cubic feet per second and the Water District to 20 cubic feet per second.

A number of new applications were also filed during the period by municipal and private corporations in search of adequate water supplies

for new or expansion of existing water systems. A tabulation of all applications received involving the appropriation of 5.0 cubic feet per second (2250 gallons per minute) or more of the public surface and ground waters of the state for municipal and/or industrial purposes is as follows:

MAJOR MUNICIPAL AND INDUSTRIAL FILINGS

Table III

Appl. Number	Applicant	Source	Quantity	Status
17439	Water District #3 of Grays Harbor County	Copalis River	25 cfs	Cancelled
17525	Lyman Byersdorf	Trout Lake	120 cfs	Cancelled
17576	Lyman Byersdorf	East Fork Foss River	378 cfs	Cancelled
17613	City of Lynden	Nooksack River	15.0 cfs	Cert. issued
17736	City of Anacortes	Skagit River	120 cfs	Permit issued
17887	Northern Pac. Railway Co.	West Fork Wilkeson Cr. and Wilkeson Creek	6.5	Cancelled
17928	Cascade River Dev. Company	Boulder Creek	5.0	Permit issued
17965	Columbia River Paper Co.	Columbia River	23.0	Cancelled
18016	Saint Regis Paper Company	East Fork Tilton River	5.0	Cert. issued
18149	Tim Corliss & Son, Company	Stuck River	60	Pending
18218	P.U.D. #1 of Skagit County	Gilligan Creek	27.5	Pending
18220	P.U.D. #1 of Skagit County	Janicki Creek	9.0	Pending
18221	P.U.D. #1 of Skagit County	Turner Creek	6.2	Pending
18222	P.U.D. #1 of Skagit County	Tributaries of Nookachamps Creek	10.6	Pending
18223	P.U.D. #1 of Skagit County	E. Fork Nookachamps Cr.	15.2	Pending
18326	City of Aberdeen	West Fork Satsop River	62.0	Pending
18506	Port of Olympia	Deschutes River	10.0	Pending
6378	Crown Zellerbach Corporation	Ground Water	8,000 gpm	Cert. issued
6385	Regal Fruit Company	Ground Water	2,250 gpm	Cert. issued
6486	Aluminum Co. of America	Ground Water	5,000 gpm	Cert. issued
6503	The Wash. Water Power Co.	Ground Water	2,500 gpm	Permit issued
6661	City of Moses Lake	Ground Water	2,500 gpm	Permit issued
6833	Kaiser Aluminum and Chemical Corp., Mead Works	Ground Water	5,000 gpm	Permit issued
6955	Rayonier, Incorporation	Ground Water	3,000 gpm	Cert. issued
7033	Town of Royal City	Ground Water	2,250 gpm	
7136	P.U.D. #1 of Clallam County	Ground Water	2,250 gpm	

Due to the large increase in filings for development of community domestic supplies, which is associated with accelerated subdivision activities throughout the state, the Division of Water Resources has adopted the policy of advising the State Health Department of all new appropriations for public domestic supply purposes. In addition, with approval of each application in this category of use the applicant is advised that State Board of Health rules require that every owner of a public water supply obtain written approval from the State Director of Health prior to any new construction or alterations of a public water supply. Through this practice of informing the developer of his responsibility and the administrative agency of the proposed project, the public benefits through greater assurance that the quality of water delivered meets public health standards.

Summary. The following tabulation summarizes the status of all applications processed during the biennium:

JULY 1, 1962, to JUNE 30, 1964

Surface Water

Applications for permits to appropriate water and construct reservoirs	1,224
Irrigation	470
Domestic and other uses	754
Applications cancelled	302
Permits to appropriate water	728
158 permits east of Cascades to irrigate 19,271 acres	
213 permits west of Cascades to irrigate 4,888 acres	
Total: 24,159	
Number of permits for irrigation	371
Number of permits for domestic and other uses	357
Permits to construct reservoirs	31
Permits cancelled	235
Final water right certificates	729
Certificates of change of place or purpose of use	105

Ground Water

Applications for permits to appropriate water	866
Irrigation	521
Domestic and other uses	345
Applications cancelled	32
Permits to appropriate water	748
264 permits east of Cascades to irrigate 30,710 acres	
174 permits west of Cascades to irrigate 6,261 acres	
Total: 36,971	
Number of permits for irrigation	438
Number of permits for domestic and other uses	310
Permits cancelled	150
Final water right certificates	610

Total Water Rights Initiated

Applications for permits to appropriate water and construct reservoirs	2,090
Irrigation	991
Domestic and other uses	1,099
Applications cancelled	334
Permits to appropriate water	1,476
422 permits east of Cascades to irrigate 49,981 acres	
387 permits west of Cascades to irrigate 11,149 acres	
Total: 61,130	
Number of permits for irrigation	809
Number of permits for domestic and other uses	667
Permits cancelled	385
Final water right certificates	1,339
Certificates of change of place or purpose of use	105

Litigation.

U. S. vs. Ahtanum Irrigation District. The Supervisor of Water Resources continues as a party in the extended fight over the rights of Indians and non-Indians to use the waters of Ahtanum Creek, which forms the northern border of the Yakima Indian Reservation. The latest chapter of this proceeding was written in *United States v. Ahtanum Irrigation District*, 330 F. 2d 897 (Court of Appeals, 9th Circuit 1964). This case revolves around the effect of an agreement, executed in 1908, between white owners on the north side of Ahtanum Creek and the Secretary of Interior on behalf of the Yakima Indians, which attempted to make a division of the waters flowing therein between the two groups. In an earlier decision, *United States v. Ahtanum Irrigation District*, 236 F. 2d 321, (Court of Appeals 9th Circuit 1956) the Court of Appeals in upholding the power of the secretary to execute such an agreement, remanded the action to the district court with instructions to the district court to take action in accordance with its rather involved directions relating to a determination as to what right the north-side users presently had as a result of the 1908 agreement. During the present biennium the Court of Appeals ruled that the master, to which the district court has referred the proceeding, and thereafter the district court had incorrectly interpreted its instructions and awarded a right to the non-Indian water users in excess of that to which they were entitled.

A petition for rehearing of the matter has been filed with the Court of Appeals by this agency.

Tulalip Tribes Inc. vs. State of Washington. In the case of *In the Matter of the Application of Union Oil Company*, Snohomish County Cause No. 74121 (1963), the power of the State Supervisor of Water Resources to regulate waters flowing through lands within the boundaries of an Indian reservation which had been transferred by Indians to non-Indians, was presented to the court. The case came to the state court on appeal from an order of the Supervisor of Water Resources of the State, which order had authorized an applicant, Union Oil Company, to divert such water for use for oil refinery