277

ANNUAL REPORT

PASSAGE OF FISH

OVER

BONNEVILLE AND McNARY DAMS

COLUMBIA RIVER

OREGON AND WASHINGTON

1954

Prepared by

Portland and Walla Walla Districts

Corps of Engineers, U. S. Army

Army-Port. Dist., Oreg.

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TABLE OF CONTENTS

BONNEVILLE DAM

Text	Page
Summary	1
Spring Chinook Salmon	3
Summer Run Chinook Salmon	3
Fall Chinook Salmon	4
Chinook Jacks or Grilse	4
Blueback Salmon	4
Silver Salmon	5
Chum Salmon	5
Humpback Salmon	5
Steelhead Trout	5
Maximum Abundance and Yearly Percentage of Salmonids Counted over Each Fish Ladder	6
Population Trends of Salmonid Species at Bonneville Dam	6
Miscellaneous Species	6
Shad	6
Smelt	7
Lamprey	7
Sturgeon	7
Other Miscellaneous Species	7
Activities and Observations	8
Fish Locks	8
Powerhouse and Bradford Island Auxiliary Water Screens	8
Fish-counting Schedule - 1954	8
Forebay and Tailwater Levels	9
Fish Facility Repairs and Overhaul	9
Special Fishery Investigations	10
Trapping Facility	10
Seiche Experiment	11
Submerged Orifice Research	11
Fingerling Survival Experiments	12

TABLE OF CONTENTS (Cont'd)

BONNEVILLE DAM

Text	Page
Fishway Operation and Maintenance Costs	13
Weather and River Flow Data	13

McNARY DAM

Summary	14
Spring Chinook Salmon	16
Summer Run Chinook Salmon	16
Fall Chinook Salmon	16
Chinook Jacks or Grilse	17
Blueback Salmon	17
Silver Salmon	18
Chum Salmon	18
Steelhead Trout	18
Miscellaneous Species	19
Activities and Observations	19
Instruction for Fishway Operators and Fish Counters	19
Generator Installation	19
Powerhouse Fish Collection Channel	20
Washington Fish Lock	20
Pressure Fish Lock	20
Washington Entrance Bays, North and South Fish Entrance Bays, and Closed Fishway Channel	21
Fishway Pumps	21
Fish-counting Schedule - 1954	21
Downstream Mortality Studies	22
Fishway Construction and Repairs	22
Fishway Operation and Maintenance Costs	24
Weather and River Flow Data	24

LIST OF TABLES

BONNEVILLE DAM

Table No.	
1	Yearly totals of all fish counted over Bonneville Dam - 1938-1954
2	Monthly totals of all fish counted over Bonneville Dam - 1954
3	Weather and water data report - January 1954
4	Weather and water data report - February 1954
5	Salmonid fish count - March 1954
6	Scrap fish count - March 1954
7	Salmonid fish count - April 1954
8	Scrap fish count - April 1954
9	Salmonid fish count - May 1954
10	Scrap fish count - May 1954
11	Salmonid fish count - June 1954
12	Scrap fish count - June 1954
13	Salmonid fish count - July 1954
14	Scrap fish count - July 1954
15	Salmonid fish count - August 1954
16	Scrap fish count - August 1954
17	Salmonid fish count - September 1954
18	Scrap fish count - September 1954
19	Salmonid fish count - October 1954
20	Scrap fish count - October 1954
21	Salmonid fish count - November 1954
22	Scrap fish count - November 1954

LIST OF TABLES (Cont'd)

BONNEVILLE DAM

Table No.	
23	Weather and water data report - December 1954
24	Peak days of fish migration - 1938-1954
25	Monthly count of chinook salmon - 1938-1954
26	Monthly count of blueback salmon - 1938-1954
27	Monthly count of silver salmon - 1938-1954
28	Monthly count of chum salmon - 1938-1954
29	Monthly count of steelhead trout - 1938-1954
30	Miscellaneous species counted over fish ladders and in fish locks - 1938-1954
31	Number and percent of chinook salmon counted over each fish ladder - 1954
32	Number and percent of chinook jack salmon counted over each fish ladder - 1954
33	Number and percent of blueback salmon counted over each fish ladder - 1954
34	Number and percent of silver salmon counted over each fish ladder - 1954
35	Number and percent of chum salmon counted over each fish ladder - 1954
36	Number and percent of steelhead trout counted over each fish ladder - 1954
37	Yearly percentage of salmonids counted over each fish ladder - 1938-1954
38	Number and percent of shad counted over each fish ladder - 1954
39	Number and percent of shad counted over fish ladders and in fish locks - 1938-1954

LIST OF TABLES (Cont'd)

McNARY DAM

Table No.	
40	Monthly totals of all fish counted over McNary Dam - 1954
41	Weather and water data report - January 1954
42	Weather and water data report - February 1954
43	Salmonid fish count - March 1954
44	Scrap fish count - March 1954
45	Salmonid fish count - April 1954
46	Scrap fish count - April 1954
47	Salmonid fish count - May 1954
48	Scrap fish count - May 1954
49	Salmonid fish count - June 1954
50	Scrap fish count - June 1954
51	Salmonid fish count - July 1954
52	Scrap fish count - July 1954
53	Salmonid fish count - August 1954
54	Scrap fish count - August 1954
55	Salmonid fish count - September 1954
56	Scrap fish count - September 1954
57	Salmonid fish count - October 1954
58	Scrap fish count - October 1954
59	Salmonid fish count - November 1954
60	Scrap fish count - November 1954
61	Salmonid fish count - December 1954
62	Scrap fish count - December 1954

LIST OF TABLES (Cont'd)

McNARY DAM

Table No.	
63	Peak days of fish migration - 1954
64	Number and percent of chinook salmon counted over each fish ladder - 1954
65	Number and percent of chinook jack salmon counted over each fish ladder - 1954
66	Number and percent of blueback salmon counted over each fish ladder - 1954
67	Number and percent of silver salmon counted over each fish ladder - 1954
68	Number and percent of steelhead trout counted over each fish ladder - 1954

LIST OF PLATES

Plate No.	
1	Chinook salmon - fish count - Bonneville and McNary Dams
2	Blueback salmon - fish count - Bonneville and McNary Dams
3	Silver salmon - fish count - Bonneville and McNary Dams
4	Steelhead trout - fish count - Bonneville and McNary Dams
5	Chinook salmon migration periods - 1938-1954 - Bonneville Dam
6	Blueback salmon migration periods - 1938-1954 - Bonneville Dam
7	Silver salmon migration periods - 1938-1954 - Bonneville Dam
8	Steelhead trout migration periods - 1938-1954 - Bonneville Dam
9	Trend of counts - Spring chinook salmon - Bonneville Dam
10	Trend of counts - Summer chinook salmon - Bonneville Dam

LIST OF PLATES (Cont'd)

Plate No.	
11	Trend of counts - Fall chinook salmon - Bonneville Dam
12	Trend of counts - Total chinook salmon - Bonneville Dam
13	Trend of counts - Blueback salmon - Bonneville Dam
14	Trend of counts - Silver salmon - Bonneville Dam
15	Trend of counts - Spring and summer run steelhead trout - Bonneville Dam
16	Trend of counts - Fall run steelhead trout - Bonneville Dam
17	Trend of counts - Total steelhead trout - Bonneville Dam
18	Trend of counts - Total all salmon including steelhead - Bonneville Dam
19	Daily river discharges, water temperatures and turbidity readings - Bonneville Dam
20	Daily river discharges, water temperatures and turbidity readings - McNary Dam

LIST OF DRAWINGS

Drawing No.	
T-8-15	General site map - fish-passing facilities - Bonneville Dam
MD-05-31/1	General site plan - fish-passing facilities - McNary Dam

LIST OF PHOTOGRAPHS

BONNEVILLE DAM

Photo No.	
1	View of submerged orifice portion of one weir near upper end of Bradford Island fish ladder showing small orifice installed especially for shad and other miscellaneous species
2	Washington shore fish ladder

LIST OF PHOTOGRAPHS (Cont'd)

BONNEVILLE DAM

Photo No.	
3	Debris in powerhouse collection system
4	Silt in powerhouse screen area
5	Powerhouse screen intake prior to cleaning
6	U. S. Fish and Wildlife Service - Fish-trapping and loading facility in connection with Washington shore fish-counting station

McNARY DAM

7	Looking south from the Washington shore
8	Washington fishway entrance, ladder and gravity lock
9	Washington fish ladder showing typical flow over weirs
10	Fishway entrance at nonoverflow section between spillway and powerhouse
11	Oregon fishway and auxiliary water pumping station
12	Washington fish ladder counting station

FOREWORD

This is a combined report on the migration of fish at Bonneville and McNary Dams on Columbia River, and the first published report to include McNary Dam fishway operations. Although the fishways at McNary Dam were in operation when the pool was raised in 1953, the actual counting of fish was not initiated until March 15, 1954.

The statistics shown in this report are for the calendar year 1954 with summaries of fish counts by species which provide a continuity of comparable data for each calendar year from 1938 to 1954, inclusive, for Bonneville Dam, and beginning with 1954 for McNary Dam. Brief descriptions of investigations and experiments performed during the year at each dam are also included.

Copies of these annual reports are distributed to fishery agencies, libraries and others interested in these fisheries, within the limits of copies printed and requests received. The use of abstracts or data from this report is permissible only when credit for the source is given to the Corps of Engineers.

A series of tables, plates, drawings and photographs are included to illustrate and clarify the data in the report on physical features and operational procedures of the fish facilities at both dams. A number of tables and plates formerly included in this report on Bonneville Dam were omitted this year to conserve space and to reduce the cost of the combined report. Adequate supporting data may be found either in the tables or plates of this report to permit comparison with data for prior years.

ANNUAL REPORT ON THE PASSAGE OF FISH
BONNEVILLE AND McNARY DAMS
CALENDAR YEAR 1954

BONNEVILLE DAM

Summary

1. The total counts of nearly all species of fish tallied at Bonneville Dam in 1954 were less than the 1953 counts. However, the total salmonid count for 1954 was above the 17-year average.

2. During 1954, a total of 883,128 fish of all species were counted. This was a reduction of 255,500 from the previous year and less than the 17-year average, 1938-1954, inclusive, of 941,363.

3. The salmonid count for 1954 of 632,949 comprised 320,947 chinook, 130,107 blueback, 4,062 silver, 1,569 chum, 4 humpback salmon and 176,260 steelhead trout. The total count of miscellaneous fish was 250,179.

4. The 1954 spring run of chinook salmon showed a decrease from 1953 but the summer and fall runs were increased. See table 25.

5. Yearly totals of all fish which ascended Bonneville Dam during the period 1938-1954, inclusive, appear in table 1. Monthly totals for 1954 are listed in table 2. Daily records, by months, are compiled in tables 3 to 23, inclusive. Peak days of fish migration, by species, for the period 1938-1954, inclusive, are shown in table 24. On June 28, the maximum number of salmonids were counted over each fish ladder in one day during 1954 as explained in paragraph 24, and the maximum number of miscellaneous fish were counted on July 7, as explained in paragraph 31. Monthly counts of salmon and steelhead trout for the period 1938-1954,

inclusive, are shown in tables 25 to 29, inclusive, and miscellaneous species counted over the same period are shown in table 30.

6. Mild weather prevailed throughout the year with only a few days of freezing weather in January and February, and no extreme heat during the summer months. A total of 73 inches of precipitation was recorded during 1954. Plates on weather data have been eliminated in this report.

7. Fish-counting was initiated on February 28, and discontinued on November 27, 1954, for annual winter maintenance of the fish facilities. During periods when fish-counting was discontinued, at least one complete fishway system was continually accessible for the unimpaired passage of upstream migrants.

8. Considerable biological work was carried on during the period of April 11 to October 9, 1954. Experiments were resumed for comparison of submerged orifices versus overflow weirs, and several phases were conducted to determine fish preference for depths of orifices at entry ports in the powerhouse fish collection system. Also, tests were continued in 1954 to obtain additional data on the survival rate of fingerling salmon passing Bonneville Dam by placing them in gossamer bags attached to delayed-action automatically-inflated balloons for retrieving the fish below the dam.

9. For comparison as well as to limit space in this consolidated report, plates 1 to 4, inclusive, show the daily fish counts of the four principal salmonid species tallied at Bonneville and McNary Dams in 1954.

10. The location of fish facilities and appurtenant features in relation to other features at Bonneville Dam are shown on General Site Map, T-8-15.

BONNEVILLE DAM

Spring Chinook Salmon
(March 1 - May 31)

11. Spring chinook salmon appeared at approximately the normal time of the year. See plate 5. The spring run total of 134,766 chinook salmon was the second highest since fish-counting was initiated in 1938 and almost twice the 17-year average of 76,730. The peak of abundance was reached on May 5 when 7,735 chinook were counted. Peak days of fish migration since 1938 are shown in table 24.

12. The commercial fishing season was opened on April 30, 1954, below Bonneville Dam.

13. The number and percentages of spring chinook salmon which ascended each fish ladder are shown for 2-week periods in table 31. The number of spring chinook salmon which ascended the Bradford Island fish ladder (40.01 percent) was below those counted at the Washington shore station (59.99 percent). Conversely, in 1953 the number of spring chinook which ascended the Bradford Island ladder (67.85 percent) was more than twice the number counted at the Washington shore station (32.15 percent).

14. The increasing trend in the number of spring chinook salmon which ascended Bonneville Dam is shown in table 25 and plate 9.

Summer Run Chinook Salmon
(June 1 - August 15)

15. The summer run total of 85,682 chinook salmon shows an increase of 20,825 over the 1953 total of 64,857, and is almost twice the 17-year average of 47,812. See table 25. Table 31 shows 64.25 percent of the

summer run having ascended the Washington shore fish ladder and 35.75 percent, the Bradford Island fish ladder in 1954. See plate 10.

Fall Chinook Salmon
(August 16 - November 28)

16. The fall run peak was reached on September 5, 1954, when 8,312 chinook salmon were counted. This fall run peak was slightly higher than the spring run peak. See table 24 and plate 5. The 1954 total of 100,499 fall run chinook was somewhat greater than the 1953 total of 97,335, but less than the 17-year average of 231,415. See table 25. Plate 11 illustrates the trend of counts.

Chinook Jacks or Grilse

17. Small male chinook salmon, approximately 16 to 18 inches in length, are tallied as jack salmon. The number of this species ascending Bonneville Dam is increasing. In 1953, approximately 9.69 percent of the total number of chinook salmon counted were jacks and in 1954, 15.8 percent were jacks. The counts of these smaller male chinook salmon are included in the totals shown in table 25. See table 32 also.

Blueback Salmon

18. A decrease in the total number of blueback salmon which ascended Bonneville Dam in 1954 will be noted in table 26. The total of 130,107 is the lowest since 1950 but above the 17-year average of 100,513. The peak of abundance was reached on June 28 when 10,537 blueback salmon were counted. See tables 24 and 26, and plates 2, 6 and 13.

Silver Salmon

19. Only 4,062 silver salmon were counted at Bonneville Dam in 1954, the lowest count since 1950, and about one-half of the 17-year average of 8,215. Data on this species are shown in tables 1, 2, 24, 27 and 34; also on plates 3, 7 and 14.

Chum Salmon

20. A total of 1,569 chum, or dog salmon, were tallied at Bonneville Dam in 1954. The 17-year average is 1,681. Fish-counting was discontinued at the end of November while a significant number of chum salmon were still moving upstream. See tables 1, 2, 24, 28 and 35.

Humpback Salmon

21. Only four of these "pink" salmon were tallied at Bonneville Dam in 1954 as shown on tables 1 and 2.

Steelhead Trout

22. The 1954 total of 176,260 steelhead trout is the fourth highest since fish-counting was initiated in 1938 at Bonneville Dam. The 17-year average is 144,035. The peak of abundance was reached on July 28 when 5,631 steelheads were counted.

23. For a number of years the spring and summer runs have been increasing but the fall runs, decreasing. Local angling pressure has continued heavy. As usual, a number of steelheads were found when the fish ladders were unwatered for wintertime overhaul. Pertinent information on

steelhead trout is shown on tables 1, 2, 24, 29 and 36; also on plates 4, 8, 15, 16 and 17.

Maximum Abundance and Yearly Percentage of Salmonids Counted Over Each Fish Ladder

24. On June 28, the maximum number of salmonids tallied in one day in 1954 at Bonneville Dam was 14,171; 7,190 ascended the Bradford Island fish ladder, and 6,981, the Washington shore fish ladder.

25. In previous annual reports, the yearly percentages of salmonids counted over each fish ladder were shown from the year 1946 through the current year. After considerable effort, data from hourly and daily counts have been added to this table for the years preceding 1946 and beginning with 1938 when fish-counting was initiated at Bonneville Dam. See table 37.

Population Trends of Salmonid Species at Bonneville Dam

26. Plates 9 to 18, inclusive, indicate the population trends of salmonid species, including steelhead trout, since fish-counting was initiated in 1938 at Bonneville Dam, but may or may not be indicative of the total abundance of these species in the Columbia River. The method of least squares has been employed in preparing this analysis.

Miscellaneous Species

Shad

27. Only 5,029 shad ascended the fish ladders at Bonneville Dam in 1954; the fourth lowest yearly tally since fish-counting was initiated in 1938. The 17-year average is 17,440. See tables 2, 30, 38 and 39. As described in earlier reports some shad tended to school in the ladders and

appeared to make very little effort to go on upstream. The small orifices mentioned in the 1953 annual report as being installed near the upper end of the fish ladders functioned with a high degree of success in 1954. See photo 1.

Smelt

28. No smelt were observed at Bonneville Dam in 1954.

Lamprey

29. The 1954 total of 40,986 lampreys was the fourth lowest count since fish-counting was initiated in 1938 at Bonneville Dam, and slightly less than one-half of the 17-year average of 85,009. This species is diminishing in abundance. Lamprey is a food of primary importance to white sturgeon, and emaciated sturgeon are now common in the Columbia River. See tables 2 and 30.

Sturgeon

30. Only one of these ganoids ascended the forebay at Bonneville Dam in 1954. See tables 2 and 30. No efforts were made to lift sturgeon in the fish locks to the forebay. Investigations were carried on during the year on other species but none on sturgeon due to the lack of time. One local fisherman, who operated several set lines, reported that he quit commercial sturgeon fishing in 1954 because of the dearth of this species.

Other miscellaneous species

31. The total count of 11 species of fish of lesser importance amounted to 250,179. This figure is approximately 81,000 below the 17-year average. See tables 2 and 30. On July 7, the maximum number of these lesser species counted in one day in 1954 was 6,597 at the Bradford Island fish ladder, and 3,754 at the Washington shore fish ladder, a total of 10,351.

Activities and Observations

Fish Locks

32. The Washington shore fish lock, the only one used in 1954 at Bonneville Dam, was operated briefly to capture a few fish for bacteriologists of the University of Washington.

Powerhouse and Bradford Island Auxiliary Water Screens

33. During the powerhouse fish collection system experiments on type and depth of fish entry ports, it was necessary to clean the stationary screens daily. Some fingerling mortality was noted on the screens although the auxiliary water supply valves were partially closed in the interim that fingerling salmon were released from hatcheries above the dam. Cleaning these screens by hand is not effective and does not permit optimum, or even desirable, collection system entry conditions. It has been clearly demonstrated that an adequate flow of water is necessary to attract the fish into the collection system but this cannot be done during flood season.

Fish-counting Schedule - 1954

34. Jan. 1 - Feb. 27 - No counting performed. Fish were free to pass upstream through the open counting gates.

Feb. 28 - Apr. 3 - Counters on duty for 8 hours daily, one at each station.

Apr. 4 - Oct. 2 - Counters on duty for two 8-hour shifts, counting 16 hours daily.

Oct. 3 - Nov. 27 - Counters on duty for 8 hours daily, one at each station.

Nov. 28 - Dec. 31 - Fish-counting discontinued. Stations were left open and fish were free to pass upstream through the open counting gates.

Forebay and Tailwater Levels

35. Heretofore, fishway barrier stop logs, 5 feet in height, were placed on top of the 50-foot spillway gates of Bays 1 and 18 to raise the forebay level during minimum flow periods. These stop logs were removed about March 10 and were not replaced during minimum flow periods in 1954 as in former years. Spillage of water at night was continued until November 28 when the spillway dam was closed and all river flow was channeled through the powerhouse so that a cofferdam could be constructed below the spillway. The spillage procedure, therefore, was much later in 1954 than in 1953. The daily river discharges, water temperatures, and turbidity readings are shown on plate 19.

Fish Facility Repairs and Overhaul

36. Sections 3, 4 and 7 of the powerhouse collection system were overhauled during 1954 and all silt and debris removed. This entailed the usual stop-logging and pumping to render the diffusion chambers accessible. All steel was cleaned and repainted, and damaged diffusion baffles were replaced.

37. The powerhouse branch of the Bradford Island fish ladder and the Washington shore fish ladder were overhauled and reconditioned in the same manner as the diffusion chambers of the powerhouse collection system. See photos 2 and 3; photo 2 shows the Washington shore fish ladder before unwatering.

38. The piezometer tubes which had been installed in 1953 in the auxiliary water conduits of the powerhouse collection system to determine water pressures were found torn from their anchors but were not replaced.

39. Repair work on the Washington shore filter screens was completed on January 28.

40. For many years, debris, such as sunken logs, limbs, silt and other trash, has collected against the trash racks protecting the powerhouse auxiliary water supply screens. Divers were loath to enter the area to open up the fingerling bypass or to clear the fish lock exit, but in January and February a diver was employed to blast areas in order to anchor braces and stop log guides so that the trash racks could be moved into a north-south position extending from the powerhouse office wall to the navigation lock wall. Upon completion of the work, the area was drained on December 14, 1954. Photos 4 and 5 show the accumulation of debris which was removed by the end of the year. Henceforth, the new trash rack arrangement will protect the auxiliary water screens from debris, permit the area to be drained for cleaning, painting, repair and removal of silt, increase the auxiliary water supply, and facilitate fishway maintenance.

Special Fishery Investigations

Trapping Facility

41. In the late spring, contractors for the U. S. Fish and Wildlife Service completed construction of the fish-trapping and tank-loading facility located at the Washington shore counting station. See photo 6. This trap was used from July 12 to 14 to capture a number of summer run chinook for transfer to the Tyee station on Wind River where these chinook

were successfully spawned late in the fall. The operation of this trap has proved satisfactory.

Seiche Experiment

42. Field studies of the binodal and trinodal seiche oscillations which can be created at will in the Washington shore fish ladder by reducing the quantity of water in the ladder were made prior to initiating a more detailed study of seiche oscillations in the McNary Dam fish ladder. These phenomena were first observed in the 1947 tunnel experiment which is described in paragraph 50, "Darkness Experiment" of the 1948 annual report on the passage of fish over Bonneville Dam.

Submerged Orifice Research

43. The investigations which had been deferred in 1953 were resumed after special orifices were constructed and tailwater measuring devices were installed. These investigations were under way during the period from April 11 to October 7. Shallow submerged orifices, from 2 to 8 feet below the tailwater surface proved superior to all other types of entry conditions. A few test runs indicated that normal attraction flows were more effective than one-half the normal flow. The following phases of tests were made:

a. Shallow submerged orifices versus overflow weirs.

b. Shallow submerged orifices versus deeply submerged orifices.

c. Shallow submerged orifices versus two intermediate depths of orifices.

d. Normal flow versus one-half attraction flow.

Fingerling Survival Experiments

44. Additional experimentation was conducted in 1954 to improve the techniques necessary to retrieve small salmon from the tailrace after passage through the powerhouse turbines and over the spillway. The fingerling salmon were placed in gossamer bags to which automatically-inflated rubber balloons were attached and sent through the powerhouse and spillway dam. The delayed-action timing devices caused the balloons to inflate in the tailrace thus bringing the fish to the surface where they were retrieved and examined. Approximately 5,000 fingerling salmon were used in these experiments. A large percentage of these fingerlings were retrieved and examined by personnel of the Corps of Engineers and the U. S. Fish and Wildlife Service who assisted in these experiments. The data collected in these experiments are in the process of evaluation. Although improvements in the various techniques of retrieving fingerlings were continually being evolved, lack of communication equipment between the dam and the retrieving parties in boats downstream seriously hampered the work.

45. Several successful experiments were made in passing pressurized fingerlings through the powerhouse after many difficulties were overcome in the design of a pressure chamber. The fish which were passed through the turbines under pressure were held over night or over a week end at the bottom of the intake tube with some head space of air provided above the fish. Even when held down for three days, the "pressurized" fish survived the passage through the powerhouse.

Fishway Operation and Maintenance Costs

46. The total cost in 1954 of fishway operation and maintenance, including fish-counting but excluding research and experimental investigations, was $119,248.26.

Weather and River Flow Data

47. Daily records of weather conditions are shown on the monthly tables of salmonid fish counts beginning with table 3. Daily recordings in graphic form have been omitted to conserve space in this combined report. The daily turbidity readings, river flow, and water temperatures are plotted for the year on plate 19.

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CALENDAR YEAR 1954

McNARY DAM

Summary

48. The total of all species of fish counted at McNary Dam during 1954 was 1,062,104 of which 310,746 were salmonids.

49. The salmonid count was comprised of 126,555 chinook, 108,181 blueback, 950 silver, 1 chum salmon and 75,059 steelhead trout. The total of 751,358 miscellaneous fish comprised 14 species.

50. The monthly totals of all species of fish counted at McNary Dam are shown in table 40. Daily records, by months, are shown in tables 41 to 62, inclusive. Peak days of fish migration, by species, are shown in table 63.

51. Fish-counting was initiated on March 15 and discontinued on November 30, 1954. After regular counting was discontinued, one fish ladder was shut down for normal winter maintenance and repair while the other ladder remained completely accessible for the unimpaired passage of upstream migrants.

52. A special winter count of fish was begun on December 20 to be continued until the normal starting date of fish-counting in March 1955 in order to ascertain the number of fish seeking upstream passage during the winter months.

53. Preliminary experiments were performed on the pressure fish lock to determine the efficiency of this fish-passing facility. The results obtained indicate that this fish lock will lift fish over the dam.

Insufficient fish were available during these experiments to determine the optimum exit time - a factor which would determine the practicability of this facility in similar installations.

54. In order to provide ready comparison of fish migration, plates 1 to 4, inclusive, show the daily counts of the four principal salmonid species tallied at Bonneville and McNary Dams.

55. Although part of the difference between the count at Bonneville Dam and the number of fish reaching McNary Dam is due to the white commercial, Indian and sport fisheries, fish returning to hatcheries and other tributary streams, a considerable part of the differences have not been reconciled.

56. The location of main and appurtenant fish facilities at McNary Dam are shown in relation to other features on General Site Plan, MD-05-31/1.

McNARY DAM

Spring Chinook Salmon
(March 15 - June 20)

57. Spring chinook appeared on April 13 in consistent and increasing numbers, and reached the peak of abundance on May 12 when 6,571 were counted. See tables 45 and 63, and plate 1. The total of 61,443 spring chinook salmon comprised 48.5 percent of the total chinook run.

58. A breakdown of the number and percent of chinook salmon which ascended each fish ladder appears in table 64. The number which ascended the Oregon fish ladder was 66.7 percent of the total run of spring chinook salmon.

Summer Run Chinook Salmon
(June 21 - August 26)

59. Summer run chinook reached a peak of 2,565 on July 5. See tables 51 and 63, and plate 1. The total of 55,412 summer run chinook comprised 43.8 percent of the total chinook run. Of these summer run chinook, 61.9 percent were counted at the Washington shore fish ladder.

Fall Chinook Salmon
(August 27 - November 30)

60. The fall run reached a peak of 906 on September 12. See tables 55 and 63, and plate 1. The total of 9,682 fall run chinook was 7.65 percent of the total run of chinook which ascended McNary Dam and less than 10 percent of the fall run which passed Bonneville Dam. Of these fall run chinook at McNary Dam, 60.4 percent ascended the Washington shore fish ladder.

61. Considering the number of fish taken by hatcheries, and spawning in the main river and tributaries, the number of fall chinook which ascended McNary Dam was much less than the most conservative estimate. The most probable explanation is perhaps the heavy fishing of fall run chinook above Bonneville Dam.

Chinook Jacks or Grilse

62. These are small male chinook salmon, approximately 16 to 18 inches in length. These fish are counted separately but are included in the spring, summer and fall run chinook counts. See plate 1. Table 65 shows the number and percent of chinook jack salmon counted over each fish ladder at McNary Dam in 1954. These chinook jack salmon made up 15.8 percent of the total chinook run.

Blueback Salmon

63. The total blueback run of 108,181 was slightly less than the chinook run (126,555). The peak of abundance was reached on July 9 when 6,798 bluebacks were counted. See tables 51, 63 and 66, and plate 2. Table 66 shows the number and percent of blueback salmon which ascended each fish ladder at McNary Dam. About three times as many ascended the Washington shore fish ladder (74.6 percent) as the Oregon fish ladder (25.4 percent).

64. A total of 91,234 blueback salmon reached Rock Island Dam, about 161 miles above McNary Dam. The total count at Rock Island Dam was 70 percent and 84 percent, respectively, of the counts at Bonneville and

McNary Dams. The percentage of the Bonneville Dam count in 1954 (70 percent) was only exceeded (75 percent) in 1945.

Silver Salmon

65. A total of 950 silver salmon were counted at McNary Dam in 1954 with a peak of 79 recorded on September 11. Pertinent data relative to the silver salmon count appear in tables 55, 63 and 67, and plate 3.

Chum Salmon

66. On October 17, one chum salmon was recorded at McNary Dam, the only one observed during the fish-counting period in 1954.

Steelhead Trout

67. A total of 75,059 steelhead trout were counted at McNary Dam in 1954. The heaviest passage was recorded in August and September. The peak of abundance was reached on September 10 when 1,285 steelhead were counted. See tables 55 and 63, and plate 4. The percentage use of each fish ladder is shown in table 68; 54.8 percent ascended the Washington shore fish ladder and 45.2 percent, the Oregon ladder. While the Oregon fish ladder was being unwatered on December 2, for maintenance and repair, 1,571 steelhead were removed from the deep water in the upper portion of the ladder and released in the forebay. This number exceeded the 1,527 steelhead which ascended the Oregon ladder during the entire month of November.

Miscellaneous Species

68. The total count of 14 different species of fish, other than salmonids, amounted to 751,358, or more than twice the total salmonid count. See table 40 and tabulations for each month, March to December, inclusive. Suckers, which totaled 499,375, were the most numerous and accounted for approximately one-half of the total of all fish counted at McNary Dam in 1954. It is significant to note the contrast in the number of food fish, such as trout, whitefish and bass, which ascended the dam. Whitefish, which totaled 99,851, were counted each month during the fish-counting period. This is a sport fish but is not considered as valuable for food in the Northwest as in the East. Only 35 trout and 75 bass were tallied at McNary Dam in 1954.

Activities and Observations

Instruction for Fishway Operators and Fish Counters

69. A formal course of instruction was conducted at McNary Dam for all fishway operators and fish counters and covered general background subjects which included the fish facility installation at McNary, history and development of the commercial salmon industry on the Columbia River, life history and habits of salmon and steelhead, and instruction on the identification of all species of fish present in the Columbia River at the dam.

Generator Installation

70. Four main generators were installed by the end of December. As each unit was activated, the amount of water which passed through the

draft tubes increased and widened the tailrace flow pattern northward across the powerhouse creating a greater current along the Oregon shore downstream from the dam than along the Washington shore.

Powerhouse Fish Collection Channel

71. The 44 entrance bays of the powerhouse fish collection channel were placed in operation in 1954. All weirs were operated as overflow weirs during 1954. The weirs were placed in operation on the following dates:

March 8	8 weirs
April 22	6 weirs
June 26	9 weirs
July 7	21 weirs

Washington Fish Lock

72. Installation of this facility was not completed in 1954.

Pressure Fish Lock

73. This lock, an experimental fish-passing device, located in the south nonoverflow section of the dam, was operated in the fall of 1954. A series of experiments were conducted to determine the injuries, if any, to fish during lockage; the actions of the fish (as observed through the view window), and to gain information of an optimum lockage time and capacity. A total of 199 lockages were completed in these experiments. During the trial runs, 15 chinook salmon, 291 steelhead, 15 silver salmon and 55,224 other fish were lifted to the forebay. An exit period of 5 minutes resulted in an efficiency of 75 percent for salmonids as compared with an exit period of one hour or longer which had an efficiency of 96 percent. Overnight lockages were 100 percent efficient in fish leaving

the lock chamber. No apparent injuries resulted from these lockages. Further experiments are proposed for 1955.

Washington Entrance Bays, North and South Fish Entrance Bays, and Closed Fishway Channel

74. The entrances to the fish ladders were in normal operation throughout the year. See photos 7, 8, 9 and 10. Photo 9 shows the entrance and also a general view of the Washington shore fish ladder with typical flow over weirs. The transportation channel leading from the entrance at the south side of the spillway to the junction pool at the south end of the powerhouse was operated in a normal manner throughout the season except for a short period in the fall when the flow was reversed in an effort to provide more fish for the pressure fish-lock studies.

Fishway Pumps

75. All three of the fishway pumps were installed in 1954. See photo 11. These pumps have a capacity of 2,500 c.f.s. each and supply fishway attraction water to the lower end of the Oregon fish ladder, the powerhouse collection channel and the large diffusion chamber at the fish entrance in the south nonoverflow section. During the year, 12,275,000 kw-hrs of electricity was consumed to operate the fishway pumps. This electricity, if valued at 2 mills per kw-hr, would amount to $24,550.00.

Fish-counting Schedule - 1954

76. Jan. 1 - Mar. 14 - No counting performed. Fish passage was maintained through the counting stations at all times. Until the wing gates at the counting stations were installed, the entire width of the ladders was open to fish passage.

Mar. 15 - Apr. 25 - Counters on duty for 8 hours daily, one at each station.

Apr. 26 - Nov. 6 - Counters on duty for two 8-hour shifts, counting 16 hours daily.

Nov. 7 - Nov. 30 - Counters on duty for 8 hours daily, one at each station.

Dec. 1 - Dec. 19 - Fish-counting discontinued. Fish were free to pass upstream through the counting station of the Washington shore fish ladder. The Oregon fish ladder was closed for maintenance.

Dec. 20 - Dec. 31 - Counters on duty for 8 hours daily at the Washington shore fish ladder only.

Note: Counting stations were closed to fish passage during hours in which counters were off duty.

Downstream Mortality Studies

77. Weekly trips along each shore line of the river downstream from McNary Dam, for a distance of 10 miles, were begun in the late summer of 1954 to ascertain the salmon and steelhead mortality between McNary Dam and Patterson Ferry. During six weeks of observation, the number of dead salmon and steelhead was very small, i.e., only one salmon and four steelhead were observed. This study will be resumed in 1955.

Fishway Construction and Repairs

78. During the year 1954, many features of the various fish facilities at McNary Dam were completed. All of the wing gates were installed

in the powerhouse collection channel. The picket and screen assembly on the north end of the powerhouse collection channel was installed. Weights were added to the driving chains on each of the telescopic weirs in the powerhouse collection channel in order that the chains might remain tight and positively engaged on the shaft sprockets to prevent slippage.

79. Various components of the electrical control system of the pressure fish lock were completed.

80. The operating machinery and manual controls for all entrance weirs were installed and placed in operation. Operating machinery and controls for all tilting and regulating weirs at the upper end of the fish ladders were installed and wired for manual operation. The installation of the counting-house operating machinery and controls on each fish ladder were finished as well as the controls for the traveling fish screens on the Oregon shore.

81. During the year, work was accomplished but installation was not completed on the various components of the Washington fish lock.

82. The picketed lead sections of the wing gates at the counting stations were originally covered with wire mesh screen on the downstream side of the pickets. Debris which became lodged between the pickets and screen caused considerable headwater to back up on the screen and prevented raking the pickets. The wire mesh screen was removed to remedy this situation.

83. A metal canopy or shade was placed over each fish-counting board. A light bulb with reflector was placed in the top of the shade for night counting. See photo 12. An adjustable metal shade was placed on the downstream side of the barrier screen of the counting stations so that

the white counting boards would remain in shadow. Screens were placed on the sides of the counting boards to impel the fish to swim farther across the boards before turning, thus enabling fish-counters easier identification of the fish.

84. During unwatering operations at each fish ladder, considerable rubbish and debris, such as damaged buckets, cans, reinforcing steel, hats, tools, and water-logged lumber, were cleaned from the floor of the various collection system channels and the ladder itself. A few diffusion chamber gratings which had become dislodged were replaced.

Fishway Operation and Maintenance Costs

85. The total cost of fishway operation and maintenance, exclusive of electricity, was $118,760, itemized as follows:

Fishway operation	$ 76,354
Fishway maintenance	28,385
Fish-counting	14,021
Total	$118,760

Weather and River Flow Data

86. The maximum and minimum daily water and air temperatures, barometer readings, precipitation data, river discharges and turbidity, are recorded on the monthly salmonid fish-count tables. Barometer readings are recorded at the powerhouse on each 8-hour shift. The data shown in the tables are the daily average of the recorded readings. The river discharge data are the average daily outflow at McNary Dam in cubic feet per second. Water visibility, in feet, as recorded at 8:00 a.m. daily

from Secchi disk readings, is also shown on these tables. The daily turbidity readings, river flow, and water temperatures are plotted for the year on plate 20.

TABLE 1

YEARLY TOTALS OF ALL FISH COUNTED OVER BONNEVILLE DAM

1938 - 1954

Year	Chinook	Steelhead	Blueback	Silver	Chum	Hump-back	Total Salmon	Other[1] Fish	Total Species
1938	271,799	107,003	75,040	15,185	2,117		471,144	614,896	1,086,040
1939	286,236	121,922	73,382	14,383	1,168		497,091	464,684	961,775
1940	391,573	185,161	148,805	11,870	1,729		739,138	364,211	1,103,349
1941	461,443	118,087	65,741	17,911	5,269	4	668,455	269,738	938,193
1942	401,998	151,345	55,464	12,401	1,865	11	623,084	245,033	868,117
1943	313,123	92,131	39,845	2,547	790		448,436	187,379	635,815
1944	240,763	100,521	15,071	4,207	954	1	361,517	230,173	591,690
1945	297,488	120,144	9,501	791	727	1	428,652	309,357	738,009
1946	445,743	142,548	74,354	3,897	1,176	2	667,720	364,809	1,032,529
1947	480,377	135,444	171,139	11,174	199	3	798,336	408,520	1,206,856
1948	419,555	139,062	131,541	4,081	3,636	2	697,877	383,971	1,081,848
1949	277,697	119,285	51,444	1,004	2,028	6	451,464	444,151	895,615
1950	357,375	114,087	77,993	10,151	1,069	8	560,683	266,839	827,522
1951	331,788	140,689	169,428	5,201	1,044	7	648,157	290,562	938,719
1952	420,879	260,990	184,645	7,768	1,505	9	875,796	199,530	1,075,326
1953	332,479	223,914	235,215	13,018	1,728	10	806,364	332,264	1,138,628
1954[2]	320,947	176,260	130,107	4,062	1,569	4	632,949	250,179	883,128
Total	6,051,263	2,448,593	1,708,715	139,651	28,573	68	10,376,863	5,626,296	16,003,159
17-yr. Average	355,957	144,035	100,513	8,215	1,681	4	610,404	330,959	941,363

1 Squawfish, Dace, Trout Perch, Miscellaneous Trout, Shad, etc.

2 Fish-counting initiated 28 February 1954 and discontinued 27 November 1954.

TABLE 2

MONTHLY TOTALS OF ALL FISH COUNTED OVER BONNEVILLE DAM
1954

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Chinook		2	657	82,877	51,230	46,801	32,596	24,969	80,426	1,189	200		320,947
Steelhead		6	679	5,511	1,571	6,115	59,443	65,234	34,941	2,209	551		176,260
Blueback			1		13	52,359	76,505	1,212	17				130,107
Silvers								668	3,319	74	1		4,062
Chum									6	193	1,370		1,569
Humpback								1	3				4
Total Salmon		8	1,337	88,388	52,814	105,275	168,544	92,084	118,712	3,665	2,122		632,949
Shad						34	3,848	1,136	11				5,029
Sturgeon								1					1
Trout Perch													
Bass													
Cottidae													
Carp			1		1	15	6,985	7,432	500	17	5		14,956
Chub				56	56	61	584	1,152	214	11	1		2,135
Crappie													
Catfish													
Shiner						8	167	264	80	2			521
Squawfish				286	1,532	11,868	23,940	3,643	1,500	704	227		43,700
Suckers			52	5,635	18,860	26,342	60,117	18,818	6,602	1,276	411		138,113
Whitefish			14	37	2	3		7	177	669	505		1,414
Lamprey				33	201	1,001	10,303	26,535	2,824	89			40,986
Smelt													
Dace													
Bullhead													
Stickleback													
Cutthroat Trout													
Channel Cat							1						1
Misc. Trout			31	230	154	81	125	466	1,590	390	256		3,323
Total Other Fish			98	6,277	20,806	39,413	106,070	59,454	13,498	3,158	1,405		250,179
Total Fish		8	1,435	94,665	73,620	144,688	274,614	151,538	132,210	6,823	3,527		883,128

Fish-counting initiated 28 February 1954 and discontinued 27 November 1954.

TABLE 3

WEATHER AND WATER DATA REPORT - JANUARY 1954
BONNEVILLE DAM

Date	Temperature Max.	Temperature Min.	Temperature Water	Weather Bar.	Weather Sky	River Turbidity	River Flow
1	51	34	43	30.02	W.W. Cloudy	0.5	124,800
2	46	38	43	29.86	E.W. Cloudy	0.6	131,600
3	44	36	43	29.98	W.W. Cloudy	0.6	127,000
4	53	38	42	30.16	S.W.W. Cloudy	0.6	109,600
5	42	36	42	30.04	L.E.W. Cloudy	1.5	114,400
6	58	40	42	29.90	M.E.W. Ptly.Cldy.	1.8	111,000
7	50	39	42	29.78	L.E.W. Cloudy	2.0	118,400
8	56	37	42	30.26	L.W.W. Ptly.Cldy.	2.2	117,500
9	45	38	42	30.37	E.W. Cloudy	2.8	115,100
10	43	37	42	30.39	E.W. Cloudy	2.8	117,700
11	43	37	42	30.35	E.W. Ptly.Cldy.	3.0	116,300
12	43	35	42	30.37	E.W. Clear	3.5	114,000
13	44	31	42	30.20	W.W. Cloudy	3.6	103,800
14	51	36	42	39.60	S.W.W. Cloudy	3.0	117,400
15	47	36	42	39.73	W.W. Cloudy	3.0	123,700
16	38	26	41	29.80	E.W. Cloudy	3.5	123,000
17	27	23	41	29.74	E.W. Cloudy	3.0	120,000
18	30	23	41	29.79	E.W. Cloudy	2.5	112,200
19	36	29	40	30.04	E.W. Cloudy	2.5	111,200
20	30	13	38	30.24	E.W. Clear	2.6	107,300
21	19	11	36	30.12	E.W. Cloudy	2.0	117,700
22	32	14	36	29.68	E.W. Cloudy	2.3	122,500
23	42	32	36	29.90	W.W. Cloudy	2.5	130,800
24	41	32	36	29.80	W.W. Cloudy	2.5	128,800
25	37	28	36	29.95	E.W. Cloudy	3.0	115,900
26	36	29	36	29.94	W.W. Cloudy	3.5	116,900
27	39	32	36	29.85	E.W. Cloudy	3.0	119,600
28	35	32	36	30.17	W.W. Cloudy	3.0	122,800
29	40	34	36	30.22	E.W. Cloudy	3.5	128,800
30	40	35	36	30.50	E.W. Cloudy	3.5	141,900
31	45	34	36	30.65	E.W. Cloudy	3.5	134,200

TABLE 4

SALMONID FISH COUNT - FEBRUARY 1954
BONNEVILLE DAM

Date	Temperature Max.	Temperature Min.	Temperature Water	Weather Bar.	Weather Sky	River Turbidity	River Flow	Chinook	Steelhead	Total
1	43	35	37	30.60	E.W. Cloudy	2.0	140,900			
2	40	33	38	30.60	E.W. Ptly.Cldy.	1.5	133,900			
3	40	33	38	30.50	G.E.W. Ptly.Cldy.	1.2	133,200			
4	40	33	38	30.50	E.W. Ptly.Cldy.	1.0	142,400			
5	38	33	38	30.54	E.W. Cloudy	1.5	152,700			
6	38	34	38	30.52	S.E.W. Ptly.Cldy.	1.3	136,100			
7	39	32	38	30.57	M.E.W. Ptly.Cldy.	1.8	138,600			
8	39	30	39	30.60	G.E.W. Ptly.Cldy.	1.1	129,200			
9	39	31	39	30.28	G.E.W. Cloudy	1.2	124,200			
10	43	32	39	30.28	G.E.W. Cloudy	1.5	123,900			
11	40	30	40	30.16	E.W. Cloudy	1.8	124,600			
12	35	31	39	29.49	G.E.W. Cloudy	1.0	124,300			
13	46	32	39	29.54	W.W. Cloudy	1.9	125,100			
14	48	39	40	29.75	W.W. Cloudy	2.2	128,500			
15	46	39	40	30.11	W.W. Cloudy	2.5	132,200			
16	45	37	40	30.00	G.E.W. Cloudy	2.5	134,500			
17	47	37	41	29.66	W.W. Cloudy	1.8	133,600			
18	48	36	41	30.30	W.W. Cloudy	1.9	136,500			
19	51	35	41	30.25	W.W. Cloudy	2.0	130,300			
20	53	43	42	30.27	W.W. Cloudy	2.5	139,800			
21	60	41	42	30.12	W.W. Cloudy	2.5	146,200			
22	52	36	42	30.63	E.W. Clear	2.3	146,500			
23	54	32	42	30.50	G.E.W. Clear	2.0	127,100			
24	59	35	43	30.38	G.W.W. Ptly.Cldy.	1.8	137,700			
25	53	37	44	30.27	W.W. Ptly.Cldy.	2.0	140,800			
26	51	38	44	30.70	W.W. Cloudy	2.0	138,300			
27	45	37	44	30.54	W.W. Clear	2.2	134,400			
28	53	38	44	30.40	W.W. Cloudy	2.2	138,200	2	6	8
								2	6	8

Fish-counting initiated on 28 February 1954.

TABLE 5

SALMONID FISH COUNT - MARCH 1954
BONNEVILLE DAM

	Temperature			Weather		River					
Date	Max.	Min.	Water	Bar.	Sky	Turbidity	Flow	Chinook	Steelhead	Blueback	Total
1	48	31	43	30.45	L.E.W. Clear	1.8	136,400	1	2		3
2	49	33	43	30.35	L.E.W. Clear	1.8	132,500	2	2		4
3	47	35	43	30.29	L.E.W. Clear	2.0	122,700	3	8		11
4	48	35	42	30.39	E.W. Clear	1.0	127,800	1	6		7
5	52	32	42	30.33	L.E.W. Clear	1.5	128,700	2	4		6
6	57	33	42	30.25	W.W. Cloudy	1.8	124,100		12		12
7	53	34	42	30.25	L.E.W. Cloudy	1.8	123,800	3	14		17
8	51	39	43	30.29	L.E.W. Cloudy	2.0	120,000	8	14		22
9	49	42	44	29.40	L.E.W. Cloudy	1.5	130,700	13	94		107
10	56	32	43	29.85	L.W.W. Cloudy	1.5	118,900	2	14		16
11	41	32	43	30.15	L.W.W. Cloudy	2.0	139,500	4	10		14
12	43	28	43	30.50	L.E.W. Ptly.Cldy.	2.5	162,600	2	4		6
13	51	30	42	30.51	L.E.W. Clear	2.5	177,900		2		2
14	49	32	42	30.44	M.E.W. Clear	2.0	168,600	3	5		8
15	52	34	42	29.86	L.E.W. Cloudy	2.0	154,200		3		3
16	52	38	43	29.87	L.W.W. Cloudy	2.5	149,900	9	16		25
17	50	37	43	29.94	M.W.W. Cloudy	2.5	142,200	3	22		25
18	48	34	44	30.13	L.E.W. Clear	2.8	138,000	15	25		40
19	54	35	44	29.85	S.E.W. Cloudy	2.0	142,700	9	35		44
20	53	36	44	29.94	L.E.W. Clear	1.5	145,100	6	19		25
21	56	32	44	29.97	L.E.W. Clear	1.5	141,100	3	6		9
22	60	33	44	30.15	L.E.W. Clear	2.0	136,200	1			1
23	61	33	44	29.91	L.E.W. Clear	1.5	136,700	30	45		75
24	59	37	45	29.80	L.E.W. Cloudy	1.5	130,000	30	20		50
25	58	34	45	30.20	L.E.W. Clear	2.5	133,500	36	23		59
26	58	37	45	30.36	W.W. Cloudy	2.5	136,700	77	26		103
27	58	42	45	30.20	W.W. Cloudy	2.5	136,300	74	60		134
28	48	35	45	30.26	S.E.W. Cloudy	2.5	137,700	112	111		223
29	43	33	45	30.16	M.E.W. Clear	2.8	138,000	32	11		43
30	52	32	45	30.24	L.E.W. Clear	2.5	135,600	48	16		64
31	58	33	45	30.26	L.W.W. Cloudy	3.0	128,200	128	50	1	179
								657	679	1	1,337

TABLE 6

SCRAP FISH COUNT - MARCH 1954
BONNEVILLE DAM

Date	Misc. Trout	Carp	Suckers	Whitefish	Total
1	1				1
2					
3	2				2
4	1				1
5					
6					
7	1				1
8					
9	4	1			5
10	3				3
11	1			1	2
12					
13			1		1
14					
15					
16	1		1		2
17			4		4
18			2		2
19			2		2
20	1				1
21			1		1
22					
23	3		2	2	7
24	2		2	3	7
25	2		8	1	11
26	1		12		13
27	1		5		6
28			6		6
29			5	3	8
30	1			4	5
31	6		1		7
	31	1	52	14	98

TABLE 7

SALMONID FISH COUNT - APRIL 1954
BONNEVILLE DAM

Date	Temperature Max.	Temperature Min.	Water	Weather Bar.	Sky	River Turbidity	Flow	Chinook	Steelhead	Blueback	Total
1	57	41	44	30.26	L.W.W. Cloudy	3.0	126,400	241	55		296
2	51	38	45	30.10	L.E.W. Cloudy	3.0	131,100	80	42		122
3	52	40	45	29.93	W.W. Cloudy	2.5	133,600	251	193		444
4	55	46	46	29.83	L.E.W. Cloudy	2.5	137,000	630	438		1,068
5	58	44	46	29.92	L.E.W. Cloudy	3.0	139,600	698	340		1,038
6	48	42	46	30.30	W.W. Cloudy	2.5	138,700	1,386	411		1,797
7	48	39	41	30.40	L.E.W. Clear	2.5	136,500	1,131	358		1,489
8	58	42	46	29.86	E.W. Cloudy	3.0	167,400	696	184		880
9	50	40	46	30.00	L.W.W. Cloudy	3.0	165,800	487	56		543
10	52	34	46	30.50	E.W. Clear	3.0	167,200	919	106		1,025
11	52	34	47	30.39	E.W. Clear	2.5	165,800	1,092	146		1,238
12	66	45	48	30.39	W.W. Cloudy	2.5	159,500	1,878	247		2,125
13	63	50	48	30.18	W.W. Cloudy	2.5	149,900	3,865	587		4,452
14	62	40	48	30.29	W.W. Clear	2.5	140,300	3,969	393		4,362
15	57	42	49	30.45	E.W. Clear	2.5	160,400	1,470	130		1,600
16	71	42	50	30.46	L.E.W. Clear	2.5	187,100	1,378	78		1,456
17	74	49	50	30.35	W.W. Clear	2.0	196,400	3,124	141		3,265
18	63	41	50	30.36	W.W. Clear	2.0	191,400	2,962	262		3,224
19	59	42	50	30.32	W.W. Cloudy	2.0	182,800	2,158	165		2,323
20	53	40	51	30.46	L.W.W. Ptly.Cldy.	1.5	199,700	2,533	110		2,643
21	62	37	51	30.40	L.W.W. Clear	1.5	208,100	3,494	82		3,576
22	66	44	51	30.20	M.W.W. Clear	2.0	200,500	3,350	45		3,395
23	65	35	52	30.20	L.E.W. Clear	2.0	186,200	4,438	122		4,560
24	65	42	52	30.09	W.W. Clear	2.0	181,800	6,090	148		6,238
25	64	41	52	30.16	W.W. Cloudy	2.0	177,500	6,313	190		6,503
26	55	45	52	30.06	L.W.W. Cloudy	2.0	186,200	4,196	114		4,310
27	58	42	52	29.98	L.W.W. Ptly.Cldy.	2.0	181,000	6,401	112		6,513
28	59	42	51	30.16	L.W.W. Cloudy	1.5	175,700	4,678	61		4,739
29	55	39	52	30.26	L.W.W. Cloudy	2.4	189,900	6,185	124		6,309
30	50	37	51	30.20	M.W.W. Ptly.Cldy.	2.4	191,800	6,784	71		6,855
								82,877	5,511		88,388

TABLE 8

SCRAP FISH COUNT - APRIL 1954
BONNEVILLE DAM

Date	Misc. Trout	Chub	Suckers	Squawfish	Whitefish	Lamprey	Total
1	2		2		2		6
2	4		2		2		8
3	3		6		1		10
4	7		25		3		35
5	5		18		3		26
6	5		26		2		33
7	5		27	1	9		42
8	5		44	11			60
9	2		36				38
10			27		10		37
11	1		59	6	1		67
12	7		118	8			133
13	22		425	33	3		483
14	14		378	32	1		425
15	4		227	15			246
16	6		262	22			290
17	8	2	413	23			446
18	10	6	463	20		1	500
19	14	5	521	9			549
20	7	4	222	1		1	235
21	11	3	295	10		6	325
22	10	10	382	12		2	416
23	9	7	135	13		7	171
24	9	5	223	24		7	268
25	10	6	397	12		4	429
26	7	2	311	11		1	332
27	4		183	4		2	193
28	1		142	4		1	148
29	17		118	6		1	142
30	21	6	148	9			184
	230	56	5,635	286	37	33	6,277

TABLE 8

TABLE 9

SALMONID FISH COUNT - MAY 1954
BONNEVILLE DAM

Date	Temperature Max.	Temperature Min.	Temperature Water	Weather Bar.	Weather Sky	River Turbidity	River Flow	Chinook	Steelhead	Blueback	Total
1	51	32	50	30.40	E.W. Clear	2.4	187,400	3,498	64		3,562
2	60	43	50	30.26	S.E.W. Ptly.Cldy.	2.4	183,700	4,429	91	1	4,521
3	65	47	51	30.20	L.E.W. Cloudy	2.5	178,100	4,661	124	2	4,787
4	66	49	52	30.12	W.W. Cloudy	2.0	184,600	6,569	88		6,657
5	55	47	52	30.27	W.W. Cloudy	2.0	202,500	7,735	154		7,889
6	62	41	53	30.18	M.E.W. Clear	2.5	196,800	4,011	90		4,101
7	76	52	53	29.92	L.E.W. Clear	2.5	196,000	2,718	89		2,807
8	83	54	53	29.80	W.W. Cloudy	2.5	213,700	2,848	72		2,920
9	73	54	54	29.94	W.W. Cloudy	2.5	234,700	2,787	97		2,884
10	62	54	54	30.20	W.W. Cloudy	2.5	267,100	2,222	67		2,289
11	70	48	54	30.14	W.W. Cloudy	1.5	288,700	1,394	51		1,445
12	57	47	55	30.20	M.W.W. Ptly.Cldy.	1.5	348,100	2,636	62	2	2,700
13	68	48	55	30.13	L.W.W. Clear	2.0	356,400	851	52		903
14	68	47	55	30.00	M.E.W. Clear	1.8	375,200	698	40		738
15	73	45	56	30.00	M.E.W. Clear	1.6	372,500	666	31	1	698
16	77	49	55	30.20	M.E.W. Clear	1.5	397,400	441	39		480
17	78	49	55	30.12	L.E.W. Clear	1.5	395,900	309	23		332
18	81	50	56	30.05	L.W.W. Clear	1.5	420,700	179	23		202
19	80	51	55	30.12	M.W.W. Clear	1.2	453,500	178	20		198
20	72	50	56	30.12	L.W.W. Cloudy	1.5	450,400	644	53		697
21	65	42	56	30.34	M.W.W. Cloudy	1.4	512,400	643	39		682
22	60	44	55	30.35	M.W.W. Clear	1.3	562,900	147	15		162
23	70	48	55	30.07	L.E.W. Clear	1.3	563,800	145	24	2	171
24	80	54	54	30.08	L.W.W. Cloudy	1.3	544,900	97	12		109
25	64	45	54	30.00	M.W.W. Ptly.Cldy.	1.0	533,400	89	19		108
26	56	43	54	29.99	W.W. Cloudy	1.0	531,400	43	21		64
27	53	43	53	30.25	L.W.W. Ptly.Cldy.	1.3	551,100	53	20		73
28	60	41	53	30.09	L.E.W. Ptly.Cldy.	1.2	558,700	86	18	2	106
29	68	46	53	29.86	W.W. Cloudy	1.5	535,800	71	8		79
30	52	48	53	30.10	W.W. Cloudy	1.5	531,400	120	28		148
31	61	49	53	30.08	W.W. Cloudy	1.5	528,600	262	37	3	302
								51,230	1,571	13	52,814

TABLE 10

SCRAP FISH COUNT - MAY 1954
BONNEVILLE DAM

Date	Misc. Trout	Carp	Chub	Suckers	Squawfish	Whitefish	Lamprey	Total
1	12	1	1	81	2		2	99
2	9		1	64			1	75
3	5		1	89	1		8	104
4	16		1	257	28		17	319
5	19		1	958	57		28	1,063
6	12		1	1,787	79		21	1,900
7	11		22	1,703	91		5	1,832
8	34		14	2,267	136	1	8	2,460
9	10		3	3,097	330		11	3,451
10	14		3	2,560	433		10	3,020
11	1		2	2,297	111		4	2,415
12	4			1,538	134		18	1,694
13			1	730	56		3	790
14	3			466	17		12	498
15	2			225	13		14	254
16	1		1	200	7		7	216
17				131	18		11	160
18				84	8		9	101
19				39	2		1	42
20				98	6			104
21	1		3	102		1	3	110
22			1	12				13
23				16			2	18
24				5	1		1	7
25				7				7
26				3				3
27				2				2
28				9				9
29				2			1	3
30				13	1		2	16
31				18	1		2	21
	154	1	56	18,860	1,532	2	201	20,806

TABLE 11

SALMONID FISH COUNT - JUNE 1954
BONNEVILLE DAM

Date	Temperature Max.	Temperature Min.	Temperature Water	Weather Bar.	Weather Sky	River Turbidity	River Flow	Chinook	Steelhead	Blueback	Total
1	60	46	53	30.40	W.W. Cloudy	1.2	521,300	354	57	13	424
2	63	45	54	30.12	M.E.W. Ptly.Cldy.	1.3	523,500	2,236	110	60	2,406
3	72	54	55	29.68	L.E.W. Cloudy	1.7	523,300	1,438	118	40	1,596
4	65	48	55	29.95	L.W.W. Cloudy	1.7	523,400	1,496	85	42	1,623
5	62	46	55	30.13	L.W.W. Cloudy	1.7	524,500	652	58	43	753
6	61	47	55	30.19	L.W.W. Cloudy	1.7	511,500	685	97	24	806
7	57	49	55	30.16	L.W.W. Cloudy	1.4	513,400	521	116	21	658
8	68	52	55	29.92	L.W.W. Cloudy	1.5	511,700	776	157	12	945
9	58	51	55	29.95	L.W.W. Cloudy	1.5	502,100	564	123	35	722
10	58	52	56	30.14	L.W.W. Cloudy	1.8	506,200	1,085	135	65	1,285
11	60	50	56	30.06	L.E.W. Cloudy	1.8	491,900	1,275	167	71	1,513
12	69	58	56	29.96	L.W.W. Cloudy	2.0	490,900	1,098	104	32	1,234
13	67	52	56	30.10	L.W.W. Cloudy	1.6	515,800	720	131	34	885
14	61	45	56	30.10	L.E.W. Clear	1.6	512,500	735	147	61	943
15	66	54	56	29.76	L.W.W. Cloudy	1.5	516,500	946	153	52	1,151
16	70	47	56	30.14	M.W.W. Ptly.Cldy.	1.5	516,600	577	108	48	733
17	61	47	56	30.24	L.W.W. Cloudy	1.6	531,700	1,098	174	45	1,317
18	62	41	56	30.25	L.E.W. Clear	1.6	537,600	1,103	92	86	1,281
19	70	52	56	30.18	E.W. Cloudy	1.6	527,900	977	145	111	1,233
20	63	54	56	30.16	W.W. Cloudy	1.6	519,100	2,348	260	287	2,895
21	73	52	56	30.20	L.E.W. Clear	1.7	510,400	2,497	273	698	3,468
22	77	53	57	30.20	M.W.W. Clear	2.0	491,600	3,102	253	1,342	4,697
23	71	53	57	30.25	M.W.W. Clear	2.2	502,540	2,873	329	3,211	6,413
24	69	52	57	30.15	M.W.W. Clear	2.0	523,500	2,351	290	2,768	5,409
25	73	54	58	29.85	M.E.W. Ptly.Cldy.	1.8	518,600	2,732	418	5,925	9,075
26	80	57	59	29.90	W.W. Cloudy	1.8	519,300	2,569	368	6,678	9,615
27	61	53	59	30.14	L.W.W. Cloudy	1.8	490,400	2,903	403	9,220	12,526
28	62	48	59	30.38	L.W.W. Clear	1.8	477,400	3,124	510	10,537	14,171
29	69	52	59	30.10	M.E.W. Ptly.Cldy.	1.8	487,300	2,501	421	6,668	9,590
30	85	58	59	30.00	M.W.W. Cloudy	2.0	483,100	1,465	313	4,130	5,908
								46,801	6,115	52,359	105,275

TABLE 12

SCRAP FISH COUNT - JUNE 1954
BONNEVILLE DAM

Date	Misc. Trout	Shad	Carp	Chub	Suckers	Squaw-fish	White-fish	Lamprey	Shiner	Total
1					36	1				37
2					143	25		4		172
3					442	128		5		575
4	2			4	411	64		1		482
5		1			287	35				323
6	1				274	26		3		304
7	3				262	109		7		381
8	1			1	476	162		11		651
9	1				581	262		17		861
10	1				706	197		18		922
11	3			7	1,070	209		45		1,334
12	8			7	1,007	143		13		1,178
13	7				971	82		7		1,067
14	2				603	197		1		803
15	4				574	85		1		664
16	1			1	462	29		2		495
17					195	20		5		220
18	2			2	82	55		3		144
19	7			6	273	92		3		381
20	7				603	204		4	1	819
21	3			2	1,249	900		28	1	2,183
22	1			2	2,425	1,045		39	1	3,513
23	3	1		3	1,865	1,578		29		3,479
24	4				1,793	992		51		2,840
25	10			11	1,824	1,439	3	148	3	3,438
26	1	8	3	8	1,906	644		124		2,694
27	4	8		1	918	259		150		1,340
28	2	5	1		1,298	1,022		166		2,494
29	2	7	6	4	2,404	1,484		60		3,967
30	1	4	5	2	1,202	380		56	2	1,652
	81	34	15	61	26,342	11,868	3	1,001	8	39,413

TABLE 13

SALMONID FISH COUNT - JULY 1954
BONNEVILLE DAM

	Temperature			Weather		River					
Date	Max.	Min.	Water	Bar.	Sky	Turbidity	Flow	Chinook	Steelhead	Blueback	Total
1	59	54	59	30.20	M.W.W. Cloudy	2.6	460,700	2,027	407	5,502	7,936
2	60	44	58	30.20	L.E.W. Clear	1.5	455,700	966	299	2,666	3,931
3	71	49	58	30.15	L.W.W. Clear	1.6	441,200	980	463	9,013	10,456
4	73	51	58	30.02	W.W. Clear	2.0	447,900	1,415	550	7,389	9,354
5	77	54	59	30.16	L.W.W. Ptly.Cldy.	2.0	439,100	1,552	518	6,044	8,114
6	75	58	59	29.97	L.E.W. Cloudy	2.0	435,700	1,442	706	4,941	7,089
7	80	59	60	30.10	L.E.W. Cloudy	2.0	435,000	1,632	825	3,337	5,794
8	68	56	60	30.11	L.W.W. Ptly.Cldy.	2.5	439,800	1,422	777	4,680	6,879
9	69	51	60	30.00	L.E.W. Cloudy	2.5	459,200	710	481	3,361	4,552
10	61	53	60	29.88	W.W. Cloudy	2.2	474,800	783	529	3,623	4,935
11	66	56	60	30.13	W.W. Cloudy	2.2	476,100	909	752	3,902	5,563
12	72	54	61	30.26	M.W.W. Clear	2.5	470,500	710	635	2,703	4,048
13	74	54	61	30.15	L.E.W. Ptly.Cldy.	2.5	476,100	850	687	1,688	3,225
14	78	57	62	30.09	M.W.W. Ptly.Cldy.	2.0	470,800	655	932	1,912	3,499
15	75	56	62	30.20	L.W.W. Cloudy	2.5	475,000	1,084	1,131	1,616	3,831
16	65	57	62	30.14	M.W.W. Cloudy	2.0	477,200	1,096	1,020	1,655	3,771
17	70	55	62	30.11	M.W.W. Clear	3.2	468,100	1,024	1,208	1,824	4,056
18	76	57	62	30.05	M.W.W. Clear	3.4	450,000	1,054	1,436	2,012	4,502
19	73	56	63	30.10	M.W.W. Ptly.Cldy.	2.5	448,500	1,021	1,509	1,449	3,979
20	68	53	63	30.17	L.W.W. Cloudy	2.5	423,100	688	1,253	892	2,833
21	59	52	62	30.35	M.W.W. Cloudy	2.6	432,900	891	1,654	998	3,543
22	65	48	62	30.40	L.E.W. Clear	2.0	439,900	630	1,335	610	2,575
23	80	57	62	30.20	M.W.W. Clear	2.2	412,200	869	2,368	799	4,036
24	74	57	62	30.15	W.W. Clear	3.5	393,900	1,048	3,667	868	5,583
25	74	55	62	30.16	M.W.W. Clear	3.5	384,000	1,049	4,860	687	6,596
26	75	54	62	30.25	M.W.W. Clear	3.0	379,500	1,076	4,745	562	6,383
27	75	55	62	30.32	L.W.W. Cloudy	3.0	355,600	1,058	4,700	483	6,241
28	72	50	63	30.22	L.W.W. Cloudy	3.5	357,500	1,178	5,631	385	7,194
29	76	53	62	30.12	M.W.W. Clear	3.5	333,500	943	4,125	297	5,365
30	77	54	63	30.24	L.W.W. Clear	4.4	322,900	869	4,829	331	6,029
31	77	54	64	30.20	M.W.W. Clear	4.5	319,700	965	5,411	276	6,652
								32,596	59,443	76,505	168,544

TABLE 14

SCRAP FISH COUNT - JULY 1954
BONNEVILLE DAM

Date	Misc. Trout	Shad	Carp	Chub	Suckers	Squaw-fish	Lamprey	Shiner	Channel Cat	Total
1	2	3	4	2	905	190	23	4		1,133
2			6	4	439	59	80	5		593
3	2	2	7	7	927	264	165	2		1,376
4	1	17	9	1	1,806	944	239			3,017
5	7	41	20		1,896	1,540	349	1		3,854
6	10	53	17	3	3,166	2,132	807	7		6,195
7	1	265	19	1	6,129	3,329	601	6		10,351
8	2	152	18	20	4,514	2,056	646	4		7,412
9	9	142	22	9	1,958	864	492	4		3,500
10	1	141	45	5	1,151	515	612	7		2,477
11	2	172	74		1,666	786	855	6		3,561
12	2	87	53	1	2,844	1,382	726	17		5,112
13	10	106	86	16	3,675	929	831	7		5,660
14	5	78	86	10	2,618	816	1,065	5		4,683
15	6	65	105	23	2,591	960	469	9		4,228
16	6	92	185	14	2,316	849	271	6		3,739
17	4	155	155	30	1,969	1,121	240	9		3,683
18	3	275	245	4	2,727	714	392			4,360
19	7	266	282	1	2,063	695	285			3,599
20	3	117	278	7	852	234	112			1,603
21	1	68	229	3	481	155	75			1,012
22		22	110	3	386	86	49			656
23	3	27	95	11	757	399	74	2		1,368
24	4	80	306	13	1,399	290	80			2,172
25	6	106	662		1,565	115	78	7		2,539
26		124	507		1,563	519	60	12	1	2,786
27	8	167	541	26	1,785	417	45	6		2,995
28	5	195	656	54	1,902	559	53	4		3,428
29	7	229	575	50	1,525	467	175	6		3,034
30	8	320	831	131	1,248	245	146	15		2,944
31		281	757	135	1,294	309	208	16		3,000
	125	3,848	6,985	584	60,117	23,940	10,303	167	1	106,070

TABLE 15

SALMONID FISH COUNT - AUGUST 1954
BONNEVILLE DAM

Date	Temperature Max.	Temperature Min.	Temperature Water	Weather Bar.	Weather Sky	River Turbidity	River Flow	Chinook	Steelhead	Blueback	Silver	Humpback	Total
1	79	54	63	30.10	L.W.W. Clear	4.5	306,700	571	4,016	198			4,785
2	80	57	64	30.15	M.W.W. Cloudy	3.5	295,600	686	4,278	157	1		5,122
3	69	55	64	30.20	M.W.W. Cloudy	3.5	272,200	681	4,729	127			5,537
4	67	52	64	30.17	M.W.W. Cloudy	4.0	259,800	450	3,428	80			3,958
5	63	57	63	30.25	M.W.W. Cloudy	4.0	261,700	302	1,538	74			1,914
6	68	57	64	30.29	M.W.W. Cloudy.	4.0	247,700	302	2,300	92			2,694
7	74	56	63	30.20	L.W.W. Clear	4.7	248,000	313	2,613	48			2,974
8	77	55	65	30.21	L.W.W. Cloudy	4.5	241,700	555	3,537	68		1	4,161
9	69	52	65	30.24	L.W.W. Clear	4.5	243,500	357	2,211	44			2,612
10	73	53	65	30.19	L.W.W. Clear	4.0	243,000	273	1,794	42			2,109
11	76	56	65	30.19	M.W.W. Clear	4.0	229,900	263	1,920	21			2,204
12	73	56	65	30.11	M.W.W. Cloudy	4.0	211,100	297	1,977	40			2,314
13	67	59	65	29.99	M.W.W. Cloudy	4.0	210,500	357	1,922	39			2,318
14	67	59	65	30.13	W.W. Cloudy	4.0	212,400	485	2,409	57			2,951
15	72	56	65	30.24	L.W.W. Cloudy	4.0	211,300	393	1,861	33	2		2,289
16	71	58	65	30.30	L.W.W. Cloudy	4.0	210,200	433	1,665	24			2,122
17	69	56	65	30.24	L.W.W. Ptly.Cldy.	4.0	206,100	505	1,162	3	1		1,671
18	72	52	65	30.10	L.W.W. Clear	4.0	204,400	568	1,258	2	1		1,829
19	75	58	66	29.95	L.W.W. Cloudy	4.0	199,700	527	1,230	4			1,761
20	72	59	66	30.00	L.W.W. Cloudy	4.0	199,400	467	1,090	2	2		1,561
21	66	59	65	30.12	L.W.W. Clear	3.5	197,600	874	1,673	19	29		2,595
22	74	59	64	30.17	L.W.W. Cloudy	4.0	189,600	864	1,102	19	23		2,008
23	74	56	64	30.10	L.W.W. Cloudy	4.0	188,800	840	764	9	20		1,633
24	65	52	64	30.10	L.W.W. Ptly.Cldy.	4.2	190,900	1,032	1,455	3	25		2,515
25	66	51	64	29.99	L.E.W. Cloudy	4.2	187,500	709	828	1	16		1,554
26	65	54	64	29.91	L.W.W. Cloudy	2.5	195,200	939	1,257	1	11		2,208
27	70	54	64	29.90	L.E.W. Cloudy	4.0	188,900	1,150	1,672	1	29		2,852
28	77	58	64	30.10	L.E.W. Cloudy	4.0	190,900	1,471	1,805		12		3,288
29	80	60	64	30.25	L.E.W. Ptly.Cldy.	4.0	192,900	2,140	1,942	2	88		4,172
30	77	60	64	30.14	M.W.W. Ptly.Cldy.	4.0	194,200	2,584	2,478	2	206		5,270
31	71	59	64	30.34	L.W.W. Ptly.Cldy.	4.0	194,800	3,581	3,320		202		7,103
								24,969	65,234	1,212	668	1	92,084

TABLE 16

SCRAP FISH COUNT - AUGUST 1954
BONNEVILLE DAM

Date	Misc. Trout	Shad	Carp	Chub	Suckers	Squaw-fish	White-fish	Lamprey	Shiner	Stur-geon	Total
1	12	152	751	19	937	221		887	3		2,982
2	9	106	463	9	844	180		562	3		2,176
3	12	139	528	30	614	193		330	5		1,851
4	8	142	368	42	495	163		68	19		1,305
5	8	120	341	69	574	187		582	13		1,894
6	7	113	444	66	773	112		649	5		2,169
7	6	98	484	216	1,047	118		754	1		2,724
8	19	72	422	29	1,258	247		652	37		2,736
9	8	20	270	19	1,169	179		738	13		2,416
10	7	30	275	61	1,065	136		854	26		2,454
11	13	11	255	56	667	153		1,751	4		2,910
12	11	29	280	71	766	174		2,225	12		3,568
13	18	17	449	77	1,105	360		2,102	25		4,153
14	9	15	426	64	1,012	328		1,374	37		3,265
15	12	11	383	32	705	130		731	16	1	2,021
16	14	5	193	11	392	93		201	8		917
17	8	6	244	42	245	47		259	4		855
18	10	3	133	26	239	31		198	1		641
19	11	5	121	32	236	38		281	1		725
20	13	5	40	15	191	19		740			1,023
21	14	3	75	20	399	64		1,979	1		2,555
22	12	7	93	18	470	60		440	5		1,105
23	9	3	62	7	352	39		322			794
24	24	11	44	21	598	28		1,087			1,813
25	17	1	30	12	346	18		566			990
26	12	2	32	16	291	25		667	3		1,048
27	26	4	16	8	249	90		912			1,305
28	20	4	51	33	480	30		1,294			1,912
29	30		64	1	555	72	5	1,672	3		2,402
30	39	2	58	24	390	47	2	1,012	11		1,585
31	48		37	6	354	61		646	8		1,160
	466	1,136	7,432	1,152	18,818	3,643	7	26,535	264	1	59,454

TABLE 17

SALMONID FISH COUNT - SEPTEMBER 1954
BONNEVILLE DAM

Date	Temperature Max.	Temperature Min.	Temperature Water	Weather Bar.	Weather Sky	River Turbidity	River Flow	Chinook	Steelhead	Blueback	Silver	Humpback	Chum	Total
1	79	56	64	30.19	E.W. Clear	4.0	187,900	3,426	3,194		225			6,845
2	84	59	65	30.25	W.W. Cloudy	4.0	185,000	4,300	3,454		318			8,072
3	71	57	64	30.26	W.W. Cloudy	4.5	175,800	2,629	1,514	2	309			4,454
4	66	53	64	30.24	M.W.W. Cloudy	4.0	182,300	5,641	3,306	1	607			9,555
5	65	55	64	30.24	L.W.W. Cloudy	4.5	182,200	8,312	3,203	1	527			12,043
6	70	50	65	30.15	L.E.W. Clear	5.5	182,900	7,046	2,611	1	335			9,993
7	73	56	65	30.20	L.E.W. Cloudy	4.5	186,600	7,213	2,966	5	141			10,325
8	67	56	65	30.30	L.E.W. Ptly.Cldy.	4.5	184,100	7,425	2,060	3	113			9,601
9	77	53	65	30.10	E.W. Clear	4.5	181,900	7,153	2,209		108			9,470
10	83	58	65	29.99	W.W. Cloudy	4.7	171,000	6,535	1,525		125			8,185
11	66	53	64	30.00	L.E.W. Ptly.Cldy.	5.0	166,700	6,343	1,558		106			8,007
12	66	54	64	30.06	L.W.W. Cloudy	5.0	164,800	3,969	1,224		98			5,291
13	66	49	64	30.12	E.W. Ptly.Cldy.	5.0	151,800	2,754	755	1	63			3,573
14	74	55	64	30.02	W.W. Cloudy	4.5	151,400	1,521	576		31			2,128
15	71	56	64	29.98	W.W. Cloudy	5.0	135,400	752	445		25			1,222
16	62	53	64	29.95	L.W.W. Cloudy	5.6	152,500	994	736		27			1,757
17	68	52	64	30.08	W.W. Cloudy	5.5	146,900	951	357	2	33			1,343
18	60	51	63	30.15	L.E.W. Ptly.Cldy.	5.0	140,300	572	297		22	1		892
19	68	49	63	30.15	W.W. Ptly.Cldy.	5.5	149,500	443	305		11			759
20	69	46	63	30.25	E.W. Clear	5.5	140,900	322	297	1	7			627
21	78	53	63	30.03	E.W. Ptly.Cldy.	5.5	143,500	282	372		9			663
22	74	58	63	30.17	W.W. Cloudy	5.0	144,400	329	337		23		1	690
23	66	55	63	30.38	W.W. Cloudy	5.0	141,100	187	255		9		1	452
24	73	54	63	30.34	W.W. Clear	5.5	130,800	181	209		5			395
25	81	57	63	30.20	E.W. Clear	5.0	129,400	216	139		8	1		364
26	83	54	62	30.20	W.W. Clear	5.5	134,900	273	196		3		3	475
27	70	55	62	30.11	W.W. Cloudy	5.0	136,200	245	234		20		1	500
28	66	50	62	30.17	W.W. Ptly.Cldy.	5.5	129,600	168	209		6	1		384
29	64	45	62	30.20	E.W. Clear	5.5	122,100	112	178		1			291
30	65	45	60	30.10	E.W. Clear	4.5	124,500	132	220		4			356
								80,426	34,941	17	3,319	3	6	118,712

TABLE 18

SCRAP FISH COUNT - SEPTEMBER 1954
BONNEVILLE DAM

Date	Misc. Trout	Shad	Carp	Chub	Suckers	Squaw-fish	White-fish	Lamprey	Shiner	Total
1	73		26	5	265	32		436	1	838
2	82		8	9	268	31	3	272	6	679
3	55	2	14	19	208	38		130	3	469
4	106		17	19	262	45		143	5	597
5	95		18	3	189	33	1	72	5	416
6	81		8	1	203	29		76	1	399
7	74	1	11	4	195	33	1	86	2	407
8	128		9	15	218	52		138		560
9	117		23	5	318	65		108		636
10	74		13	10	230	20	2	63	13	425
11	54	1	19	2	153	19		30	2	280
12	93	2	18	2	230	37		33		415
13	41		24	5	250	53	3	23		399
14	28		17	13	312	61	3	13		447
15	37	2	4	5	179	35	2	21		285
16	48	2	22	8	251	61	3	73		468
17	60		52	23	327	73	3	148	4	690
18	37		55	9	203	68	13	99		484
19	33	1	33	6	287	56	4	77		497
20	28		21	1	184	58	10	43	6	351
21	23		11	6	173	50	10	48	11	332
22	28		14	12	229	50	14	45	6	398
23	24		3	3	250	51	19	139		489
24	40		5	11	155	53	13	113	5	395
25	37		13	6	189	60	6	85		396
26	20		8		170	45	12	38		293
27	18		6	2	248	91	13	27	7	412
28	21		16	7	210	95	18	92	2	461
29	18		8	3	137	58	10	109	1	344
30	17		4		109	48	14	44		236
	1,590	11	500	214	6,602	1,500	177	2,824	80	13,498

TABLE 19

SALMONID FISH COUNT - OCTOBER 1954
BONNEVILLE DAM

Date	Temperature Max.	Temperature Min.	Temperature Water	Weather Bar.	Weather Sky	River Turbidity	River Flow	Chinook	Steelhead	Silver	Chum	Total
1	65	47	60	30.10	E.W. Ptly.Cldy.	4.5	130,000	122	149	4		275
2	65	38	61	30.00	E.W. Clear	5.5	118,900	100	106	8	1	215
3	65	40	61	30.15	W.W. Cloudy	5.5	123,800	74	144	7	1	226
4	62	45	60	30.15	E.W. Ptly.Cldy.	5.5	123,700	80	156	7	1	244
5	67	49	60	30.09	E.W. Cloudy	5.3	117,400	54	149	2	1	206
6	61	53	59	29.89	E.W. Cloudy	5.0	109,500	36	54	4	11	105
7	62	51	58	29.95	E.W. Cloudy	4.2	114,400	44	70	3	1	118
8	68	52	59	30.22	E.W. Cloudy	4.5	111,400	46	75	2		123
9	67	47	58	30.24	E.W. Ptly.Cldy.	5.5	106,200	51	73	2		126
10	65	47	58	30.60	W.W. Cloudy	5.0	115,400	43	107	5	2	157
11	61	51	58	29.97	W.W. Cloudy	4.5	102,200	40	77	2	2	121
12	57	46	58	30.08	L.W.W. Cloudy	4.5	109,200	59	125	5		189
13	53	38	58	30.37	L.E.W. Clear	5.0	104,400	62	64	5	1	132
14	56	39	57	30.49	L.E.W. Clear	4.5	107,700	36	108	1	2	147
15	62	47	57	30.21	L.E.W. Clear	4.5	112,900	39	73	4	4	120
16	63	50	56	29.95	E.W. Cloudy	4.0	103,900	30	74	2		106
17	67	50	56	30.24	W.W. Ptly.Cldy.	4.5	117,500	31	51	3	4	89
18	65	49	46	30.13	L.E.W. Cloudy	4.5	111,200	34	63	1	4	102
19	64	51	56	29.96	W.W. Cloudy	4.5	112,600	22	66		6	94
20	52	44	56	30.24	E.W. Cloudy	5.0	96,900	28	52	2		82
21	52	46	55	30.10	E.W. Cloudy	5.0	124,000	18	46		3	67
22	54	47	55	30.35	W.W. Cloudy	5.0	118,200	27	99	2	5	133
23	52	41	55	30.60	W.W. Clear	5.0	113,900	23	76	1	11	111
24	51	35	54	30.62	E.W. Clear	5.0	111,000	17	44	1	12	74
25	55	35	53	30.48	E.W. Clear	5.0	114,900	4	13		6	23
26	57	36	53	30.42	E.W. Clear	5.0	109,700	7	8		7	22
27	57	40	52	30.44	E.W. Clear	4.5	100,100	15	7		4	26
28	55	40	52	30.45	E.W. Clear	5.0	110,300	8	4		11	23
29	59	41	52	30.41	E.W. Clear	4.5	111,000	19	18		10	47
30	60	42	52	30.35	E.W. Clear	4.5	113,700	12	39	1	29	81
31	60	41	52	30.29	E.W. Clear	4.0	103,500	8	19		54	81
								1,189	2,209	74	193	3,665

TABLE 20

SCRAP FISH COUNT - OCTOBER 1954
BONNEVILLE DAM

Date	Misc. Trout	Carp	Chub	Suckers	Squaw-fish	White-fish	Lamprey	Shiner	Total
1	19	1	1	63	23	12	22		141
2	15	7	1	72	18	15	19		147
3	12	2		47	31	12	2		106
4	13			66	39	29			147
5	14		1	64	30	22	12		143
6	7			57	20	12	28		124
7	14			29	25	33	2	2	105
8	14		4	42	13	34			107
9	9	1		37	13	22			82
10	8	1		71	22	25	2		129
11	13		1	55	34	21	1		125
12	17			44	27	20			108
13	24			33	31	41			129
14	20		1	55	66	37			179
15	8			23	26	49			106
16	21			19	10	28			78
17	17	2		35	20	16			90
18	15	1		38	33	44			131
19	5			73	43	21			142
20	10	1		69	40	25			145
21	18			64	17	14			113
22	18			53	38	17			126
23	12			30	7	12	1		62
24	8		1	13	13	20			55
25	5		1	4	13	9			32
26	2			5	5	12			24
27	6			13	12	5			36
28	9			3	3	13			28
29	14			28	16	21			79
30	14	1		25	11	12			63
31	9			46	5	16			76
	390	17	11	1,276	704	669	89	2	3,158

TABLE 21

SALMONID FISH COUNT - NOVEMBER 1954
BONNEVILLE DAM

Date	Temperature Max.	Temperature Min.	Temperature Water	Weather Bar.	Weather Sky	River Turbidity	River Flow	Chinook	Steelhead	Silver	Chum	Total
1	62	41	52	30.24	E.W. Clear	4.5	114,000	11	14		56	81
2	60	40	52	30.25	W.W. Cloudy	4.5	110,600	12	17		59	88
3	53	44	52	30.35	W.W. Cloudy	5.0	107,600	5	25		36	66
4	55	42	55	30.40	E.W. Ptly.Cldy.	5.0	114,475	5	18		31	54
5	57	45	53	30.30	E.W. Cloudy	5.0	107,500	6	19		33	58
6	55	47	51	30.22	W.W. Cloudy	5.0	112,525	7	29		70	106
7	54	49	51	30.05	E.W. Cloudy	5.0	114,100	16	35		88	139
8	56	49	51	29.92	E.W. Cloudy	4.5	117,100	8	18		90	116
9	52	46	50	30.15	E.W. Cloudy	5.0	111,500	3	14	1	51	69
10	55	47	50	30.30	L.E.W. Cloudy	5.0	106,500	7	17		52	76
11	58	49	53	30.05	L.E.W. Cloudy	4.0	114,200	11	22		76	109
12	56	49	52	30.29	L.W.W. Cloudy	4.0	109,500	4	7		60	71
13	55	44	52	30.21	L.E.W. Cloudy	4.0	111,000	2	12		83	97
14	50	45	51	29.85	L.E.W. Cloudy	5.0	109,600	11	21		120	152
15	51	47	51	29.55	L.E.W. Cloudy	6.0	110,500	1	16		93	110
16	54	49	51	30.09	L.W.W. Cloudy	6.0	114,300	18	20		70	108
17	55	43	50	30.27	L.E.W. Cloudy	5.5	112,900	3	4		17	24
18	50	43	50	30.28	L.E.W. Cloudy	3.5	124,000	17	55		30	102
19	57	49	51	30.16	W.W. Cloudy	4.0	123,300	6	10		21	37
20	59	46	50	30.42	E.W. Cloudy	5.0	126,400	16	74		37	127
21	62	45	50	30.42	E.W. Clear	5.0	125,300	3	12		27	42
22	57	44	51	30.36	L.W.W. Cloudy	5.0	123,600	4	13		20	37
23	58	45	51	30.35	E.W. Clear	4.5	123,700	7	27		22	56
24	55	46	50	30.36	E.W. Cloudy	4.5	123,600	1	11		43	55
25	55	44	50	30.27	W.W. Cloudy	6.0	128,400	5	11		36	52
26	58	47	50	30.40	W.W. Cloudy	6.5	125,400	7	18		21	46
27	54	44	50	30.50	W.W. Cloudy	5.5	126,400	4	12		28	44
28	48	38	49	30.46	W.W. Cloudy	6.0	126,600					1
29	45	36	49	30.33	E.W. Cloudy	6.0	120,100					
30	40	31	46	30.16	E.W. Clear	6.5	118,800					
								200	551	1	1,370	2,122

1 Fish-counting discontinued for annual winter maintenance, 27 November 1954.

TABLE 22

SCRAP FISH COUNT - NOVEMBER 1954
BONNEVILLE DAM

Date	Misc. Trout	Carp	Chub	Suckers	Squawfish	Whitefish	Total
1	12			48	10	15	85
2	17			34	7	24	82
3	6			31	32	22	91
4	14	1	1	8	4	26	54
5	9			14	16	33	72
6	12			18	5	27	62
7	11			16	11	17	55
8	5			21	16	16	58
9	7			19	8	13	47
10	8	1		14	13	23	59
11	6			18	11	19	54
12	13			4	18	21	56
13	13			11	6	8	38
14	6			15	2	11	34
15	11			5	8	18	42
16	16	2		19	6	18	61
17	3			11	9	16	39
18	10			16	5	14	45
19	3			6	4	12	25
20	10			12	9	18	49
21	6			8	3	13	30
22	9			11	3	15	38
23	10			31	9	13	63
24	13			5	1	20	39
25	10			6	6	23	45
26	8	1		4	4	35	52
27	8			6	1	15	30
28							1
29							
30							
	256	5	1	411	227	505	1,405

1 Fish-counting discontinued for annual winter maintenance, 27 November 1954.

TABLE 23

WEATHER AND WATER DATA REPORT - DECEMBER 1954
BONNEVILLE DAM

Date	Temperature Max.	Temperature Min.	Temperature Water	Weather Bar.	Weather Sky	River Turbidity	River Flow
1	42	33	46	30.28	E.W. Cloudy	5.0	117,300
2	41	32	46	30.27	E.W. Clear	6.0	112,200
3	41	32	46	30.17	E.W. Cloudy	7.2	121,500
4	41	32	45	30.00	L.E.W. Cloudy	6.5	115,300
5	45	32	45	30.05	E.W. Cloudy	6.5	110,900
6	43	32	45	29.88	E.W. Cloudy	6.0	106,200
7	46	32	45	30.20	W.W. Cloudy	6.5	110,700
8	46	32	45	30.16	E.W. Cloudy	7.0	117,300
9	45	32	45	29.93	E.W. Cloudy	6.0	120,300
10	45	32	44	30.22	E.W. Cloudy	6.5	113,300
11	47	32	44	30.45	E.W. Cloudy	7.0	116,000
12	39	33	43	30.25	E.W. Cloudy	7.0	115,600
13	38	35	42	30.10	E.W. Cloudy	7.0	109,700
14	38	37	42	30.21	E.W. Cloudy	7.0	114,500
15	53	38	42	30.30	W.W. Cloudy	7.0	108,000
16	45	31	42	30.62	E.W. Clear	7.0	105,000
17	44	33	41.5	30.70	S.E.W. Clear	7.0	103,600
18	44	34	41	30.74	S.E.W. Clear	5.0	91,700
19	40	30	40.5	30.67	L.E.W. Ptly.Cldy.	6.0	97,200
20	37	31	40	30.60	M.E.W. Ptly.Cldy.	6.0	97,800
21	36	31	40	30.47	M.E.W. Cloudy	6.0	100,300
22	37	31	40	30.36	L.E.W. Cloudy	7.0	100,000
23	38	33	39	29.90	M.W.W. Cloudy	7.0	103,100
24	48	32	40	30.06	W.W. Cloudy	6.5	93,000
25	53	36	40	30.10	W.W. Cloudy	7.0	102,600
26	39	32	40	30.52	W.W. Cloudy	7.0	103,200
27	39	29	40	30.68	E.W. Clear	7.3	99,000
28	36	29	39	30.39	E.W. Cloudy	7.3	100,400
29	45	31	39	30.20	W.W. Cloudy	7.3	95,400
30	51	40	39	29.82	W.W. Cloudy	7.3	105,000
31	57	44	40	29.82	W.W. Cloudy	5.0	113,100

TABLE 24

PEAK DAYS OF FISH MIGRATION
BONNEVILLE DAM -- 1938-1954

	Spring Chinook		Fall Chinook		Steelhead		Blueback		Silvers		Chum		Shad	
Year	Date	Number of Fish	Date	Number of Fish	Date	Number of Fish	Date	Number of Fish	Date	Number of Fish	Date	Number of Fish	Date	Number of Fish
1938[1]	May 10	2,978	Sep 9	16,736	Sep 2	4,356	Jul 13[2]	8,407	Aug 31	1,941	Oct 28	190	Jul 20	285
1939	Apr 23	5,220	Sep 8	13,531	Jul 30	3,857	Jun 29	3,654	Sep 5	1,233	Oct 28	131	Jun 29	306
1940	Apr 19	3,303	Sep 1	33,900	Sep 8	6,783	Jun 30	7,371	Sep 7	1,274	Nov 3	140	Jun 25	2,030
1941	Apr 27	4,215	Sep 6	33,263	Sep 10	4,357	Jul 2	3,599	Sep 6	2,311	Nov 14	376	Jul 3	2,483
1942	May 7	2,579	Sep 8	44,507	Sep 10	9,410	Jul 3	3,248	Sep 3	1,261	Nov 9	164	Jun 21	1,115
1943	Apr 30	4,168	Sep 4	20,623	Sep 9	3,918	Jul 7	2,070	Sep 4	372	Nov 10	54	Jul 19	485
1944	Apr 26	2,182	Sep 3	16,800	Sep 5	3,654	Jul 9	811	Sep 5	540	Nov 4	61	Jul 10	2,343
1945	May 3	3,836	Sep 11	19,913	Sep 9	3,906	Jul 10	618	Sep 7	65	Nov 1	49	Jul 10	6,634
1946	May 7	4,135	Sep 10	34,619	Aug 6	4,333	Jul 12	5,079	Sep 10	618	Nov 18	96	Jul 11	1,285
1947	Apr 18	14,735	Sep 4	32,680	Sep 4	6,511	Jun 26	11,101	Sep 7	1,559	Oct 31	17	Jul 2	3,665
1948	Apr 16	3,927	Sep 4	25,708	Sep 4	4,131	Jul 4	11,840	Sep 5	601	Nov 21	156	Jul 17	1,199
1949	May 12	4,422	Sep 7	19,618	Aug 1	4,211	Jul 5	4,129	Sep 7	115	Nov 24	121	Jul 15	2,393
1950	May 10	5,055	Sep 8	27,677	Aug 13	4,073	Jul 8	6,254	Sep 2	1,274	Nov 29	61	Jul 24	804
1951	May 9	10,673	Sep 10	10,196	Jul 18	4,272	Jun 28	12,288	Sep 7	559	Nov 18	115	Jul 3	603
1952	May 27	7,594	Sep 4	17,322	Jul 28	8,920	Jun 24	19,571	Aug 30	737	Nov 16	92	Jul 15	441
1953	Apr 22	12,950	Sep 3	9,083	Jul 27	6,884	Jul 5	20,351	Aug 29	2,012	Nov 7	116	Jul 9	1,786
1954	May 5	7,735	Sep 5	8,312	Jul 28	5,631	Jun 28	10,537	Sep 4	607	Nov 14	120	Jul 30	320
Total		99,707		384,488		89,207		130,928		17,079		2,059		28,177
17-year average		5,865		22,617		5,247		7,702		1,005		121		1,657

1 Fish counting initiated on 7 May 1938.

2 Delayed for one day when forebay was lowered (below fishway water entrances) to enable the S. S. Wheeler to pass under the Hood River Bridge.

TABLE 25

MONTHLY COUNT OF CHINOOK SALMON
BONNEVILLE DAM - 1938-1954

Year	Jan	Feb	Mar	Apr	May	Spring Run Totals	Jun	Jul	7 Months Totals	Aug 1 - 15	Summer Run Totals Jun 1-Aug 15	Aug 16-31	Total Aug Count	Sep	Oct	Nov	Dec	Fall Run Totals Aug 16-Dec 31	Yearly Totals
1938	- No Count -		- No Count - -		22,371[1]	22,371	8,221	6,556	37,148	6,443	21,220	28,322	34,765	197,294	2,302	263	27	228,208	271,799
1939	6	12	121	51,410	25,159	76,708	5,632	17,845	100,185	6,059	29,536	26,850	32,909	150,851	2,197	78	16	179,992	286,236
1940	0	0	504	37,253	28,621	66,378	7,028	14,938	88,344	6,232	28,198	52,411	58,643	240,500	3,765	287	34	296,997	391,573
1941	4	0	1,360	51,486	19,445	72,295	7,013	9,395	88,703	3,098	19,506	9,492	12,590	351,967	7,179	866	138	369,642	461,443
1942	1	15	34	9,506	30,915	40,471	11,816	12,821	65,108	3,241	27,878	24,340	27,581	303,995	4,485	639	190	333,649	401,998
1943	11	6	43	12,172	53,268	65,500	5,440	8,044	78,984	2,538	16,022	26,447	28,985	201,414	3,354	365	21	231,601	313,123
1944	1	2	65	15,670	15,127	30,865	4,363	8,241	43,469	4,334	16,938	51,134	55,468	139,254	2,388	164	20	192,960	240,763
1945	6	4	81	17,148	26,276	43,515	11,293	16,327	71,135	5,198	32,818	27,056	32,254	189,675	4,281	137	6	221,155	297,488
1946	1	2	25	14,179	53,313	67,520	30,051	20,960	118,531	6,086	57,097	39,335	45,421	277,075	4,521	170	25	321,126	445,743
1947	0	2	141	83,520	49,899	133,562	25,502	13,358	172,422	11,020	49,880	32,042	43,062	260,385	3,945	526	37	296,935	480,377
1948	10	0	251	21,205	20,262	41,728	44,137	23,100	108,965	4,967	72,204	30,967	35,934	270,238	3,928	467	23	305,623	419,555
1949	0	0	5	5,765	44,304	50,074	24,232	22,500	96,806	11,503	58,235	29,997	41,500	137,599	1,571	215	6	169,388	277,697
1950	- No Count -		21	6,630	50,638	57,289	16,667	32,937	106,893	7,569	57,173	32,893	40,462	205,521	4,356	143	0[2]	242,913	357,375
1951	- No Count -		32	28,801	86,055	114,888	54,889	24,394	194,171	5,878	85,161	27,907	33,785	97,131	6,489	212	0[2]	131,739	331,788
1952	- No Count -		255	8,130	107,807	116,192	62,491	21,800	200,483	6,108	90,399	76,182	82,290	135,053	2,576	477	0[2]	214,288	420,879
1953	- No Count -		1,254	126,450	42,583	170,287	27,228	30,593	228,108	7,036	64,857	20,362	27,398	75,145	1,495	333	0[3]	97,335	332,479
1954	0	4[4]	657	82,877	51,230	134,766	46,801	32,596	214,163	6,285	85,682	18,684	24,969	80,426	1,189	200	0[4]	100,499	320,947
Total	40	45	4,849	572,202	727,273	1,304,409	392,804	316,405	2,013,618	103,595	812,804	554,421	658,016	3,313,523	60,021	5,542	543	3,934,050	6,051,263
17-year Average	3	3	285	33,659	42,781	76,730	23,106	18,612	118,448	6,094	47,812	32,613	38,707	194,913	3,531	326	32	231,415	355,957

1 Fish-counting initiated on 7 May 1938
2 Fish-counting discontinued for annual winter maintenance, 29 November 1950 to 1952, inclusive
3 Fish-counting discontinued for annual winter maintenance, 28 November 1953
4 Fish-counting initiated on 28 February 1954; discontinued for annual winter maintenance, 27 November 1954

TABLE 26

MONTHLY COUNT OF BLUEBACK SALMON
BONNEVILLE DAM - 1938-1954

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1938					1,025	17,811	53,864	2,097	235	6	2		75,040
1939				48	189	29,386	43,124	616	19				73,382
1940					206	59,639	85,885	3,063	11	1			148,805
1941				299	1,052	23,536	39,193	1,615	46				65,741
1942					13	12,624	41,301	1,477	49				55,464
1943					9	4,525	33,613	1,697	1				39,845
1944			1		16	3,098	11,171	659	126				15,071
1945			10	51	521	1,507	6,903	498	10	1			9,501
1946				9	67	7,805	64,704	1,746	21	2			74,354
1947					5	59,378	108,175	3,564	15	1		1	171,139
1948						12,023	117,652	1,849	13	4			131,541
1949					151	9,013	41,619	655	6				51,444
1950						341	75,784	1,826	42				77,993
1951					25	81,045	87,104	1,214	40				169,428
1952			7	1	3	136,939	47,188	467	30	2	8		184,645
1953			57	27	663	45,711	186,933	1,774	50				235,215
1954			1		13	52,359	76,505	1,212	17				130,107
Total			76	435	3,958	556,740	1,120,718	26,029	731	17	10	1	1,708,715
17-year average			4	26	233	32,749	65,925	1,531	43	1	.59	.06	100,513

TABLE 27

MONTHLY COUNT OF SILVER SALMON
BONNEVILLE DAM - 1938-1954

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1938								3,070	10,995	972	141	7	15,185
1939	3							1,811	12,226	310	15	18	14,383
1940	3							1,451	10,165	213	33	5	11,870
1941	2							1,317	16,061	369	160	2	17,911
1942								1,193	11,061	147			12,401
1943								762	1,676	89	20		2,547
1944								1,052	3,021	103	29	2	4,207
1945							2	239	533	16		1	791
1946		10	4				22	227	3,609	1		24	3,897
1947	12	2	1					217	10,928	10	3	1	11,174
1948	1						11	158	3,893	10	3	5	4,081
1949							17	270	703	5	8	1	1,004
1950								1,570	8,545	36			10,151
1951								197	4,773	225	6		5,201
1952							10	2,581	5,131	22	24		7,768
1953							1	7,094	5,890	22	11		13,018
1954								668	3,319	74	1		4,062
Total	21	12	5				63	23,877	112,529	2,624	454	66	139,651
17-year average	1	.7	.3				4	1,405	6,619	154	27	4	8,215

TABLE 28

MONTHLY COUNT OF CHUM SALMON
BONNEVILLE DAM - 1938-1954

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1938										1,245	799	73	2,117
1939	2								6	700	411	49	1,168
1940										860	835	34	1,729
1941										1,116	4,130	23	5,269
1942										700	1,149	16	1,865
1943										125	623	42	790
1944	1									191	666	96	954
1945	2								2	118	585	20	727
1946									1	303	809	63	1,176
1947								1		59	110	29	199
1948										192	2,966	478	3,636
1949										215	1,719	94	2,028
1950	1									298	770		1,069
1951										60	984		1,044
1952									2	163	1,340		1,505
1953										373	1,355		1,728
1954									6	193	1,370		1,569
Total	6							1	17	6,911	20,621	1,017	28,573
17-year average	.3							.06	1	407	1,213	60	1,681

TABLE 29

MONTHLY COUNT OF STEELHEAD TROUT
BONNEVILLE DAM - 1938-1954

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1938					6,622	2,382	19,455	29,231	46,618	2,264	339	92	107,003
1939	23	19	560	8,110	1,587	1,490	36,581	38,062	33,891	1,264	216	119	121,922
1940	5	96	1,688	4,125	998	4,489	61,175	46,071	64,377	1,786	292	59	185,161
1941	37	76	1,641	6,392	1,518	994	21,940	29,600	50,542	3,980	1,063	304	118,087
1942	4	37	256	3,642	4,159	1,588	19,905	41,973	76,622	2,411	566	182	151,345
1943	14	18	654	3,374	4,698	1,564	7,755	29,894	41,051	2,444	573	92	92,131
1944	50	157	1,019	6,142	2,227	1,169	21,868	24,508	35,907	6,129	1,119	226	100,521
1945	1,003	1,078	3,066	4,685	1,557	1,109	24,600	40,483	40,194	1,925	302	142	120,144
1946	63	551	3,040	9,839	5,481	3,265	20,559	58,356	38,296	2,067	262	769	142,548
1947	197	321	1,968	6,889	2,025	1,595	28,134	40,819	50,025	2,905	443	123	135,444
1948	154	119	1,631	4,473	1,170	1,895	33,191	53,621	40,609	1,742	381	76	139,062
1949	1		1,689	3,293	1,712	1,264	34,314	54,281	20,786	1,161	686	98	119,285
1950	13	8	1,156	4,537	1,667	691	25,142	53,904	24,226	1,932	811		114,087
1951			375	2,338	1,568	5,187	74,980	39,712	15,357	947	225		140,689
1952			278	1,248	1,751	8,202	118,110	79,735	48,293	2,735	638		260,990
1953			1,310	5,308	1,456	5,313	106,712	64,006	36,107	2,797	905		223,914
1954		6	679	5,511	1,571	6,115	59,443	65,234[1]	34,941	2,209	551		176,260
Total	1,564	2,486	21,010	79,906	41,767	48,312	713,864	789,490	697,842	40,698	9,372	2,282	2,448,593
17-year average	92	146	1,236	4,700	2,457	2,842	41,992	46,441	41,049	2,394	551	134	144,035

1 Nine steelhead lifted in powerhouse fish lock (included in total).

TABLE 30

MISCELLANEOUS SPECIES COUNTED OVER FISH LADDERS AND IN FISH LOCKS
BONNEVILLE DAM - 1938-1954

Year	Shad[1]	Sturgeon	Trout	Bass	Cottids	Carp	Chub	Crappie	Catfish	Dace	Shiner	Squawfish	Sucker	Whitefish	Sunfish	Channel Cat	Lamprey	Trout Perch	Stickleback	Smelt	Bullhead	Total
1938	5,273	44	2,216	46	48	15,189	19,465	43	5	1,844	559	57,542	281,873	3,122	0	0	227,627	0	0	0	0	614,896
1939	4,803	352	1,531	20	0	8,630	7,007	397	7	149	3,550	64,396	139,568	4,599	0	0	229,675	0	0	0	0	464,684
1940	22,230	2	1,089	0	1	10,732	6,058	17	1	7	3,171	59,780	100,178	1,811	1	0	159,133	0	0	0	0	364,211
1941	18,657	28	1,121	30	1	14,336	7,002	7	1	14	207	42,063	119,186	844	1	0	66,240	0	0	0	0	269,738
1942	12,859	547	921	4	22	17,962	5,990	137	29	0	671	43,818	108,420	990	2	0	52,661	0	0	0	0	245,033
1943	2,848	0	1,007	11	13	14,751	1,902	5	23	53	569	42,507	64,529	1,518	2	0	57,641	0	0	0	0	187,379
1944	17,103	0	610	13	4	9,383	2,052	1	0	13	758	51,975	98,371	651	0	0	49,239	0	0	0	0	230,173
1945	94,526	1	877	0	5	12,682	803	0	11	2	530	52,933	110,003	263	0	0	36,721	0	0	0	0	309,357
1946	20,383	832	1,257	4	35	15,672	3,489	204	1	20	11,343	90,733	144,664	675	0	0	75,497	0	0	0	0	364,809
1947	26,041	78	1,231	0	49	15,243	2,171	354	5	0	14,100	91,761	160,513	125	0	0	96,848	1	0	0	0	408,520
1948	8,422	81	1,507	0	5	23,543	4,010	0	0	0	3,677	38,725	159,970	216	0	0	143,815	0	0	0	0	383,971
1949	22,579	4	1,249	0	2	12,520	1,188	5	1	1	10,603	45,027	292,693	349	0	0	57,928	0	0	2	0	444,151
1950	7,816	1,526	1,101	0	1	15,243	1,067	82	2	0	4,626	37,140	165,154	388	0	0	32,693[2]	0	0	0	0	266,839
1951	8,353	1,061	2,164	0	0	11,759	1,127	73	1	3	5,974	39,451	174,558	926	0	0	45,110	0	2	0	0	290,562
1952	3,131	21	3,253	0	0	9,717	1,187	18	0	0	2,307	28,397	124,323	973	0	0	26,203	0	0	0	0	199,530
1953	16,430	13	2,252	1	0	23,369	2,111	0	5	0	1,927	67,202	169,821	1,978	0	0	47,129	0	0	25	1	332,264
1954	5,029	1	3,323	0	0	14,956	2,135	0	0	0	521	43,700	138,113	1,414	0	1	40,986	0	0	0	0	250,179
Total	296,483	4,591	26,709	129	186	245,687	68,764	1,343	92	2,106	65,093	897,150	2,551,937	20,842	6	1	1,445,146	1	2	27	1	5,626,296
17-year Average	17,440	270	1,571	8	11	14,452	4,045	79	5	124	3,829	52,774	150,114	1,226	.35	.06	85,009	.06	.12	1.6	.06	330,959

1 An audit of the hourly shad counts for 1938-1950 was made in 1950, hence the yearly totals for shad and resultant totals for all fish appearing in this report differ somewhat from those previously published.

2 Since the Washington shore ladder forebay counting station was completed in the spring of 1950, the lamprey count can no longer be compared with the lamprey counts of 1938 through 1949.

TABLE 31

NUMBER AND PERCENT OF CHINOOK SALMON COUNTED OVER EACH FISH LADDER
BONNEVILLE DAM - 1954

Date	Bradford Island Number	Bradford Island Percent	Washington Shore Number	Washington Shore Percent	Total
Jan 1-15	0	-	0	-	0
Jan 16-31	0	-	0	-	0
Feb 1-15	0	-	0	-	0
Feb 16-28	2	100.00	0	-	2
Mar 1-15	30	68.18	14	31.82	44
Mar 16-31	422	68.84	191	31.16	613
Apr 1-15	9,478	50.43	9,315	49.57	18,793
Apr 16-30	22,668	35.37	41,416	64.63	64,084
May 1-15	19,970	41.85	27,753	58.15	47,723
May 16-31	1,354	38.61	2,153	61.39	3,507
Spring Run Total	53,924	40.01	80,842	59.99	134,766
Jun 1-15	3,689	25.30	10,892	74.70	14,581
Jun 16-30	12,839	39.85	19,381	60.15	32,220
Jul 1-15	5,935	34.63	11,202	65.37	17,137
Jul 16-31	4,753	30.75	10,706	69.25	15,459
Aug 1-15	3,415	54.34	2,870	45.66	6,285
Summer Run Total	30,631	35.75	55,051	64.25	85,682
Aug 16-31	1[1]	100.00	0	-	1[1]
Aug 16-31	9,813	52.53	8,870	47.47	18,683
Sep 1-15	42,758	57.00	32,261	43.00	75,019
Sep 16-30	3,846	71.13	1,561	28,87	5,407
Oct 1-15	627	70.77	259	29.23	886
Oct 16-31	232	76.57	71	23.43	303
Nov 1-15	76	69.72	33	30.28	109
Nov 16-30	57	62.64	34	37.36	91
Dec 1-15	0	-	0	-	0
Dec 16-31	0	-	0	-	0
Fall Run Total	1[1]	100.00	0	-	1[1]
	57,409	57.12	43,089	42.88	100,498
Total-Fish Lock	1[1]	100.00	0	-	1[1]
Total-Fish Ladders	141,964	44.23	178,982	55.77	320,946
Total	141,965	44.23	178,982	55.77	320,947

1 Lifted in powerhouse fish lock.

TABLE 32

NUMBER AND PERCENT OF CHINOOK JACK SALMON
COUNTED OVER EACH FISH LADDER
BONNEVILLE DAM - 1954

Month	Bradford Island Number	Bradford Island Percent	Washington Shore Number	Washington Shore Percent	Total
January	0	-	0	-	0
February	0	-	0	-	0
March	4	80.00	1	20.00	5
April	959	21.99	3,402	78.01	4,361
May	4,431	47.12	4,972	52.88	9,403
June	3,408	53.28	2,988	46.72	6,396
July	2,592	40.21	3,854	59.79	6,446
August	1[1] 7,180	100.00 64.90	0 3,883	- 35.10	1[1] 11,063
September	7,696	61.44	4,831	38.56	12,527
October	319	72.34	122	27.66	441
November	30	46.87	34	53.13	64
December	0	-	0	-	0
Total-Fish Lock	1[1]	100.00	0	-	1[1]
Total-Fish Ladders	26,619	52.50	24,087	47.50	50,706
Total	26,620	52.50	24,087	47.50	50,707

$$50,707 \div 320,947 = 15.80\%$$

15.80% of total Chinook run were Jacks

1 Lifted by powerhouse fish lock.

TABLE 33

NUMBER AND PERCENT OF BLUEBACK SALMON COUNTED OVER EACH FISH LADDER
BONNEVILLE DAM - 1954

Date	Bradford Island		Washington Shore		Total
	Number	Percent	Number	Percent	
Jan 1-15	0	-	0	-	0
Jan 16-31	0	-	0	-	0
Feb 1-15	0	-	0	-	0
Feb 16-28	0	-	0	-	0
Mar 1-15	0	-	0	-	0
Mar 16-31	1	100.00	0	-	1
Apr 1-15	0	-	0	-	0
Apr 16-30	0	-	0	-	0
May 1-15	1	16.67	5	83.33	6
May 16-31	4	57.14	3	42.86	7
Jun 1-15	391	64.63	214	35.37	605
Jun 16-30	29,243	56.50	22,511	43.50	51,754
Jul 1-15	36,207	58.05	26,170	41.95	62,377
Jul 16-31	6,681	47.29	7,447	52.71	14,128
Aug 1-15	684	61.07	436	38.93	1,120
Aug 16-31	49	53.26	43	46.74	92
Sep 1-15	12	85.71	2	14.29	14
Sep 16-30	2	66.67	1	33.33	3
Oct 1-15	0	-	0	-	0
Oct 16-31	0	-	0	-	0
Nov 1-15	0	-	0	-	0
Nov 16-30	0	-	0	-	0
Dec 1-15	0	-	0	-	0
Dec 16-31	0	-	0	-	0
Total	73,275	56.32	56,832	43.68	130,107

TABLE 34

NUMBER AND PERCENT OF SILVER SALMON COUNTED OVER EACH FISH LADDER
BONNEVILLE DAM - 1954

Date	Bradford Island Number	Bradford Island Percent	Washington Shore Number	Washington Shore Percent	Total
Jan 1-15	0	-	0	-	0
Jan 16-31	0	-	0	-	0
Feb 1-15	0	-	0	-	0
Feb 16-28	0	-	0	-	0
Mar 1-15	0	-	0	-	0
Mar 16-31	0	-	0	-	0
Apr 1-15	0	-	0	-	0
Apr 16-30	0	-	0	-	0
May 1-15	0	-	0	-	0
May 16-31	0	-	0	-	0
Jun 1-15	0	-	0	-	0
Jun 16-30	0	-	0	-	0
Jul 1-15	0	-	0	-	0
Jul 16-31	0	-	0	-	0
Aug 1-15	2	66.67	1	33.33	3
Aug 16-31	288	43.31	377	56.69	665
Sep 1-15	1,943	62.06	1,188	37.94	3,131
Sep 16-30	156	82.97	32	17.03	188
Oct 1-15	47	77.05	14	22.95	61
Oct 16-31	13	100.00	0	-	13
Nov 1-15	0	-	1	100.00	1
Nov 16-30	0	-	0	-	0
Dec 1-15	0	-	0	-	0
Dec 16-31	0	-	0	-	0
Total	2,449	60.29	1,613	39.71	4,062

TABLE 35

NUMBER AND PERCENT OF CHUM SALMON COUNTED OVER EACH FISH LADDER
BONNEVILLE DAM - 1954

Date	Bradford Island		Washington Shore		Total
	Number	Percent	Number	Percent	
Jan 1-15	0	-	0	-	0
Jan 16-31	0	-	0	-	0
Feb 1-15	0	-	0	-	0
Feb 16-28	0	-	0	-	0
Mar 1-15	0	-	0	-	0
Mar 16-31	0	-	0	-	0
Apr 1-15	0	-	0	-	0
Apr 16-30	0	-	0	-	0
May 1-15	0	-	0	-	0
May 16-31	0	-	0	-	0
Jun 1-15	0	-	0	-	0
Jun 16-30	0	-	0	-	0
Jul 1-15	0	-	0	-	0
Jul 16-31	0	-	0	-	0
Aug 1-15	0	-	0	-	0
Aug 16-31	0	-	0	-	0
Sep 1-15	0	-	0	-	0
Sep 16-30	5	83.33	1	16.67	6
Oct 1-15	5	18.52	22	81.48	27
Oct 16-31	102	61.45	64	38.55	166
Nov 1-15	649	65.03	349	34.97	998
Nov 16-30	194	52.15	178	47.85	372
Dec 1-15	0	-	0	-	0
Dec 16-31	0	-	0	-	0
Total	955	60.87	614	39.13	1,569

TABLE 36

NUMBER AND PERCENT OF STEELHEAD TROUT COUNTED OVER EACH FISH LADDER
BONNEVILLE DAM - 1954

Date	Bradford Island Number	Bradford Island Percent	Washington Shore Number	Washington Shore Percent	Total
Jan 1-15	0	-	0	-	0
Jan 16-31	0	-	0	-	0
Feb 1-15	0	-	0	-	0
Feb 16-28	6	100.00	0	-	6
Mar 1-15	151	77.84	43	22.16	194
Mar 16-31	428	88.25	57	11.75	485
Apr 1-15	3,042	82.53	644	17.47	3,686
Apr 16-30	1,279	70.08	546	29.92	1,825
May 1-15	842	71.84	330	28.16	1,172
May 16-31	240	60.15	159	39.85	399
Jun 1-15	898	51.08	860	48.92	1,758
Jun 16-30	2,095	48.08	2,262	51.92	4,357
Jul 1-15	3,745	38.64	5,947	61.36	9,692
Jul 16-31	13,468	27.07	36,283	72.93	49,751
Aug 1-15	17,814	43.95	22,719	56.05	40,533
Aug 16-31	9[1]	100.00	0	-	9[1]
Aug 16-31	7,642	30.95	17,050	69.05	24,692
Sep 1-15	15,619	51.04	14,981	48.96	30,600
Sep 16-30	1,754	40.41	2,587	59.59	4,341
Oct 1-15	1,002	65.49	528	34.51	1,530
Oct 16-31	554	81.59	125	18.41	679
Nov 1-15	205	72.18	79	27.82	284
Nov 16-30	217	81.27	50	18.73	267
Dec 1-15	0	-	0	-	0
Dec 16-31	0	-	0	-	0
Total-Fish Lock	9[1]	100.00	0	-	9[1]
Total-Fish Ladders	71,001	40.28	105,250	59.72	176,251
Total	71,010	40.29	105,250	59.71	176,260

1 Lifted in powerhouse fish lock.

TABLE 37

YEARLY PERCENTAGE OF SALMONIDS COUNTED OVER EACH FISH LADDER
BONNEVILLE DAM - 1938-1954

Year	Chinook		Blueback		Silvers		Chum		Steelhead		Percent of total count		Fish locks
	B.I.	Wash.	B.I.	Wash	B.I.	Wash.	B.I.	Wash.	B. I.	Wash.	B.I.	Wash.	
1938	34.25 1.07[1]	64.68	55.80	44.20	56.55	43.45	66.27	33.73	35.77 1.48[1]	62.75	38.89	60.16	.95
1939	55.21 4.64[1]	40.15	40.90	59.10	35.06	64.94	23.75	76.25	44.72 1.66[1]	53.62	50.72	46.17	3.11
1940	59.00	41.00	47.80	52.20	61.80	38.20	38.20	61.80	47.50	52.50	52.23	47.77	
1941	51.20 8.94[1]	39.86	29.89 18.81[1]	51.30	40.84 15.37[1]	43.79	5.00 5.00[1]	90.00	27.47 18.31[1]	54.22	44.28	44.02	11.70[2]
1942	54.00 .02[1]	45.98	45.84	54.16	48.44	51.56	21.16	78.84	43.00 .20[1]	56.80	50.38	49.56	.06
1943	48.96	51.04	47.44	52.56	53.45	46.55	29.17	70.83	46.14	53.86	48.29	51.71	
1944	62.02	37.98	51.76	48.24	58.59	41.41	14.95	85.05	52.14	47.86	58.60	41.40	
1945	69.69	30.31	51.20	48.80	70.56	29.44	27.70	72.30	67.55	32.45	68.65	31.35	
1946	65.00	35.00	42.00	58.00	60.00	40.00	43.00	57.00	57.00	43.00	60.51	39.49	
1947	65.20	34.80	35.00	65.00	88.40	11.60	74.40	25.60	54.30	45.70	57.23	42.77	
1948	66.50	33.50	47.20	52.80	82.50	17.50	74.40	25.60	59.60	40.40	61.57	38.43	
1949	78.50	21.50	61.50	38.50	82.50	17.50	67.50	32.50	65.10	34.90	73.04	26.96	
1950	69.40	30.60	49.60	50.40	66.10	33.90	40.50	59.50	49.30	50.70	62.46	37.54	
1951	58.80	41.20	39.50	60.50	57.00	43.00	33.10	66.90	28.03	71.91 .06[1]	47.01	52.96	.03
1952	62.54 .01[1]	37.45	44.00	56.00	74.50 .30[1]	25.20	14.80 6.10[1]	79.10	59.30 .50[1]	40.20	57.68	42.15	.17
1953	65.66 .06[1]	34.28	60.92 .02[1]	39.06	62.10	37.90	61.40	38.60	59.94 .01[1]	40.05	62.62	37.34	.04
1954	44.23	55.77	56.32	43.68	60.29	39.71	60.87	39.13	40.29	59.71	45.75	54.24	.01

1 Via fish locks.
2 Powerhouse branch fishway had been removed to permit construction of the four north units of the powerhouse.

TABLE 38

NUMBER AND PERCENT OF SHAD COUNTED OVER EACH FISH LADDER
BONNEVILLE DAM - 1954

Date	Bradford Island		Washington Shore		Total
	Number	Percent	Number	Percent	
Jan 1-15	0	-	0	-	0
Jan 16-31	0	-	0	-	0
Feb 1-15	0	-	0	-	0
Feb 16-28	0	-	0	-	0
Mar 1-15	0	-	0	-	0
Mar 16-31	0	-	0	-	0
Apr 1-15	0	-	0	-	0
Apr 16-30	0	-	0	-	0
May 1-15	0	-	0	-	0
May 16-31	0	-	0	-	0
Jun 1-15	1	100.00	0	-	1
Jun 16-30	28	84.85	5	15.15	33
Jul 1-15	1,246	94.11	78	5.89	1,324
Jul 16-31	1,236	48.97	1,288	51.03	2,524
Aug 1-15	363	33.77	712	66.23	1,075
Aug 16-31	13	21.31	48	78.69	61
Sep 1-15	5	62.50	3	37.50	8
Sep 16-30	0	-	3	100.00	3
Oct 1-15	0	-	0	-	0
Oct 16-31	0	-	0	-	0
Nov 1-15	0	-	0	-	0
Nov 16-30	0	-	0	-	0
Dec 1-15	0	-	0	-	0
Dec 16-31	0	-	0	-	0
Total	2,892	57.51	2,137	42.49	5,029

TABLE 39

NUMBER AND PERCENT OF SHAD COUNTED OVER FISH LADDERS AND IN FISH LOCKS
BONNEVILLE DAM - 1938-1954

Year	Bradford Island				Washington Shore				Total
	Fish Ladder		Fish Lock		Fish Ladder		Fish Lock		
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
1938	2,924	55.5	140	2.6	2,209	41.9			5,273
1939	1,342	27.9			3,460	72.0	1	0.1	4,803
1940	9,403	42.3			12,827	57.7			22,230
1941	5,806	31.2	4,989	26.7	7,862	42.1			18,657
1942	9,042	70.3			3,817	29.7			12,859
1943	2,479	87.0			369	13.0			2,848
1944	10,741	62.8			6,362	37.2			17,103
1945	72,980	77.2			21,546	22.8			94,526
1946	9,037	44.3			11,346	55.7			20,383
1947	18,068	69.4			7,973	30.6			26,041
1948	5,816	69.1			2,435	28.9	171	2.0	8,422
1949	12,405	54.9			10,157	45.0	17	0.1	22,579
1950	7,242	92.7			574	7.3			7,816
1951	5,276	63.2			3,038	36.3	39	0.5	8,353
1952	1,717	54.8			1,414	45.2			3,131
1953	9,942	60.51			6,487	39.48	1	0.01	16,430
1954	2,892	57.51			2,137	42.49			5,029
Total	187,112	63.11	5,129	1.73	104,013	35.08	229	0.08	296,483

TABLE 40

MONTHLY TOTALS OF ALL FISH COUNTED OVER McNARY DAM
1954

Species	Jan	Feb	Mar[1]	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec[2]	Total
Chinook			14	919	42,625	28,510	35,993	9,287	8,626	568	13		126,555
Blueback					1	1,107	93,452	11,382	2,214	25			108,181
Silver								4	751	180	14	1	950
Chum										1			1
Steelhead			376	5,569	2,307	128	2,628	20,939	26,944	11,627	2,937	1,604	75,059
Total Salmon			390	6,488	44,933	29,745	132,073	41,612	38,535	12,401	2,964	1,605	310,746
Misc. Trout						35							35
Shad													
Carp					45	56	928	1,541	212	12			2,794
Chub			71	1	15,891	32,191	15,664	13,631	9,146	1,036	3		87,634
Sucker			82	13,448	30,331	44,470	102,416	149,897	112,462	37,407	8,849	13	499,375
Squawfish			223	827	8,652	19,819	10,310	5,554	2,177	230	17	17	47,826
Whitefish			1,766	3,987	6,245	2,872	1,783	2,121	8,653	49,204	23,001	219	99,851
Lamprey					3	176	127	344	285	3			938
Shiner					12	3,747	4,950	2,816	1,025	228	1		12,779
Crappie						1	6	4					11
Bullhead					4		4		10	4	2	1	25
Sturgeon													
Sunfish					1								1
Bass						4	7	8	9	47			75
Catfish							2	2					4
Ling									9	1			10
Total Other Fish			2,142	18,263	61,184	103,371	136,197	175,918	133,988	88,172	31,873	250	751,358
Total Fish			2,532	24,751	106,117	133,116	268,270	217,530	172,523	100,573	34,837	1,855	1,062,104

1 Fish-counting initiated 15 March and discontinued 30 November 1954.
2 Special count initiated 20 December 1954. Spot counts made on December 5, 11, 12, 16, 18, and 19. During unwatering on 2 December 1,571 steelhead were removed from Oregon shore fish ladder and placed in forebay.

TABLE 41

WEATHER AND WATER DATA REPORT - JANUARY 1954
McNARY DAM

Date	Water Temperature Max.	Water Temperature Min.	Air Temperature Max.	Air Temperature Min.	Weather Bar.	Weather Rain	Weather Snow	River Flow
1			48	40				116,257
2			48	35				109,686
3			54	35				95,709
4	42	42	53	35		.02		86,489
5	42	41	46	36		.09		92,001
6	42	42	51	28				99,087
7	42	42	46	29		.05		100,450
8	42	42	54	36				98,453
9	42	42	50	25				102,464
10	42	42	38	27		Trace		100,282
11	42	42	42	34	28.75			99,418
12	42	41	41	24	28.79			89,598
13	42	42	38	23	28.56			100,271
14	42	42	49	30	28.12	Trace		105,320
15	42	41	50	36	28.22			107,580
16	40	40	45	16	29.74	.15	2.0	104,720
17	40	39	23	15	29.53	.20	2.5	99,310
18	39	39	28	14	29.62	.04	.75	95,570
19	39	37	25	15	29.80	Trace	Trace	93,450
20	37	37	19	-10	30.05		Trace	101,070
21	37	36	7	- 6	29.90			110,774
22	36	36	18	7	29.41	.08		106,100
23	36	35	35	18	29.54	.01		106,145
24	35	34	38	20	29.45		Trace	97,411
25	34	34	35	15	29.57			98,385
26	35	35	41	18	29.55			101,311
27	35	35	40	31	29.49	.15		101,241
28	36	35	36	31	29.84	.31		104,300
29	36	36	44	33	29.97	.12		114,800
30	37	36	36	28	30.19			111,400
31	37	36	40	35	30.36			115,800
						1.22	5.25	

TABLE 42

WEATHER AND WATER DATA REPORT - FEBRUARY 1954

McNARY DAM

Date	Water Temperature Max.	Water Temperature Min.	Air Temperature Max.	Air Temperature Min.	Weather Bar.	Weather Rain	Weather Snow	River Flow
1	37	37	44	34	30.52	.02		111,000
2	37	37	36	32	30.36	.01		111,200
3	38	38	35	32	30.31	Trace		119,057
4	38	38	35	31	30.30	.01	Trace	129,990
5	39	38	36	32	30.35			112,300
6	39	39	35	32	30.35			106,480
7	39	39	34	32	30.37			115,200
8	39	39	35	31	30.38			108,350
9	40	40	33	27	29.94			106,750
10	39	39	31	27	30.09			107,630
11	39	39	30	27	29.90			104,372
12	40	39	31	26	29.26	.15		103,589
13	40	39	43	27	29.23			103,892
14	40	39	58	34	29.42			105,672
15	40	39	50	34	29.80			109,805
16	40	39	51	39	29.67			115,847
17	39	39	61	53	29.20			113,300
18	40	39	60	34	29.98	.03		110,100
19	41	40	49	36	29.92			108,300
20	41	40	59	47	29.92			111,400
21	41	40	55	41	29.67			110,900
22	42	41	55	38	30.30			99,500
23	42	41	50	33	30.13			108,300
24	42	42	64	28	29.94			112,500
25	43	42	62	40	29.79			110,100
26	43	42	60	33	29.85			108,200
27	43	42	51	33	30.20			117,100
28	43	42	53	42	29.87			113,700
						.22	Trace	

TABLE 43

SALMONID FISH COUNT - MARCH 1954
McNARY DAM

Date	Temperature Water Max.	Temperature Water Min.	Temperature Air Max.	Temperature Air Min.	Weather Bar.	Weather Rain	River Turbidity	River Flow	Chinook	Steelhead	Total
1	43	42	57	23	30.20			112,800			
2	43	42	48	19	30.22			105,900			
3	43	42	47	19	30.12			107,900			
4	43	41	48	19	30.20			114,900			
5	43	41	51	21	30.07			109,000			
6	43	42	57	28	29.86			106,449			
7	42	41	57	26	29.78			103,400			
8	42	41	51	34	29.68	.07		107,600			
9	42	41	57	40	29.13	.13		111,770			
10	42	41	69	27	29.56	.01		113,200			
11	42	41	50	30	29.81			134,300			
12	42	41	50	22	30.20			154,412			
13	42	41	51	20	30.23			150,000			
14	42	42	53	28	30.24			138,000			
15[1]	43	42	51	36	29.62			130,400		2	2
16	43	43	54	38	29.53			121,300		24	24
17	43	43	55	34	29.44	.61		121,100	2	64	66
18	44	43	52	31	29.83			125,400		31	31
19	44	43	54	30	29.68			129,500	1	33	34
20	44	43	53	39	29.73			125,000		35	35
21	44	43	56	28	29.73			121,740		29	29
22	44	43	60	29	29.80			123,400	4	9	13
23	44	43	62	28	29.65			126,300		29	29
24	44	43	61	38	29.45			119,560		21	21
25	45	43	56	25	29.94			122,280		3	3
26	44	44	62	34	30.02			119,910	3	18	21
27	45	44	52	42	29.74			120,310		24	24
28	44	43	57	29	30.03			122,410		43	43
29	45	43	42	13	29.93			122,180	3	9	12
30	44	43	47	16	29.97			118,157	1	2	3
31	44	43	56	32	29.84			115,510			
						.82			14	376	390

1 Fish-counting initiated 15 March 1954.

TABLE 44

SCRAP FISH COUNT - MARCH 1954
McNARY DAM

Date	Chub	Sucker	Squawfish	Whitefish	Total
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15[1]			4		4
16			1	12	13
17		1	2	1	4
18			1	26	27
19			1	38	39
20				53	53
21		1	2	51	54
22	3		165		168
23			6	290	296
24			10	367	377
25			2	291	293
26	68		4	106	178
27			9	179	188
28			7	174	181
29		2	9	64	75
30		47		52	99
31		31		62	93
	71	82	223	1,766	2,142

1 Fish-counting initiated 15 March 1954.

TABLE 45

SALMONID FISH COUNT - APRIL 1954
McNARY DAM

Date	Temperature Water Max.	Temperature Water Min.	Temperature Air Max.	Temperature Air Min.	Weather Bar.	Weather Rain	River Turbidity Wash.	River Turbidity Ore.	Flow	Chinook	Steelhead	Total
1	44	43	55	39	29.84				118,200		8	8
2	44	43	54	37	29.78				120,090		5	5
3	44	43	56	37	29.63				120,090		6	6
4	44	43	64	43	29.50				120,090		8	8
5	44	43	67	39	29.63	.01			119,270		13	13
6	45	44	65	36	29.50				122,550		2	2
7	46	44	57	30	30.11	.01			144,850		38	38
8	46	45	62	42	29.52				142,470	2	60	62
9	46	46	61	33	30.03				145,510		87	87
10	46	46	58	30	30.27				147,740		42	42
11	47	46	59	27	30.13				142,470		216	216
12	47	46	69	39	29.95				128,300		175	175
13	48	47	71	51	29.77	.07			118,290	11	75	86
14	48	46	70	39	29.98				134,600	3	119	122
15	48	47	60	33	30.16				160,200	5	72	77
16	49	48	66	37	30.16				168,150	10	119	129
17	50	49	81	52	29.96				163,080	34	403	437
18	50	50	72	41	29.98				157,926	20	692	712
19	50	49	64	44	29.89		1.5	1.5	168,225	21	392	413
20	51	49	62	30	30.01		1.9	1.8	183,570	6	399	405
21	51	50	62	32	30.08		2.1	2.0	176,559	2	334	336
22	51	50	70	36	29.81		2.5	2.1	163,046	19	284	303
23	52	50	75	35	29.92		2.6	2.3	161,150	10	156	166
24	52	50	65	28	29.79		3.0	2.4	159,150	14	237	251
25	52	51	70	41	29.77		2.7	2.1	161,150	95	331	426
26	52	51	64	34	29.79		3.0	3.0	163,190	172	342	514
27	52	51	63	44	29.70		3.0	2.7	172,150	222	568	790
28	52	51	60	38	29.73		3.0	2.6	174,600	167	117	284
29	52	51	57	31	29.96		3.0	2.6	174,650	62	127	189
30	51	51	56	38	29.83		3.2	2.5	171,800	44	142	186
						.09				919	5,569	6,488

TABLE 46

SCRAP FISH COUNT - APRIL 1954
McNARY DAM

Date	Chub	Sucker	Squawfish	Whitefish	Total
1		11	4	121	136
2		12		145	157
3		20	2	291	313
4		14		86	100
5		2	2	161	165
6		3	2	374	379
7		4	1	416	421
8		215		594	809
9		339		226	565
10		465	2	219	686
11		1,464	296		1,760
12		724	181		905
13		265	5	49	319
14		470		57	527
15		226		67	293
16		535	5	103	643
17		1,467	2	65	1,534
18		2,501	14	125	2,640
19		3,092	62	24	3,178
20		185	2	25	212
21		193	3	21	217
22		79	16	29	124
23		180		36	216
24		146	5	55	206
25		116	73	50	239
26		127	11	84	222
27		308	46	208	562
28		181	17	122	320
29	1	59	36	112	208
30		45	40	122	207
	1	13,448	827	3,987	18,263

TABLE 47

SALMONID FISH COUNT - MAY 1954
McNARY DAM

Date	Temperature Water Max.	Temperature Water Min.	Temperature Air Max.	Temperature Air Min.	Weather Bar.	Weather Rain	River Turbidity Wash.	River Turbidity Ore.	Flow	Chinook	Steelhead	Blueback	Total
1	51	50	53	24	30.13		3.4	2.5	170,925	40	104		144
2	51	50	57	28	30.06		3.6	3.1	166,190	45	59		104
3	50	49	67	47	29.89	.03	3.8	3.5	170,750	47	44		91
4	50	49	74	42	29.77		4.0	3.5	183,400	68	160		228
5	50	49	76	44	29.97		4.0	2.8	183,450	19	24		43
6	51	50	71	36	29.97		4.0	2.5	181,350	101	452		553
7	51	50	77	44	29.70		4.0	3.4	204,050	207	163		370
8	52	51	80	51	29.49		4.0	3.4	219,550	350	352		702
9	53	52	82	50	29.54		3.8	3.4	246,400	330	312		642
10	54	53	71	54	29.85	.10	3.7	3.0	262,450	397	131		528
11	53	53	79	54	29.79		3.5	3.4	307,900	2,474	133		2,607
12	53	53	66	39	29.82		3.2	2.8	331,150	6,571	84		6,655
13	53	52	69	38	29.82		2.4	2.3	349,850	3,779	81		3,860
14	53	52	73	39	29.79		2.5	1.8	352,200	3,576	26		3,602
15	53	52	81	45	29.75		2.7	2.0	367,750	3,370	19		3,389
16	52	52	84	48	28.85		2.7	2.0	376,350	1,454	6		1,460
17	53	52	88	47	29.86		2.7	2.0	394,649	2,849	34		2,883
18	54	53	90	50	29.72		2.8	2.0	424,870	3,554	27		3,581
19	55	54	95	55	29.69		2.8	2.0	430,270	3,378	9		3,387
20	54	54	83	60	29.62		2.8	2.1	470,740	2,247	25		2,272
21	54	54	74	46	29.90		2.4	1.7	516,110	893	16		909
22	54	53	73	45	30.03		2.1	1.6	527,270	426	4		430
23	54	53	76	44	29.80		2.3	1.6	524,640	297	16		313
24	53	53	87	57	29.54		2.3	1.6	503,330	316	2		318
25	53	53	76	48	29.55		2.2	1.7	506,370	276	3		279
26	53	53	66	45	29.60	.06	2.5	1.7	520,270	347			347
27	53	53	63	44	29.91		2.6	1.6	524,660	651	7	1	659
28	53	53	70	39	29.84		3.0	1.9	513,900	271	1		272
29	53	52	74	53	29.44		3.1	2.1	508,420	1,160	4		1,164
30	53	52	66	47	29.64	.16	3.0	2.2	499,400	976	7		983
31	54	53	68	50	29.73	.03	2.9	2.3	495,640	2,156	2		2,158
						.38				42,625	2,307	1	44,933

TABLE 47

TABLE 48

SCRAP FISH COUNT - MAY 1954
McNARY DAM

Date	Chub	Sucker	Squawfish	Whitefish	Shiner	Sunfish	Carp	Lamprey	Bullhead	Total
1		34	17	127						178
2		11	3	92						106
3		27	16	290						333
4		24	9	368						401
5		30	12	361						403
6		111	67	540						718
7	2	1,722	110	534	1	1				2,370
8	40	4,173	1,176	430	1					5,820
9	171	7,547	946	323	4					8,991
10	98	7,194	1,186	111	2		38			8,629
11	386	5,424	341	365			4			6,520
12	74	1,631	283	131						2,119
13	161	735	121	174						1,191
14	126	110	108	75						419
15	16	73	81	62	1					233
16	24	15	44	12				1		96
17	11	17	42	7			1	1		79
18	124	125	62	14			1			326
19	4,531	389	2,732	995	3					8,650
20	6,614	497	620	550						8,281
21	2,576	268	482	465						3,791
22	412	52	97	147						708
23	269	16	34	8			1		4	332
24	28	16	19	12				1		76
25	19	3	4							26
26	18	7		1						26
27	9	4	2	7						22
28	34	3	4	1						42
29	18		3	1						22
30	75	30	11	14						130
31	55	43	20	28						146
	15,891	30,331	8,652	6,245	12	1	45	3	4	61,184

TABLE 49

SALMONID FISH COUNT - JUNE 1954
McNARY DAM

Date	Temperature Water Max.	Temperature Water Min.	Temperature Air Max.	Temperature Air Min.	Weather Bar.	Weather Rain	River Turbidity Wash.	River Turbidity Ore.	River Flow	Chinook	Steelhead	Blueback	Total
1	54	53	64	45	30.00		3.1	2.1	496,500	2,155	2		2,157
2	55	54	68	39	30.00		3.6	2.2	498,829	1,123	2		1,125
3	55	55	76	53	29.55		3.6	2.5	498,800	1,440	1		1,441
4	55	54	79	47	29.61	.15	3.3	2.0	499,700	1,018	5		1,023
5	54	54	68	45	29.72		3.4	2.5	488,100	712	1		713
6	54	54	69	45	29.80	.02	3.1	2.5	490,999	770	1		771
7	54	54	56	46	29.80		3.5	2.4	479,399	432			432
8	55	54	74	53	29.69		3.5	2.5	476,240	806		3	809
9	55	54	79	51	29.56		3.3	2.6	477,299	1,462	1	6	1,469
10	55	55	78	54	29.47		3.5	2.6	466,840	1,352	4	4	1,360
11	55	54	75	51	29.84		3.9	2.5	463,040	1,185	3	1	1,189
12	55	54	78	56	29.59		4.0	2.5	481,840	1,144	3		1,147
13	55	55	70	49	29.74		4.0	1.7	484,840	744		4	748
14	55	54	68	45	29.79		4.0	1.9	485,940	680		6	686
15	55	55	75	55	29.49	.07	3.7	2.1	488,840	661	2	10	673
16	55	55	71	45	29.83	.02	3.3	2.2	499,940	638	6	11	655
17	55	54	68	45	29.92		3.5	2.3	505,140	584	3	10	597
18	55	54	69	40	29.86		3.6	2.0	508,540	465	4	9	478
19	55	54	75	53	29.81		3.6	2.3	487,440	219	4	12	235
20	55	54	78	58	29.76		3.8	2.3	477,140	394	8	8	410
21	56	55	82	51	29.94		3.6	2.5	476,140	903	3	17	923
22	57	56	89	61	29.74		3.8	2.5	477,640	943	3	31	977
23	57	57	91	57	29.84		3.8	2.4	492,440	494		25	519
24	58	57	84	53	29.81		3.8	2.8	497,940	965	12	52	1,029
25	58	57	87	54	29.60		3.7	2.8	494,240	1,427	15	71	1,513
26	58	58	95	63	29.44		3.5	2.6	480,640	1,260	11	48	1,319
27	58	57	85	58	29.75		3.5	2.6	457,240	1,042	20	69	1,131
28	57	56	73	48	29.92		3.1	2.3	475,140	1,242	6	127	1,375
29	57	56	78	52	29.77		3.8	2.6	466,900	1,294	3	244	1,541
30	57	57	89	63	29.55		2.9	3.0	450,300	956	5	339	1,300
						.26				28,510	128	1,107	29,745

TABLE 50

SCRAP FISH COUNT - JUNE 1954
McNARY DAM

Date	Carp	Chub	Sucker	Squawfish	Whitefish	Lamprey	Shiner	Misc. Trout	Crappie	Bass	Total
1		824	56	31	103						1,014
2		1,677	49	77	116						1,919
3		2,393	129	851	673						4,046
4	4	2,199	1,059	1,119	156						4,537
5		730	326	379	140						1,575
6		206	317	185	45						753
7		86	142	72	68						368
8		145	111	63	40						359
9	1	363	180	434	87		73				1,138
10		1,271	515	1,555	147		58				3,546
11		4,613	1,506	1,679	166	2	120				8,086
12	2	1,168	1,580	652	44		90				3,536
13		1,007	1,933	1,069	82		67				4,158
14	4	1,117	1,110	451	53	110					2,845
15	2	725	306	420	25		44				1,522
16	4	217	336	208	10	1	49				825
17	1	135	202	132	10		24				504
18	1	143	194	186	15	57					596
19		135	413	186	70						804
20	1	183	330	140	20		73				747
21	2	2,610	2,957	2,570	96		204				8,439
22	5	2,898	4,106	1,921	95	2	143	1			9,171
23	5	2,791	3,324	771	158		337				7,386
24	1	635	2,646	759	86		451				4,578
25	5	1,789	7,984	1,620	113	2	414				11,927
26	5	1,001	8,382	1,214	185		439	29			11,255
27	5	308	1,989	394	21	1	331	5	1		3,055
28	3	92	459	170	13	1	296				1,034
29	3	240	508	271	3		361			1	1,387
30	2	490	1,321	240	32		173			3	2,261
	56	32,191	44,470	19,819	2,872	176	3,747	35	1	4	103,371

TABLE 51

SALMONID FISH COUNT - JULY 1954
McNARY DAM

Date	Temperature Water Max.	Temperature Water Min.	Temperature Air Max.	Temperature Air Min.	Weather Bar.	Weather Rain	River Turbidity Wash.	River Turbidity Ore.	River Flow	Chinook	Steelhead	Blueback	Total
1	57	57	84	56	29.80	.04	2.7	1.6	436,350	697		396	1,093
2	57	56	73	43	29.92		3.5	2.0	425,830	956	6	641	1,603
3	57	56	83	54	29.78		3.4	2.2	427,870	1,208	11	929	2,148
4	58	57	87	54	29.46		3.6	2.4	469,640	1,757	23	1,586	3,366
5	59	58	96	59	29.77		3.7	2.3	417,760	2,565	43	2,294	4,902
6	60	59	90	55	29.73		4.0	2.4	419,780	2,266	14	2,591	4,871
7	60	60	99	64	29.76		3.6	2.4	421,411	2,268	44	3,781	6,093
8	60	60	88	61	29.79		3.6	3.5	441,730	1,929	41	5,653	7,623
9	60	60	80	60	29.66		4.0	3.5	456,280	2,304	47	6,798	9,149
10	60	59	79	57	29.60		3.8	3.0	453,930	1,839	21	6,519	8,379
11	60	59	79	55	29.83	.16	4.0	3.3	456,150	1,331	34	5,362	6,727
12	60	59	86	58	29.87		3.8	3.0	454,270	1,290	54	4,587	5,931
13	61	60	89	59	29.83		4.0	3.0	446,860	1,510	41	3,489	5,040
14	61	60	96	50	29.67		4.0	3.7	446,860	1,312	87	3,937	5,336
15	61	60	99	63	29.76		4.0	3.3	454,630	1,306	92	4,551	5,949
16	61	60	97	60	29.73		4.0	2.9	449,420	1,140	86	4,315	5,541
17	61	60	94	62	29.72		4.0	3.1	433,600	983	80	4,085	5,148
18	62	61	93	61	29.75		4.0	3.2	428,900	810	62	3,344	4,216
19	62	61	96	61	29.76		4.0	3.5	416,000	658	75	3,180	3,913
20	62	61	89	55	29.80		3.5	3.1	416,800	560	84	1,979	2,623
21	61	60	73	53	29.98		3.7	2.9	422,900	434	66	1,541	2,041
22	60	60	77	49	30.14		4.0	3.7	400,700	592	58	2,183	2,833
23	60	60	83	49	29.79		4.0	3.1	377,520	396	73	2,197	2,666
24	61	60	91	56	29.78		4.0	3.2	369,100	842	86	3,151	4,079
25	62	61	90	52	29.83		4.0	2.4	364,600	612	102	2,747	3,461
26	62	61	94	60	29.84		4.0	3.4	347,800	505	116	2,190	2,811
27	62	61	96	61	29.90		4.0	3.6	353,250	671	143	2,455	3,269
28	62	61	86	51	29.93		4.0	3.3	326,700	856	212	2,265	3,333
29	62	61	85	46	29.78		4.0	3.6	321,500	881	265	2,008	3,154
30	63	62	90	53	29.95		4.0	3.6	316,050	779	222	1,439	2,440
31	63	62	94	52	29.88		4.0	3.6	300,950	736	340	1,259	2,335
						.20				35,993	2,628	93,452	132,073

TABLE 52

SCRAP FISH COUNT - JULY 1954
McNARY DAM

Date	Carp	Chub	Sucker	Squaw-fish	White-fish	Lamprey	Shiner	Crappie	Bass	Bull-head	Cat-fish	Total
1	3	159	471	54	10		43					740
2	4	67	259	50	4		66			1		451
3	5	99	310	38			137					589
4	4	380	689	143	6		282		1			1,505
5	2	581	1,554	237	39	2	293	2	2			2,712
6	38	503	1,993	213	29	5	574					3,355
7	40	2,213	6,831	1,224	78	2	743					11,131
8	59	254	4,213	208	40	4	561			1		5,340
9	42	151	1,807	155	26		473			1		2,655
10	23	313	2,808	226	38		308					3,716
11	31	248	3,554	253	23		237					4,346
12	41	152	2,383	195	53		321	1				3,146
13	64	203	1,594	224	21	3	195					2,304
14	52	232	2,006	171	64	8	111					2,644
15	26	1,498	7,343	2,342	111	5	81	1				11,407
16	27	258	8,908	1,040	77	3	68					10,381
17	36	518	3,777	253	76	5	60					4,725
18	22	814	3,347	187	272	9	47	2	1			4,701
19	54	437	1,939	84	42	13	81		1		2	2,653
20	30	377	2,948	114	109	18	86			1		3,683
21	15	203	708	20	20	3	35					1,004
22	17	62	341	15	19	4	29					487
23	4	81	656	42	29	5	7					824
24	12	238	2,470	193	41	5	8					2,967
25	11	643	4,099	294	28	16	9					5,100
26	25	323	5,056	189	39	7	3					5,642
27	23	1,348	4,068	318	17	1	6					5,781
28	49	228	9,754	512	17	3	3					10,566
29	53	627	5,103	368	57	1	68		1			6,278
30	50	964	5,736	523	252	1	3		1			7,530
31	66	1,490	5,691	425	146	4	12					7,834
	928	15,664	102,416	10,310	1,783	127	4,950	6	7	4	2	136,197

TABLE 53

SALMONID FISH COUNT - AUGUST 1954
McNARY DAM

Date	Temperature Water Max.	Temperature Water Min.	Temperature Air Max.	Temperature Air Min.	Weather Bar.	Weather Rain	River Turbidity Wash.	River Turbidity Ore.	River Flow	Chinook	Steelhead	Blueback	Silver	Total
1	63	62	96	54	29.77		4.0	3.8	293,916	880	378	1,366		2,624
2	64	63	102	67	29.68		4.0	4.0	265,345	840	605	1,540		2,985
3	64	63	85	55	29.79		4.0	4.0	252,800	808	651	1,179		2,638
4	64	63	80	50	29.79		4.0	4.0	253,900	522	607	878		2,007
5	64	63	80	51	29.82		4.0	4.0	242,100	518	874	794		2,186
6	64	63	85	58	29.87		4.0	4.0	242,100	562	802	712		2,076
7	64	63	87	59	29.85		4.0	4.0	242,100	397	858	566		1,821
8	64	63	90	61	29.75		4.0	4.0	233,100	491	1,097	457		2,045
9	64	63	87	49	29.86		4.0	4.0	233,410	351	1,170	420		1,941
10	65	64	85	56	29.78		4.0	4.0	233,600	475	925	406		1,806
11	65	64	87	53	29.71		4.0	4.0	206,400	317	864	346		1,527
12	65	64	88	56	29.74		4.0	4.0	206,917	363	683	293		1,339
13	64	63	88	58	29.61	.06	4.0	4.0	208,333	350	730	317		1,397
14	65	64	89	59	29.75	.04	4.0	4.0	205,200	425	877	222		1,524
15	65	64	82	55	29.88		4.0	4.0	202,340	339	1,130	292		1,761
16	65	64	77	55	29.95		4.0	4.0	200,800	205	759	177		1,141
17	65	64	80	54	29.92		4.0	4.0	198,490	161	663	132		956
18	64	64	80	52	29.69		4.0	4.0	189,380	145	581	138		864
19	64	64	81	55	29.63	.02	4.0	4.0	189,780	109	728	134		971
20	64	64	74	60	29.64	.09	4.0	4.0	188,180	70	414	97		581
21	64	63	78	56	29.80		4.0	4.0	185,680	105	679	150		934
22	64	64	80	63	29.78		4.0	4.0	182,700	87	653	123		863
23	64	63	83	60	29.73		4.0	4.0	184,150	83	632	107		822
24	64	63	72	53	29.74		5.7	5.2	180,390	66	360	71		497
25	64	63	73	47	29.75	.02	3.7	3.5	187,750	67	243	82	2	394
26	63	63	75	51	29.65		4.4	3.9	183,600	58	241	59		358
27	64	62	75	52	29.68		4.7	4.3	186,300	97	371	52		520
28	63	62	82	56	29.84		5.7	4.7	185,100	79	411	50		540
29	63	62	81	52	30.00		5.2	4.0	187,300	84	663	67	1	815
30	64	63	93	56	29.79		5.7	4.8	187,600	123	516	57		696
31	64	63	90	58	30.05	.02	5.7	4.6	186,600	110	774	98	1	983
						.25				9,287	20,939	11,382	4	41,612

TABLE 54

SCRAP FISH COUNT - AUGUST 1954
McNARY DAM

Date	Carp	Chub	Sucker	Squawfish	Whitefish	Lamprey	Shiner	Bass	Catfish	Crappie	Total
1	122	1,104	4,295	370	186	6	32				6,115
2	114	1,904	4,934	531	70		91		1		7,645
3	43	821	5,165	375	201	4	30				6,639
4	104	232	5,092	200	115	6	120				5,869
5	79	288	6,370	322	116	1	83			1	7,260
6	60	729	11,641	428	110	3	119			1	13,091
7	155	312	6,410	346	127	6	60			1	7,417
8	132	400	6,588	318	86	8	38				7,570
9	78	368	7,255	291	122	4	23	4			8,145
10	48	507	5,209	148	63	10	73	2			6,060
11	50	1,457	6,917	346	105	10	135				9,020
12	100	466	5,379	230	141	1	208				6,525
13	46	166	3,331	117	41	1	69				3,771
14	70	94	2,475	37	23	4	103				2,806
15	33	199	1,827	39	42		36	1		1	2,178
16	34	309	4,711	51	43	9	42				5,199
17	55	404	4,468	112	81	13	46				5,179
18	29	526	3,232	120	45	7	46		1		4,006
19	23	224	2,665	38	32	11	16	1			3,010
20	8	138	2,789	29	31	14	46				3,055
21	40	147	3,080	67	24	14	16				3,388
22	25	132	4,685	87	28	19	10				4,986
23	10	126	4,097	131	29	28	6				4,427
24	19	237	4,875	65	44	26	48				5,314
25	14	306	5,131	58	30	36	62				5,637
26	4	441	4,843	47	39	38	656				6,068
27	8	643	6,076	132	33	4	346				7,242
28	15	273	2,662	84	28	13	102				3,177
29	11	148	4,393	141	20	6	74				4,793
30	10	229	5,378	165	34	23	41				5,880
31	2	301	3,924	129	32	19	39				4,446
	1,541	13,631	149,897	5,554	2,121	344	2,816	8	2	4	175,918

TABLE 55

SALMONID FISH COUNT - SEPTEMBER 1954
McNARY DAM

Date	Temperature Water Max.	Temperature Water Min.	Temperature Air Max.	Temperature Air Min.	Weather Bar.	Weather Rain	River Turbidity Wash.	River Turbidity Oreg.	River Flow	Chinook	Steelhead	Blueback	Silver	Total
1	65	64	83	51	30.01		5.5	4.7	178,700	173	814	66	1	1,054
2	65	64	89	54	29.84		5.4	5.0	169,800	170	1,202	102	1	1,475
3	65	64	87	57	29.88		5.4	5.4	173,300	238	778	140	6	1,162
4	65	64	77	48	29.80		5.6	4.7	173,600	226	784	155	9	1,174
5	65	64	75	49	29.94		5.7	4.8	174,000	161	911	157	10	1,239
6	65	64	78	50	29.83		5.7	4.4	180,200	157	1,092	123	12	1,384
7	64	63	86	58	29.82		5.0	4.4	174,300	218	1,181	122	7	1,528
8	65	63	78	56	29.70		5.7	4.5	177,100	194	843	87	6	1,130
9	64	63	80	51	29.78		5.7	5.0	164,300	306	976	151	9	1,442
10	64	63	90	53	29.48		6.0	5.0	159,300	428	1,285	104	55	1,872
11	64	63	94	53	29.73		6.0	5.0	154,300	746	1,158	160	79	2,143
12	64	63	79	56	29.70		5.7	5.0	147,100	906	1,011	187	48	2,152
13	65	63	77	47	29.62		5.7	5.0	142,800	540	962	115	22	1,639
14	65	64	82	50	29.79		5.7	5.2	130,400	462	893	88	11	1,454
15	64	63	82	58	29.57		5.0	5.7	146,000	418	1,175	50	23	1,666
16	64	63	75	50	29.59	.10	5.7	4.4	144,900	219	734	54	56	1,063
17	64	64	66	49	29.69	.65	5.5	5.1	136,800	387	1,102	43	63	1,595
18	63	62	69	51	29.78	.14	5.9	5.7	145,500	312	742	53	32	1,139
19	63	61	74	53	29.76		5.9	5.7	138,100	314	846	37	27	1,224
20	63	61	88	48	29.78		5.9	5.7	140,340	237	607	30	23	897
21	62	61	78	46	29.73		5.7	5.5	139,500	201	659	14	21	895
22	63	61	80	53	29.70		5.7	5.7	135,600	268	851	31	27	1,177
23	63	61	75	49	30.03		5.1	5.7	132,500	152	556	10	28	746
24	63	62	78	48	30.03		5.7	5.1	129,400	169	556	26	24	775
25	63	62	85	48	29.93		5.9	5.7	131,200	248	915	18	25	1,206
26	64	62	88	49	29.83		5.7	5.7	127,700	206	1,095	25	32	1,358
27	63	62	88	53	29.60		5.7	5.7	126,900	157	690	21	22	890
28	63	62	81	49	29.75		5.7	5.7	128,300	179	835	27	26	1,067
29	63	62	62	32	29.87		5.7	5.0	118,400	115	859	10	19	1,003
30	63	61	64	32	29.84		5.7	5.4	123,100	119	832	8	27	986
						.89				8,626	26,944	2,214	751	38,535

TABLE 56

SCRAP FISH COUNT - SEPTEMBER 1954
McNARY DAM

Date	Carp	Chub	Sucker	Squawfish	Whitefish	Lamprey	Shiner	Bass	Bullhead	Ling	Total
1	6	103	2,740	105	51	31	5				3,041
2	1	81	2,504	111	22	15	15				2,749
3	7	231	1,399	129	51	20	17				1,854
4	15	148	1,811	81	73	13	17		1		2,159
5	6	105	2,094	49	82	13	10		1		2,360
6	10	189	5,174	116	129	5	1				5,624
7	23	157	5,229	86	107	9	17				5,628
8	7	139	8,947	95	129	4	9				9,330
9	9	293	6,157	318	106	11	32				6,926
10	1	146	9,270	167	69	1	23	1			9,678
11	11	86	7,387	107	127	12	89	2			7,821
12	60	4,750	4,595	228	33	21		1			9,688
13	2	250	5,785	55	156	18	53	2			6,321
14	5	207	3,379	31	253	20	96	3	1		3,995
15	7	183	4,634	60	306	14	55				5,259
16	5	235	4,312	31	262	2	52		2		4,901
17	2	143	3,653	59	292	6	56				4,211
18	2	124	5,338	44	396	9	25				5,938
19		59	3,742	27	513	3	47				4,391
20	2	30	2,713	19	280	7	39			2	3,092
21	2	74	1,267	21	551	2	47				1,964
22		92	1,626	21	259		10		1		2,009
23	2	204	3,271	22	288	4	52			1	3,844
24	2	206	3,578	51	217	17	79				4,150
25	1	273	4,238	59	358	10	35		1	2	4,977
26	6	209	2,184	22	513	12	43		2	2	2,993
27	11	169	1,949	24	600	1	40		1	2	2,797
28	2	131	1,206	11	625	1	28				2,004
29	3	63	1,125	15	946	3	18				2,173
30	2	66	1,155	13	859	1	15				2,111
	212	9,146	112,462	2,177	8,653	285	1,025	9	10	9	133,988

TABLE 57

SALMONID FISH COUNT - OCTOBER 1954
McNARY DAM

Date	Temperature Water Max.	Temperature Water Min.	Temperature Air Max.	Temperature Air Min.	Weather Bar.	Weather Rain	River Turbidity Wash.	River Turbidity Ore.	River Flow	Chinook	Steelhead	Blueback	Silver	Chum	Total
1	63	61	64	31	29.80		5.7	5.7	114,580	94	1,163	9	30		1,296
2	61	60	67	33	29.65		5.7	5.7	118,110	50	750	5	23		828
3	60	59	73	48	29.86		5.7	5.7	117,230	46	490	4	20		560
4	60	58	73	44	29.72		5.7	5.7	110,750	33	407	1	16		457
5	59	58			29.70		5.7	5.3	104,530	38	543		9		590
6	58	58			29.69		4.7	5.4	106,300	24	278	4	6		312
7	58	57	69	48	29.60		5.7	5.7	104,900	30	363		7		400
8	58	58	67	50	29.97		5.0	5.7	98,800	35	444		12		491
9	59	57	66	46	29.96		5.7	5.7	105,900	15	290				305
10	58	57	68	46	29.77		5.7	5.7	95,900	18	728				746
11	58	57	67	54	29.57		5.7	5.4	97,300	12	183		1		196
12	57	56	62	49	29.74		5.7	5.7	94,000	11	336	1	2		350
13	57	56	56	37	30.07		5.7	5.7	99,300	9	236		2		247
14	57	56	62	34	30.01		5.7	5.7	100,800	7	178		2		187
15	57	56	66	41	30.06		5.7	5.7	103,900	17	275		10		302
16	57	56	67	41	29.75		5.7	5.0	111,100	16	397		6		419
17	56	55	62	45	29.94	.06	5.7	5.7	106,600	21	477		8	1	507
18	56	55	69	45	29.86		5.7	5.7	105,900	8	175		6		189
19	55	55	68	46	29.70		5.7	5.7	90,450	17	480	1	6		504
20	55	55	67	39	29.91		5.7	5.7	112,600	14	271		1		286
21	56	55	58	43	29.84		5.7	5.7	104,500	9	146		3		158
22	56	55	61	48	30.05	.17	5.7	5.7	108,050	5	294				299
23	56	55	60	36	30.24	.21	5.7	5.8	105,500	3	420				423
24	56	55	56	44	30.28		5.7	5.7	103,100	3	361		2		366
25	55	54	57	38	30.19		5.7	5.7	101,050	4	255				259
26	55	54	58	30	30.32		5.7	5.7	95,000	8	221				229
27	55	54	65	31	30.17		5.7	5.7	102,700	6	422		7		435
28	54	54	59	32	30.25		5.7	5.7	105,900	7	346		1		354
29	54	54	57	32	30.23		5.7	5.7	102,800	7	409				416
30	54	53	58	34	30.15		5.7	5.7	104,900		128				128
31	54	53	55	35	30.40		5.7	5.7	109,500	1	161				162
						.44				568	11,627	25	180	1	12,401

TABLE 58

SCRAP FISH COUNT - OCTOBER 1954
McNARY DAM

Date	Carp	Chub	Sucker	Squawfish	Whitefish	Lamprey	Shiner	Bullhead	Bass	Ling	Total
1	1	66	606	4	868	1	46	1	3		1,596
2	3	56	772	9	810		36				1,686
3	3	71	643	31	931	1	26				1,706
4	1	48	632	6	740		18				1,445
5	2	23	737	3	1,011		1		2	1	1,780
6		30	920	5	1,332		5	1			2,293
7		30	1,306	3	1,215		2				2,556
8		60	1,797	26	1,179	1	2				3,065
9		8	2,174	4	1,176		12				3,374
10		82	2,761	31	1,477		7				4,358
11	1	68	2,328	23	1,311		10				3,741
12	1	112	1,758		1,595		3		3		3,472
13		23	1,633	3	1,112		4		13		2,788
14		69	1,789	8	2,398		10		10		4,284
15		27	1,347	6	1,925						3,305
16		36	1,232	24	2,818		7				4,117
17		23	999	19	2,228		3				3,272
18		30	2,139	9	1,605		2				3,785
19		5	1,124	1	2,100		4		16		3,250
20		19	1,600	2	1,763						3,384
21		36	902	3	1,256						2,197
22		25	1,373	3	1,578		5				2,984
23		10	2,255	1	1,707		11				3,984
24		13	1,069		2,088		11				3,181
25		25	633		1,667						2,325
26		7	592		1,620		3				2,222
27			972		2,278						3,250
28			630	1	1,770						2,401
29		9	444	4	1,665			2			2,124
30		23	140	1	1,983						2,147
31		2	100		1,998						2,100
	12	1,036	37,407	230	49,204	3	228	4	47	1	88,172

TABLE 59

SALMONID FISH COUNT - NOVEMBER 1954
McNARY DAM

Date	Temperature Water Max.	Temperature Water Min.	Temperature Air Max.	Temperature Air Min.	Weather Bar.	Weather Rain	River Turbidity Wash.	River Turbidity Ore.	River Flow	Chinook	Steelhead	Silver	Total
1	53	52	56	33	30.03		5.7	5.7	103,700	1	151		152
2	52	51	58	32	29.94		5.7	5.7	98,800	1	114		115
3	52	51	55	35	30.03		5.7	5.7	105,000		198		198
4	52	51	60	34	30.12		5.7	5.7	101,400	1	112		113
5	52	51	55	34	29.97		5.6	5.8	103,800		175		175
6	52	52	54	38	29.93	.01	5.7	5.7	102,100	2	104		106
7	52	51	55	46	29.76	.01	5.7	5.7	106,100	2	66	2	70
8	51	51	55	40	29.71	.01	5.7	5.7	104,300	1	95	2	98
9	52	51	58	42	29.88		5.7	5.7	99,200	1	84		85
10	51	51	58	40	30.03	.14	5.7	5.7	105,300		38		38
11	51	50	60	40	29.80		5.7	5.0	99,500	1	156	5	162
12	52	51	54	46	29.91	.09	5.7	5.7	100,900		134	1	135
13	52	52	59	37	30.03		5.7	5.7	100,900	1	172		173
14	51	51	54	47	29.63	.05	5.7	5.7	100,900		251		251
15	51	51	55	46	29.29	.03	5.7	5.7	103,600		67		67
16	51	51	55	60	29.78	.06	5.7	5.7	102,950		116	2	118
17	52	51	58	46	30.00	.19	5.7	5.7	110,200		129		129
18	51	51	57	50	30.03	.09	5.7	5.7	111,500		84		84
19	51	51	56	35	29.91	.31	5.7	5.7	113,080	2	80		82
20	52	51	61	41	30.15		5.7	5.7	113,300		59		59
21	51	50	52	38	30.19		5.7	5.0	113,500		27		27
22	51	50	56	39	30.10		5.7	5.7	113,500		50		50
23	51	50	60	40	30.09		5.7	5.7	116,200		54	1	55
24	50	50	54	45	30.15		5.7	5.7	119,800		45		45
25	50	50	53	46	29.99		5.7	5.7	114,000		57		57
26	50	50	59	44	30.07		5.7	5.7	114,000		75		75
27	50	50	56	42	30.06		5.7	5.7	115,100		73		73
28	50	49	43	34	30.05		5.7	5.7	110,100		146	1	147
29	49	48	48	32	30.02		5.7	5.6	109,000		20		20
30[1]	48	48	49	26	29.94		5.7	5.7	113,200		5		5
						.99				13	2,937	14	2,964

1 Fish-counting discontinued 30 November 1954.

TABLE 60

SCRAP FISH COUNT - NOVEMBER 1954
McNARY DAM

Date	Chub	Sucker	Squawfish	Whitefish	Shiner	Bullhead	Total
1		97		1,619			1,716
2		116		1,213			1,329
3		84		1,834			1,918
4		105		980	1	2	1,087
5		152		1,122			1,275
6		186		1,174			1,360
7		245		916			1,161
8		326		910			1,236
9		339	3	1,155			1,497
10		753	5	1,266			2,024
11		1,445	9	1,118			2,572
12	3	1,849		776			2,628
13		740		1,185			1,925
14		312		823			1,135
15		359		744			1,103
16		127		704			831
17		136		983			1,119
18		93		676			769
19		81		627			708
20		15		301			316
21		38		667			705
22		30		410			440
23		63		448			511
24		32		346			378
25		62		219			281
26		570		160			730
27		242		172			414
28		198		150			348
29		46		147			193
30[1]		8		156			164
	3	8,849	17	23,001	1	2	31,873

1 Fish-counting discontinued 30 November 1954.

TABLE 61

SALMONID FISH COUNT - DECEMBER 1954[1]
McNARY DAM

Date	Temperature Water Max.	Temperature Water Min.	Temperature Air Max.	Temperature Air Min.	Weather Bar.	Weather Rain	River Turbidity Wash.	River Turbidity Ore.	River Flow	Steelhead	Silver	Total
1	48	47	46	24	30.10		6.0	6.0	113,100			
2	47	46	35	24	30.05		6.0	6.0	105,100	1,571		1,571
3	46	45	35	30	29.89	Tr. Snow	6.0	6.0	102,500			
4	45	45	42	30	29.89		6.0	6.0	101,330			
5	44	44	42	31	29.90		6.0	6.0	102,400	5		5
6	44	44	44	34	29.55	.14	6.0	6.0	104,200			
7	44	43	52	36	29.92	.05	5.7	6.0	104,300			
8	44	43	50	24	29.90		5.7	6.0	104,500			
9	44	43	46	28	29.62		6.0	6.0	101,400			
10	43	43	40	28	29.98		6.0	6.0	100,300			
11	44	43	48	26	30.25		6.0	6.0	101,100	3		3
12	43	43	38	29	30.10	.02	6.0	6.0	101,400	5		5
13	43	43	38	31	29.79		6.0	6.0	96,050			
14	43	43	48	34	29.91	Tr. Snow	6.0	6.0	92,550			
15	43	43	50	34	29.84	Tr. Snow	6.0	6.0	87,900			
16	43	42	48	29	30.38		5.7	6.0	77,500	2		2
17	43	43	46	24	30.55		6.0	6.0	85,000			
18	43	42	39	23	30.60		5.7	6.0	87,300	5		5
19	42	42	34	24	30.47		6.0	6.0	89,600	3		3
20	42	42	28	26	30.38		6.0	6.0	91,400		1	1
21	42	41	30	28	30.23		6.0	6.0	91,200	6		6
22	41	41	32	27	30.30		6.0	6.0	90,100	3		3
23	41	40	34	28	29.67		5.7	6.0	90,000			
24	41	40	39	31	29.74	.03	5.7	6.0	90,000			
25	40	40	48	32	29.80		5.7	6.0	87,700	1		1
26	40	39	44	26	30.17		5.7	6.0	86,600			
27	40	39	46	23	30.42		5.7	6.0	89,160			
28	40	40	36	30	30.07		5.7	6.0	91,100			
29	40	40	42	32	29.80	.05	5.7	6.0	93,200			
30	40	40	50	41	29.38	.39	6.0	6.0	93,200			
31	41	40	55	42	29.40		6.0	6.0	97,700			
						.68				1,604	1	1,605

1 Special count initiated 20 December 1954. Spot counts made on 5, 11, 12, 16, 18 and 19 December. During unwatering on 2 December, 1,571 steelhead were removed from Oregon fish ladder to forebay.

TABLE 62

SCRAP FISH COUNT - DECEMBER 1954[1]
McNARY DAM

Date	Sucker	Whitefish	Squawfish	Bullhead	Total
1					
2					
3					
4					
5	2	24			26
6					
7					
8					
9					
10					
11		15	1		16
12	3		16		19
13					
14					
15					
16		40			40
17					
18	6	13			19
19	2	4			6
20		17			17
21		20			20
22		11			11
23		12			12
24		5			5
25		7			7
26		4			4
27					
28		4			4
29		8			8
30		15			15
31		20		1	21
	13	219	17	1	250

1 Special count initiated 20 December 1954. Spot counts made on 5, 11, 12, 16, 18 and 19 December.

TABLE 63

PEAK DAYS OF FISH MIGRATION - 1954
McNARY DAM

Species	Date	Number of fish
Spring Chinook	May 12	6,571
Summer Chinook	Jul 5	2,565
Fall Chinook	Sep 12	906
Steelhead	Sep 10	1,285
Blueback	Jul 9	6,798
Silver	Sep 11	79
Chum	Oct 17	1

TABLE 64

NUMBER AND PERCENT OF CHINOOK SALMON COUNTED OVER EACH FISH LADDER
McNARY DAM - 1954

Date	Washington Ladder Number	Washington Ladder Percent	Oregon Ladder Number	Oregon Ladder Percent	Total
Jan 1-15	0	-	0	-	0
Jan 16-31	0	-	0	-	0
Feb 1-15	0	-	0	-	0
Feb 16-28	0	-	0	-	0
Mar 1-15[1]	0	-	0	-	0
Mar 16-31	12	85.7	2	14.3	14
Apr 1-15	19	90.5	2	9.5	21
Apr 16-30	610	68.0	288	32.0	898
May 1-15	3,746	17.5	17,628	82.5	21,374
May 16-31	7,912	37.2	13,339	62.8	21,251
Jun 1-20	8,201	45.9	9,684	54.1	17,885
Spring Run Total	20,500	33.3	40,943	66.7	61,443
Jun 21-30	6,030	56.8	4,595	43.2	10,625
Jul 1-15	14,891	60.7	9,647	39.3	24,538
Jul 16-31	7,557	66.0	3,898	34.0	11,455
Aug 1-15	5,004	65.5	2,634	34.5	7,638
Aug 16-26	796	68.9	360	31.1	1,156
Summer Run Total	34,278	61.9	21,134	38.1	55,412
Aug 27-31	307	62.3	186	37.7	493
Sep 1-15	3,166	59.3	2,172	40.7	5,338
Sep 16-30	2,080	63.4	1,200	36.6	3,280
Oct 1-15	226	52.2	207	47.8	433
Oct 16-31	62	49.6	63	50.4	125
Nov 1-15	4	36.4	7	63.6	11
Nov 16-30	0	-	2	100.0	2
Dec 1-15[2]	0	-	0	-	0
Dec 16-31[3]	0	-	0	-	0
Fall Run Total	5,845	60.4	3,837	39.6	9,682
Total-Pressure Lock	0	-	18[4]	100.0	18[4]
Total-Fish Ladders	60,623	47.9	65,914	52.1	126,537
Total	60,623	47.9	65,932	52.1	126,555

1 Fish-counting initiated 15 March and discontinued 30 November 1954.
2 Spot counts made on 5, 11, 12, 16, 18 and 19 December.
3 Special count initiated 20 December 1954.
4 Raised by pressure fish lock and not included in fish ladder count or percentages.

TABLE 65

NUMBER AND PERCENT OF CHINOOK JACK SALMON
COUNTED OVER EACH FISH LADDER
McNARY DAM - 1954

Date	Washington Ladder Number	Washington Ladder Percent	Oregon Ladder Number	Oregon Ladder Percent	Total
January	0	-	0	-	0
February	0	-	0	-	0
March[1]	0	-	0	-	0
April	2	18.2	9	81.8	11
May	2,265	35.0	4,203	65.0	6,468
June	3,223	44.6	4,010	55.4	7,233
July	1,496	47.7	1,638	52.3	3,134
August	794	57.5	587	42.5	1,381
September	877	57.6	646	42.4	1,523
October	0	-	2[2]	-	2[2]
October	106	45.5	127	54.5	233
November	1	33.3	2	66.7	3
December[3]	0	-	0	-	0
Total-Pressure Lock	0	-	2[2]	100.0	2[2]
Total-Fish Ladders	8,764	43.8	11,222	56.2	19,986
Total	8,764	43.8	11,224	56.2	19,988

1 Fish-counting initiated 15 March and discontinued 30 November 1954.

2 Raised by pressure fish lock.

3 Special count initiated 20 December 1954. Spot counts made on 5, 11, 12, 16, 18 and 19 December.

TABLE 66

NUMBER AND PERCENT OF BLUEBACK SALMON
COUNTED OVER EACH FISH LADDER
McNARY DAM - 1954

Date	Washington Ladder		Oregon Ladder		Total
	Number	Percent	Number	Percent	
Jan 1-15	0	-	0	-	0
Jan 16-31	0	-	0	-	0
Feb 1-15	0	-	0	-	0
Feb 16-28	0	-	0	-	0
Mar 1-15[1]	0	-	0	-	0
Mar 16-31	0	-	0	-	0
Apr 1-15	0	-	0	-	0
Apr 16-30	0	-	0	-	0
May 1-15	0	-	0	-	0
May 16-31	0	-	1	100.0	1
Jun 1-15	27	79.4	7	20.6	34
Jun 16-30	823	76.7	250	23.3	1,073
Jul 1-15	43,635	82.2	9,479	17.8	53,114
Jul 16-31	28,155	69.8	12,183	30.2	40,338
Aug 1-15	5,817	59.4	3,971	40.6	9,788
Aug 16-31	955	59.9	639	40.1	1,594
Sep 1-15	1,017	56.3	790	43.7	1,807
Sep 16-30	238	58.5	169	41.5	407
Oct 1-15	12	50.0	12	50.0	24
Oct 16-31	1	100.0	0	-	1
Nov 1-15	0	-	0	-	0
Nov 16-30	0	-	0	-	0
Dec 1-15[2]	0	-	0	-	0
Dec 16-31[3]	0	-	0	-	0
Total	80,680	74.6	27,501	25.4	108,181

1 Fish-counting initiated 15 March and discontinued 30 November 1954.
2 Spot counts made on 5, 11, 12, 16, 18 and 19 December.
3 Special count initiated 20 December 1954.

TABLE 67

NUMBER AND PERCENT OF SILVER SALMON
COUNTED OVER EACH FISH LADDER
McNARY DAM - 1954

Date	Washington Ladder Number	Washington Ladder Percent	Oregon Ladder Number	Oregon Ladder Percent	Total
Jan 1-15	0	-	0	-	0
Jan 16-31	0	-	0	-	0
Feb 1-15	0	-	0	-	0
Feb 16-28	0	-	0	-	0
Mar 1-15[1]	0	-	0	-	0
Mar 16-31	0	-	0	-	0
Apr 1-15	0	-	0	-	0
Apr 16-30	0	-	0	-	0
May 1-15	0	-	0	-	0
May 16-31	0	-	0	-	0
Jun 1-15	0	-	0	-	0
Jun 16-30	0	-	0	-	0
Jul 1-15	0	-	0	-	0
Jul 16-31	0	-	0	-	0
Aug 1-15	0	-	0	-	0
Aug 16-31	0	-	4	100.0	4
Sep 1-15	194	64.9	105	35.1	299
Sep 16-30	0	-	1[2]	100.0	1[2]
Sep 16-30	243	53.9	208	46.1	451
Oct 1-15	0	-	14[2]	100.0	14[2]
Oct 1-15	74	58.7	52	41.3	126
Oct 16-31	36	90.0	4	10.0	40
Nov 1-15	9	90.0	1	10.0	10
Nov 16-30	3	75.0	1	25.0	4
Dec 1-15[3]	0	-	0	-	0
Dec 16-31[4]	1	100.0	0	-	1
Total-Pressure Lock	0	-	15	100.0	15
Total-Fish Ladders	560	59.8	375	40.2	935
Total	560	58.9	390	41.1	950

1 Fish-counting initiated 15 March and discontinued 30 November 1954.
2 Raised by pressure fish lock.
3 Spot counts made on 5, 11, 12, 16, 18 and 19 December 1954.
4 Special count initiated 20 December 1954.

TABLE 68

NUMBER AND PERCENT OF STEELHEAD TROUT
COUNTED OVER EACH FISH LADDER
McNARY DAM - 1954

Date	Washington Ladder Number	Washington Ladder Percent	Oregon Ladder Number	Oregon Ladder Percent	Total
Jan 1-15	0	-	0	-	0
Jan 16-31	0	-	0	-	0
Feb 1-15	0	-	0	-	0
Feb 16-28	0	-	0	-	0
Mar 1-15[1]	2	100.0	0	-	2
Mar 16-31	246	65.8	128	34.2	374
Apr 1-15	759	82.0	167	18.0	926
Apr 16-30	3,208	69.1	1,435	30.9	4,643
May 1-15	1,161	54.2	983	45.8	2,144
May 16-31	100	61.4	63	38.6	163
Jun 1-15	12	48.0	13	52.0	25
Jun 16-30	56	54.4	47	45.6	103
Jul 1-15	329	59.0	229	41.0	558
Jul 16-31	1,050	50.7	1,020	49.3	2,070
Aug 1-15	5,186	42.3	7,065	57.7	12,251
Aug 16-31	4,776	55.0	3,912	45.0	8,688
Sep 1-15	0	-	1[2]	100.0	1[2]
Sep 1-15	8,280	55.0	6,784	45.0	15,064
Sep 16-30	0	-	6[2]	100.0	6[2]
Sep 16-30	7,871	66.3	4,002	33.7	11,873
Oct 1-15	0	-	264[2]	100.0	264[2]
Oct 1-15	3,552	55.5	2,848	44.5	6,400
Oct 16-31	0	-	44[2]	100.0	44[2]
Oct 16-31	2,900	59.0	2,019	41.0	4,919
Nov 1-15	0	-	11[2]	100.0	11[2]
Nov 1-15	1,019	53.5	887	46.5	1,906
Nov 16-30	380	37.3	640	62.7	1,020
Dec 1-15[3]	13	0.8	1,571	99.2	1,584
Dec 16-31[4]	20	100.0	0	-	20
Total-Pressure Lock	0	-	326[2]	100.0	326[2]
Total-Fish Ladders	40,920	54.8	33,813	45.2	74,733
Total	40,920	54.5	34,139	45.5	75,059

1 Fish-counting initiated 15 March and discontinued 30 November 1954.
2 Raised by pressure fish lock.
3 Spot counts made on 5, 11, 12, 16, 18 and 19 December. During unwatering on 2 December, 1,571 steelhead were removed from Oregon fish ladder to forebay.
4 Special count initiated 20 December 1954.

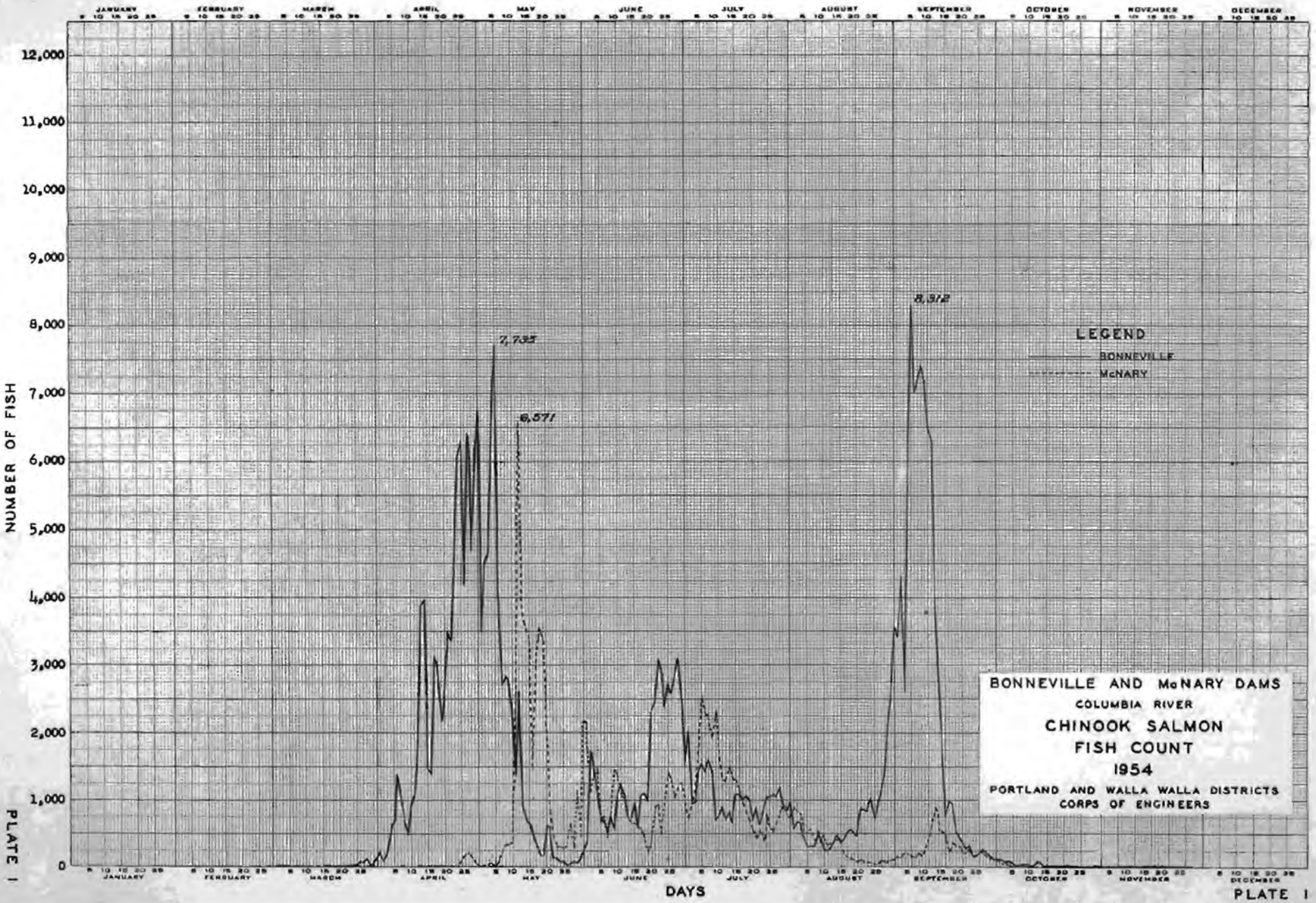
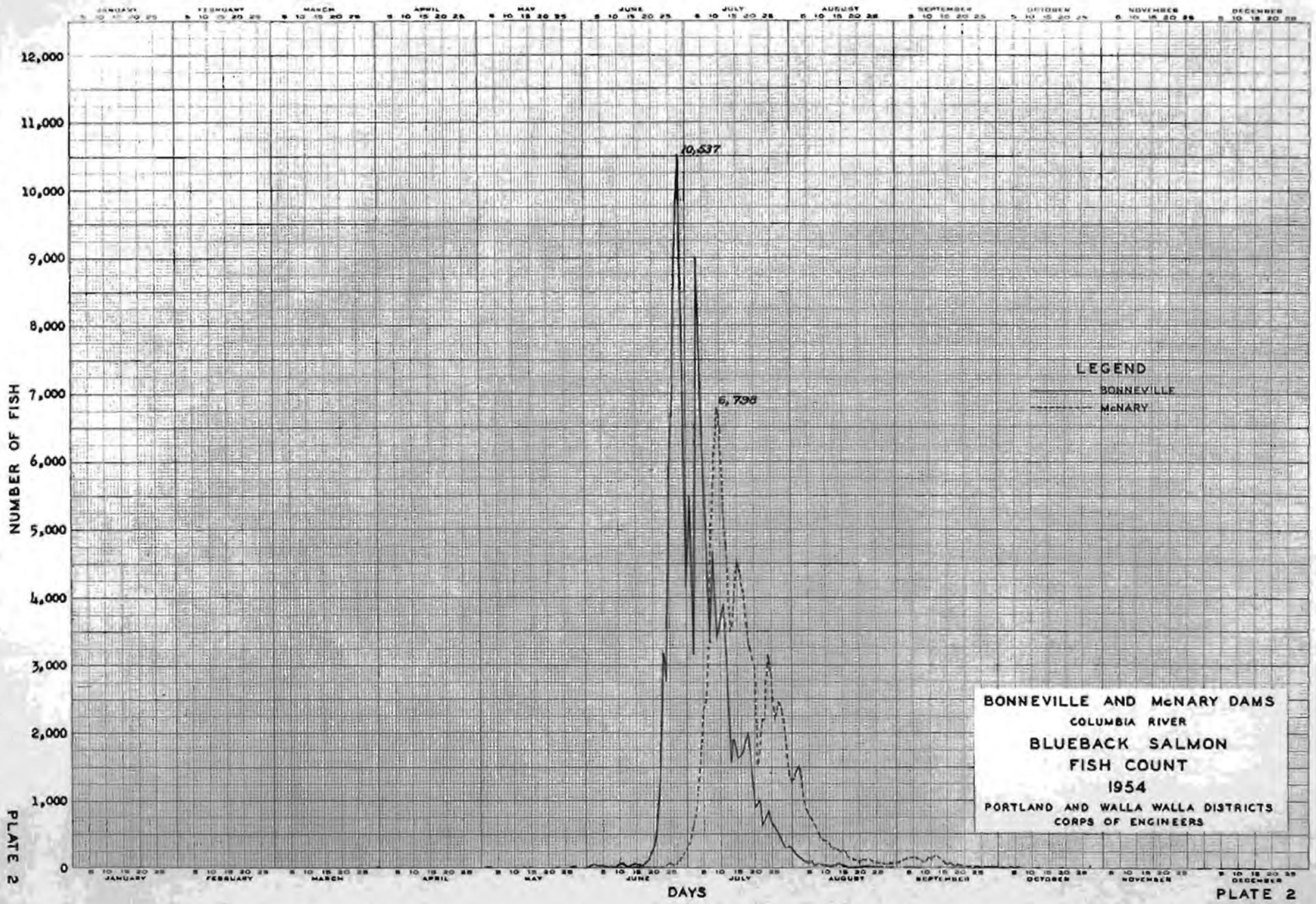


PLATE I

PLATE I



BONNEVILLE AND McNARY DAMS
COLUMBIA RIVER
BLUEBACK SALMON
FISH COUNT
1954
PORTLAND AND WALLA WALLA DISTRICTS
CORPS OF ENGINEERS

PLATE 2

PLATE 2

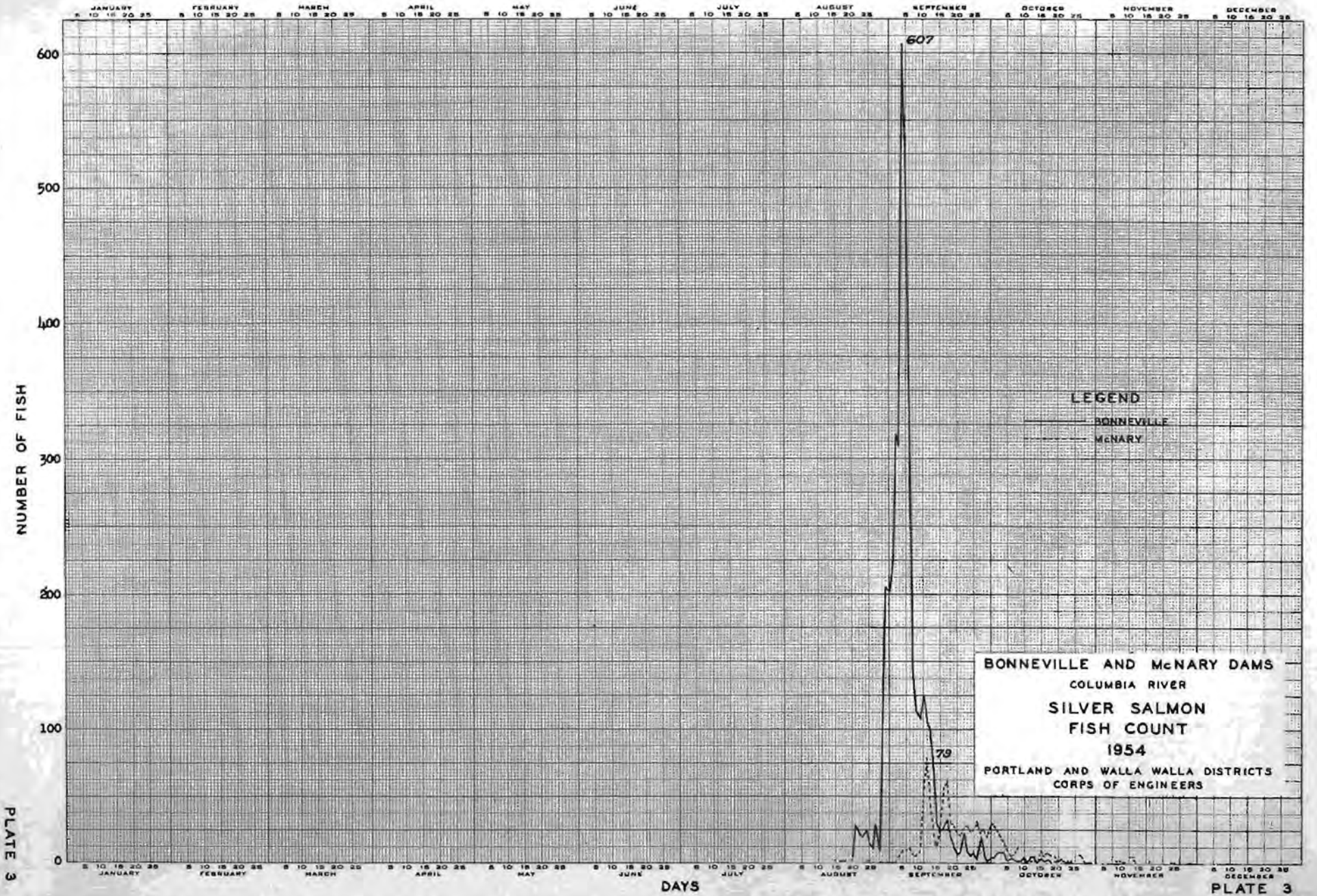


PLATE 3

PLATE 3

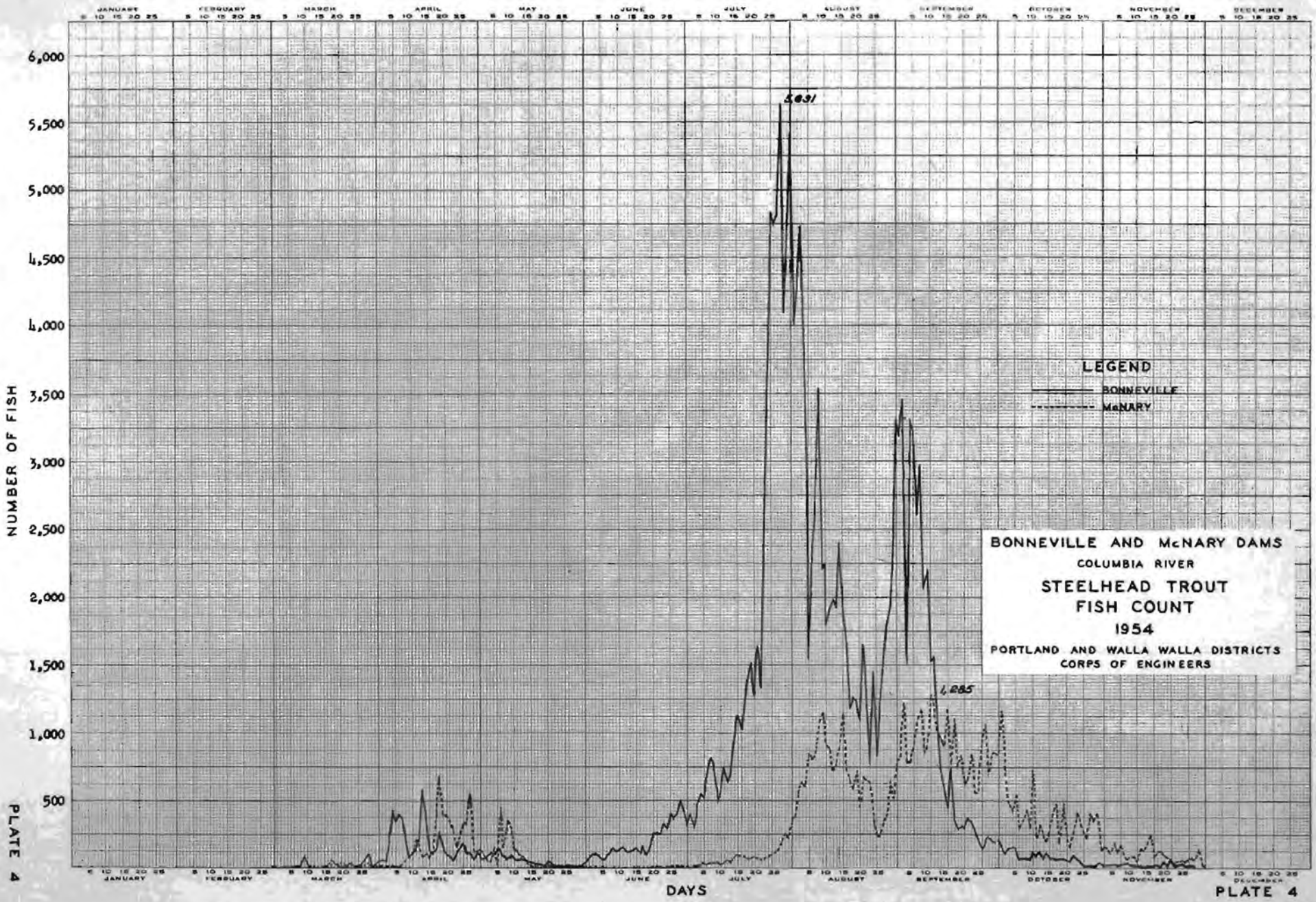


PLATE 4

PLATE 4

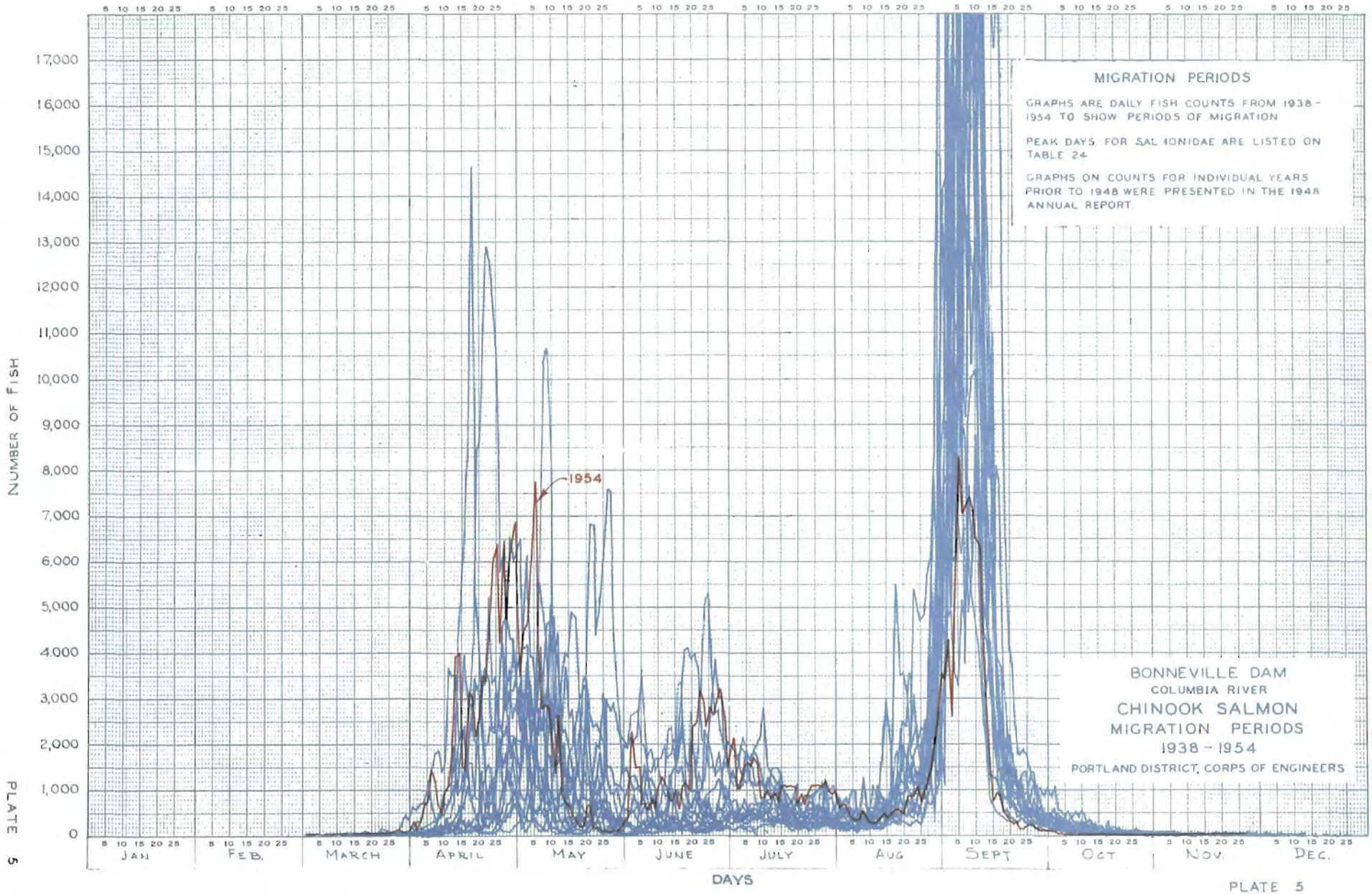
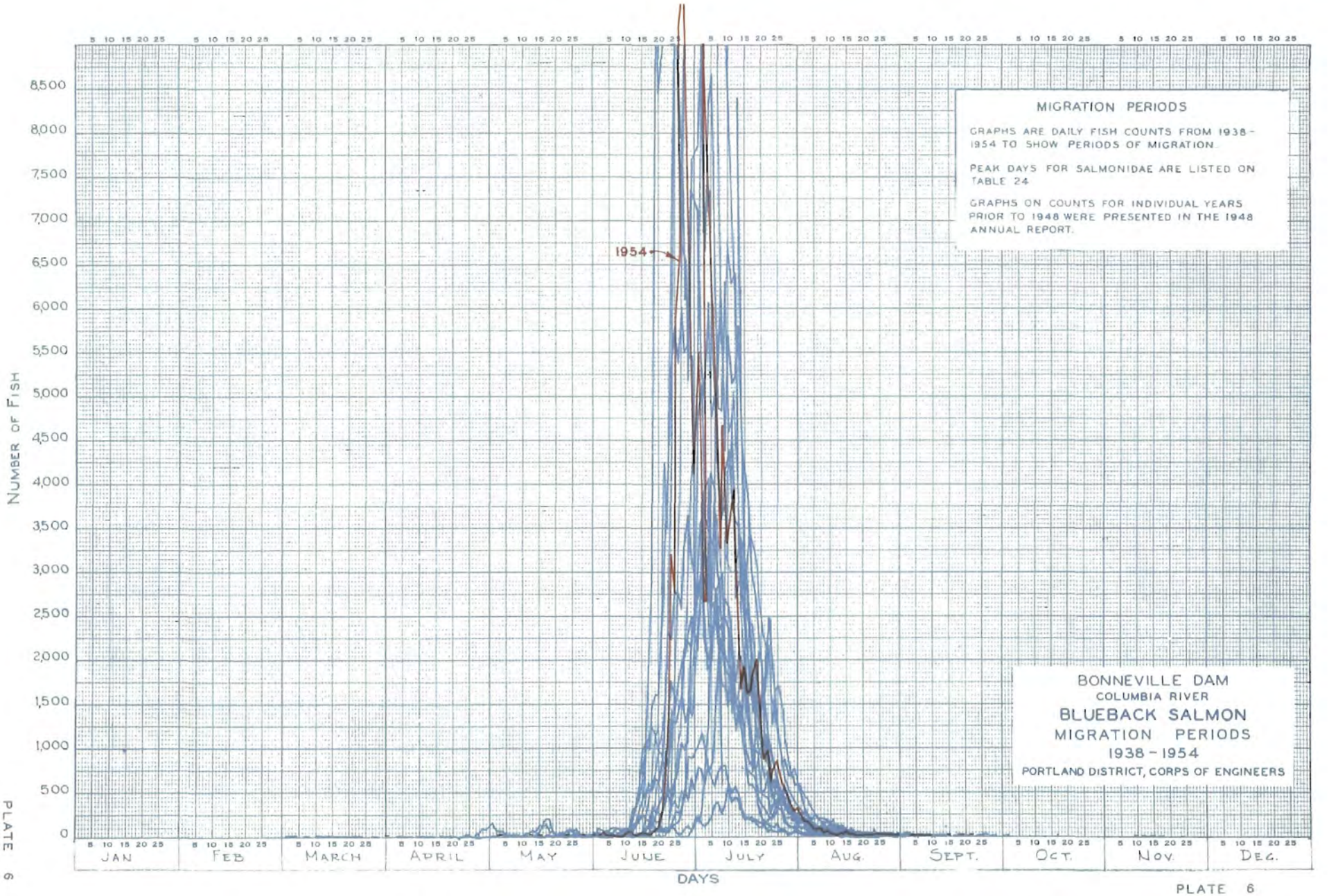

MIGRATION PERIODS
GRAPHS ARE DAILY FISH COUNTS FROM 1938 - 1954 TO SHOW PERIODS OF MIGRATION
PEAK DAYS FOR SALMONIDAE ARE LISTED ON TABLE 24
GRAPHS ON COUNTS FOR INDIVIDUAL YEARS PRIOR TO 1948 WERE PRESENTED IN THE 1948 ANNUAL REPORT
BONNEVILLE DAM
COLUMBIA RIVER
CHINOOK SALMON
MIGRATION PERIODS
1938 - 1954
PORTLAND DISTRICT, CORPS OF ENGINEERS
1954
NUMBER OF FISH
17,000
16,000
15,000
14,000
13,000
12,000
11,000
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
5 10 15 20 25
JAN
FEB.
MARCH
APRIL
MAY
JUNE
JULY
AUG
SEPT
OCT
NOV.
DEC.
DAYS

PLATE 5


MIGRATION PERIODS
GRAPHS ARE DAILY FISH COUNTS FROM 1938-1954 TO SHOW PERIODS OF MIGRATION.
PEAK DAYS FOR SALMONIDAE ARE LISTED ON TABLE 24
GRAPHS ON COUNTS FOR INDIVIDUAL YEARS PRIOR TO 1948 WERE PRESENTED IN THE 1948 ANNUAL REPORT.
BONNEVILLE DAM
COLUMBIA RIVER
BLUEBACK SALMON
MIGRATION PERIODS
1938 - 1954
PORTLAND DISTRICT, CORPS OF ENGINEERS
1954
NUMBER OF FISH
8,500
8,000
7,500
7,000
6,500
6,000
5,500
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
5 10 15 20 25
JAN
FEB
MARCH
APRIL
MAY
JUNE
JULY
AUG.
SEPT.
OCT.
NOV.
DEC.
DAYS

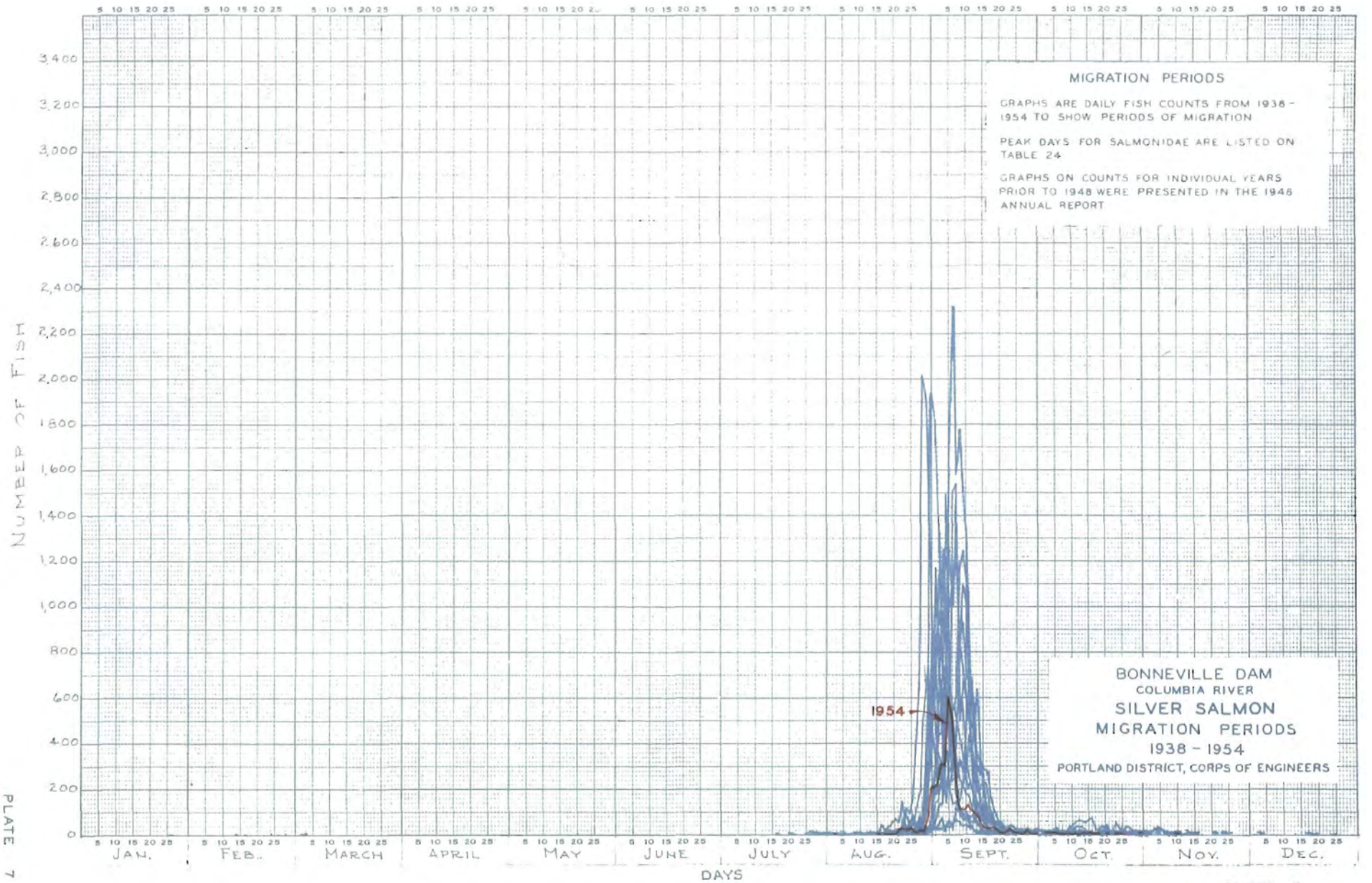

MIGRATION PERIODS
GRAPHS ARE DAILY FISH COUNTS FROM 1938 - 1954 TO SHOW PERIODS OF MIGRATION
PEAK DAYS FOR SALMONIDAE ARE LISTED ON TABLE 24
GRAPHS ON COUNTS FOR INDIVIDUAL YEARS PRIOR TO 1948 WERE PRESENTED IN THE 1948 ANNUAL REPORT
BONNEVILLE DAM
COLUMBIA RIVER
SILVER SALMON
MIGRATION PERIODS
1938 - 1954
PORTLAND DISTRICT, CORPS OF ENGINEERS
1954
NUMBER OF FISH
3,400
3,200
3,000
2,800
2,600
2,400
2,200
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
5 10 15 20 25
JAN.
FEB.
MARCH
APRIL
MAY
JUNE
JULY
AUG.
SEPT.
OCT.
NOV.
DEC.
DAYS

PLATE 7

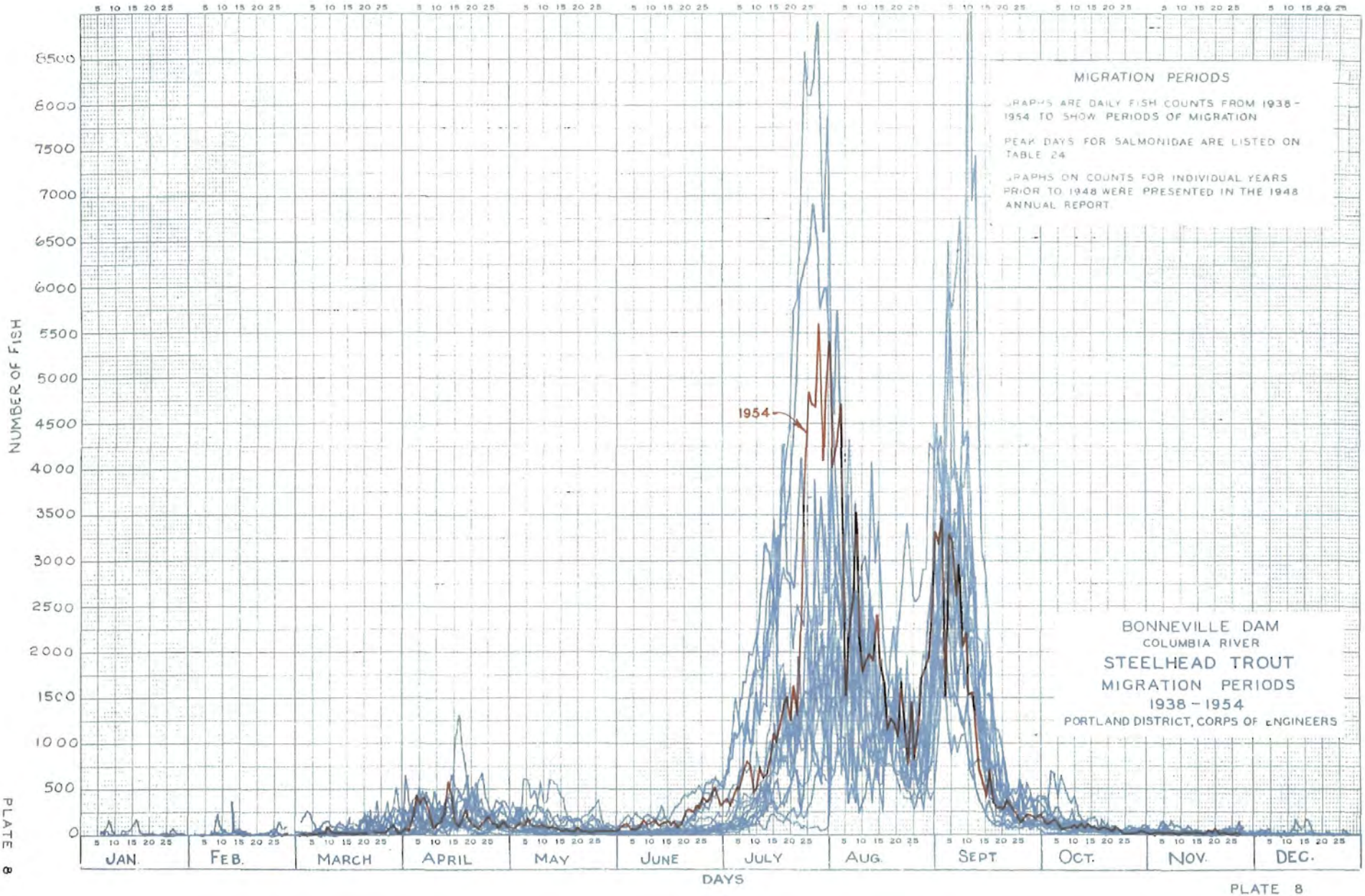

MIGRATION PERIODS
GRAPHS ARE DAILY FISH COUNTS FROM 1938-1954 TO SHOW PERIODS OF MIGRATION
PEAK DAYS FOR SALMONIDAE ARE LISTED ON TABLE 24
GRAPHS ON COUNTS FOR INDIVIDUAL YEARS PRIOR TO 1948 WERE PRESENTED IN THE 1948 ANNUAL REPORT
BONNEVILLE DAM
COLUMBIA RIVER
STEELHEAD TROUT
MIGRATION PERIODS
1938 - 1954
PORTLAND DISTRICT, CORPS OF ENGINEERS
1954
NUMBER OF FISH
8500
8000
7500
7000
6500
6000
5500
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
5 10 15 20 25
JAN.
FEB.
MARCH
APRIL
MAY
JUNE
JULY
AUG.
SEPT.
OCT.
NOV.
DEC.
DAYS

PLATE 8

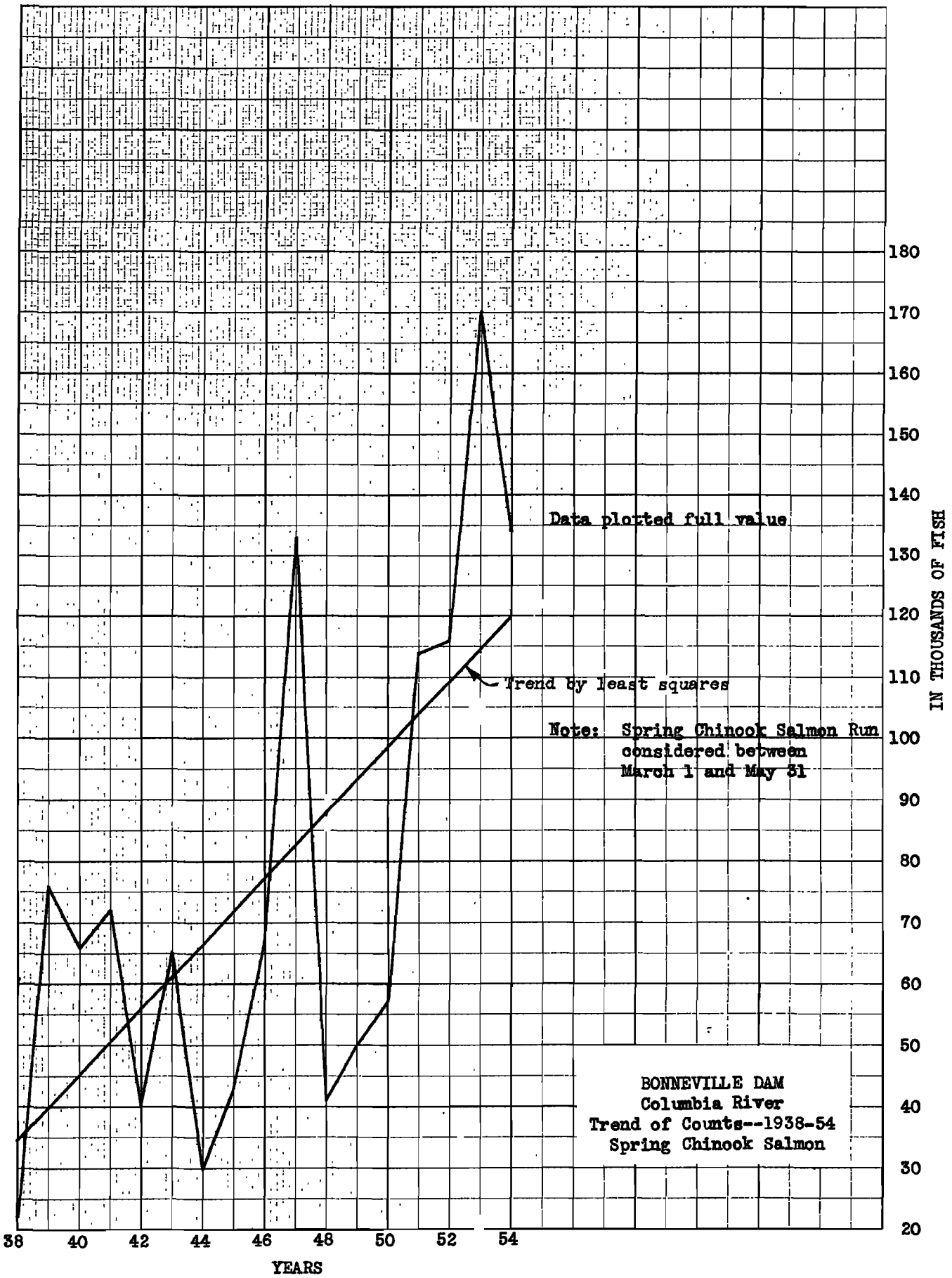

Data plotted full value
Trend by least squares
Note: Spring Chinook Salmon Run considered between March 1 and May 31
BONNEVILLE DAM
Columbia River
Trend of Counts--1938-54
Spring Chinook Salmon
IN THOUSANDS OF FISH
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
38
40
42
44
46
48
50
52
54
YEARS

PLATE 9

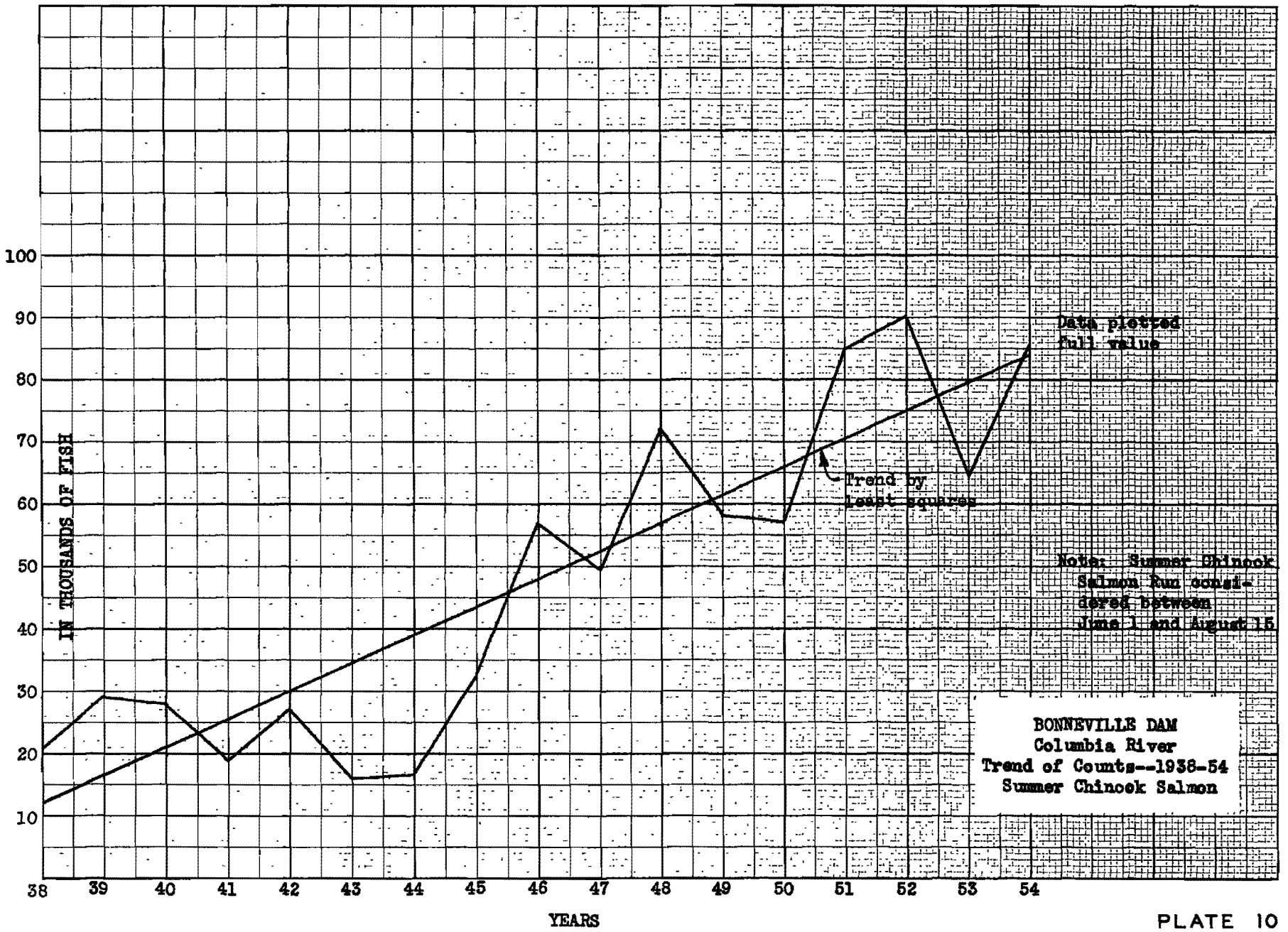


PLATE 10

PLATE 10

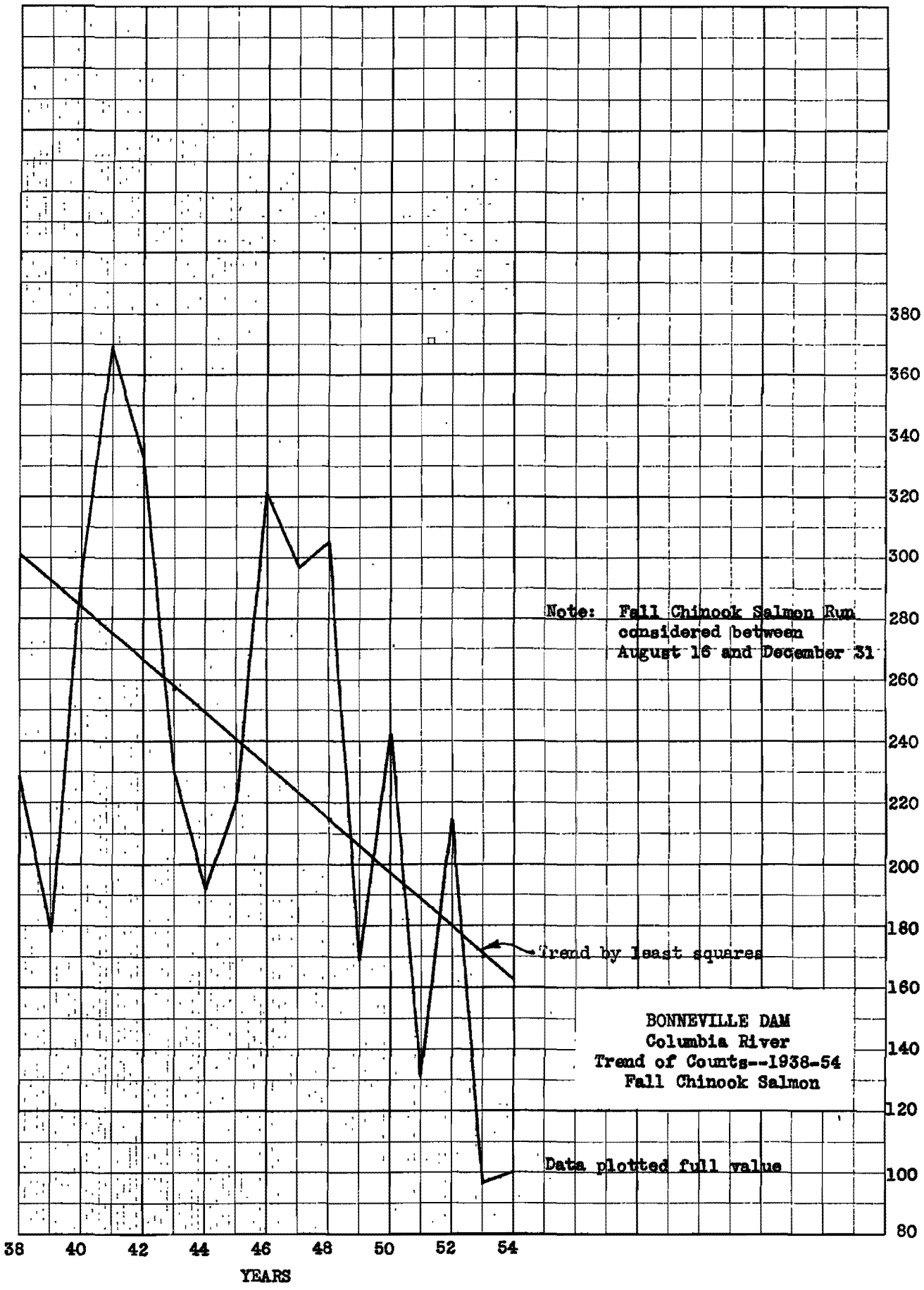

380
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
38
40
42
44
46
48
50
52
54
YEARS
Note: Fall Chinook Salmon Run considered between August 16 and December 31
Trend by least squares
Data plotted full value
BONNEVILLE DAM
Columbia River
Trend of Counts--1938-54
Fall Chinook Salmon

PLATE II

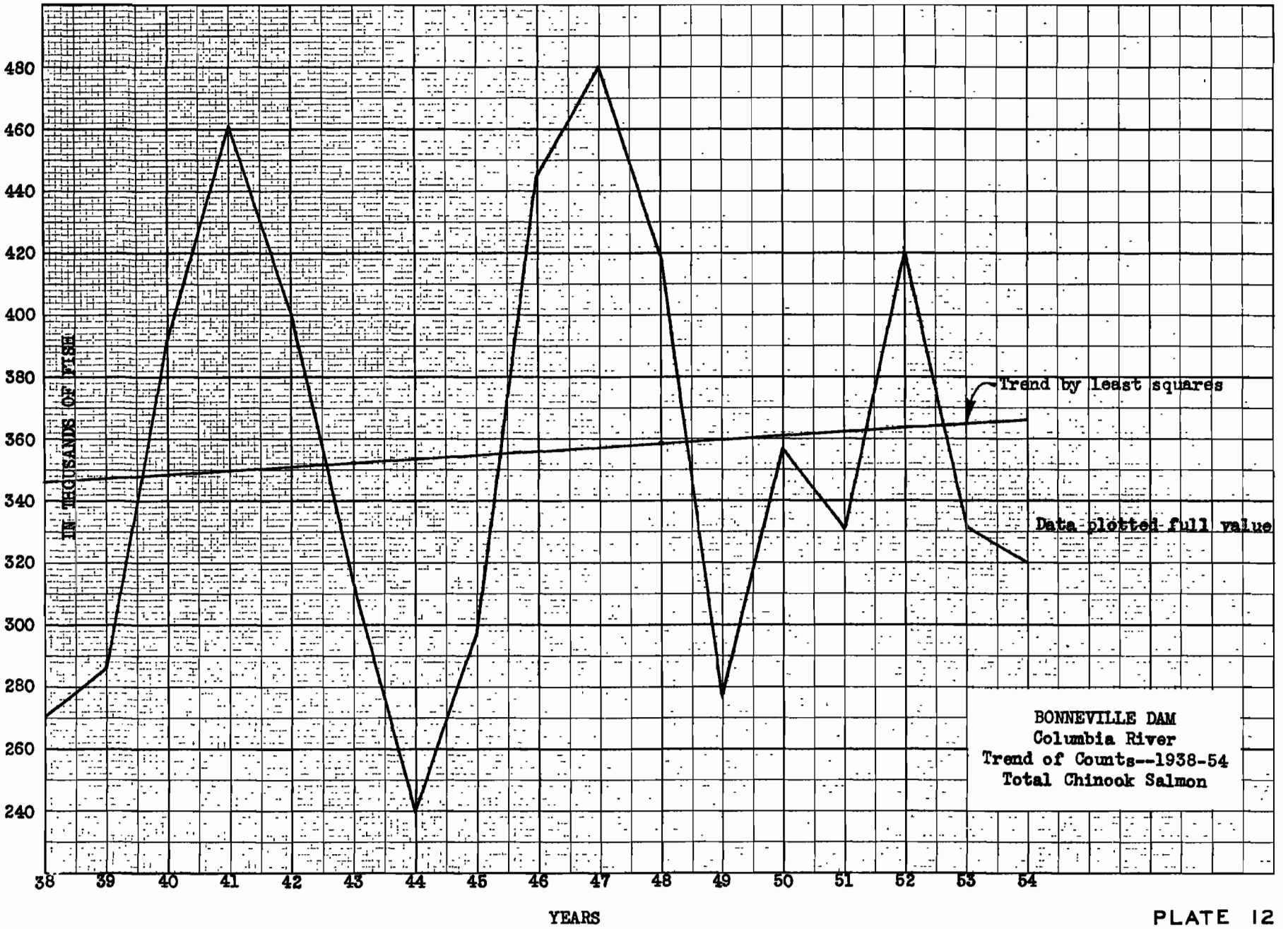

480
460
440
420
400
380
360
340
320
300
280
260
240
IN THOUSANDS OF FISH
Trend by least squares
Data plotted full value
BONNEVILLE DAM
Columbia River
Trend of Counts--1938-54
Total Chinook Salmon
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
YEARS

PLATE 12

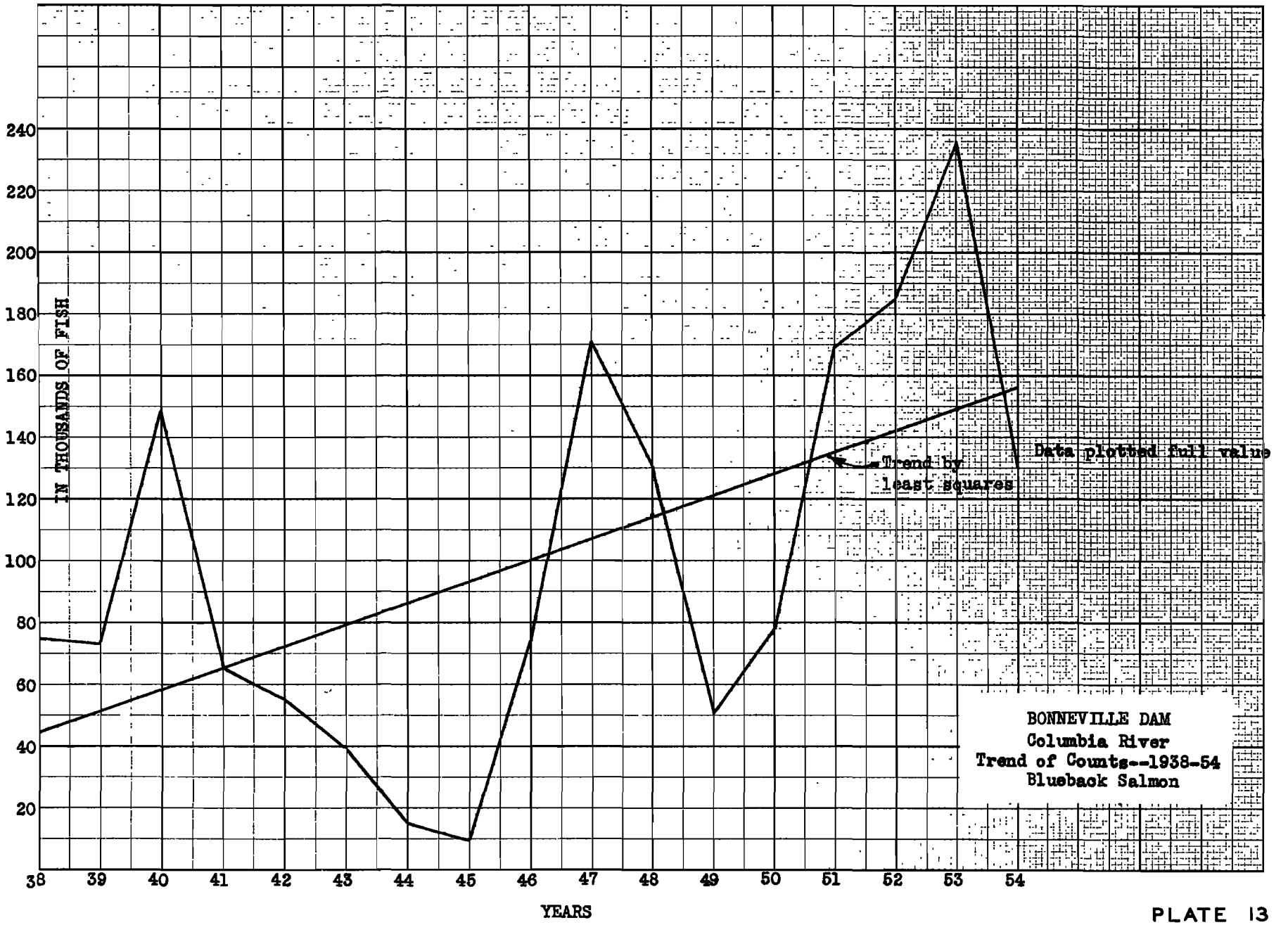

240
220
200
180
160
140
120
100
80
60
40
20
IN THOUSANDS OF FISH
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
YEARS
Trend by least squares
Data plotted full value
BONNEVILLE DAM
Columbia River
Trend of Counts--1938-54
Blueback Salmon

PLATE 13

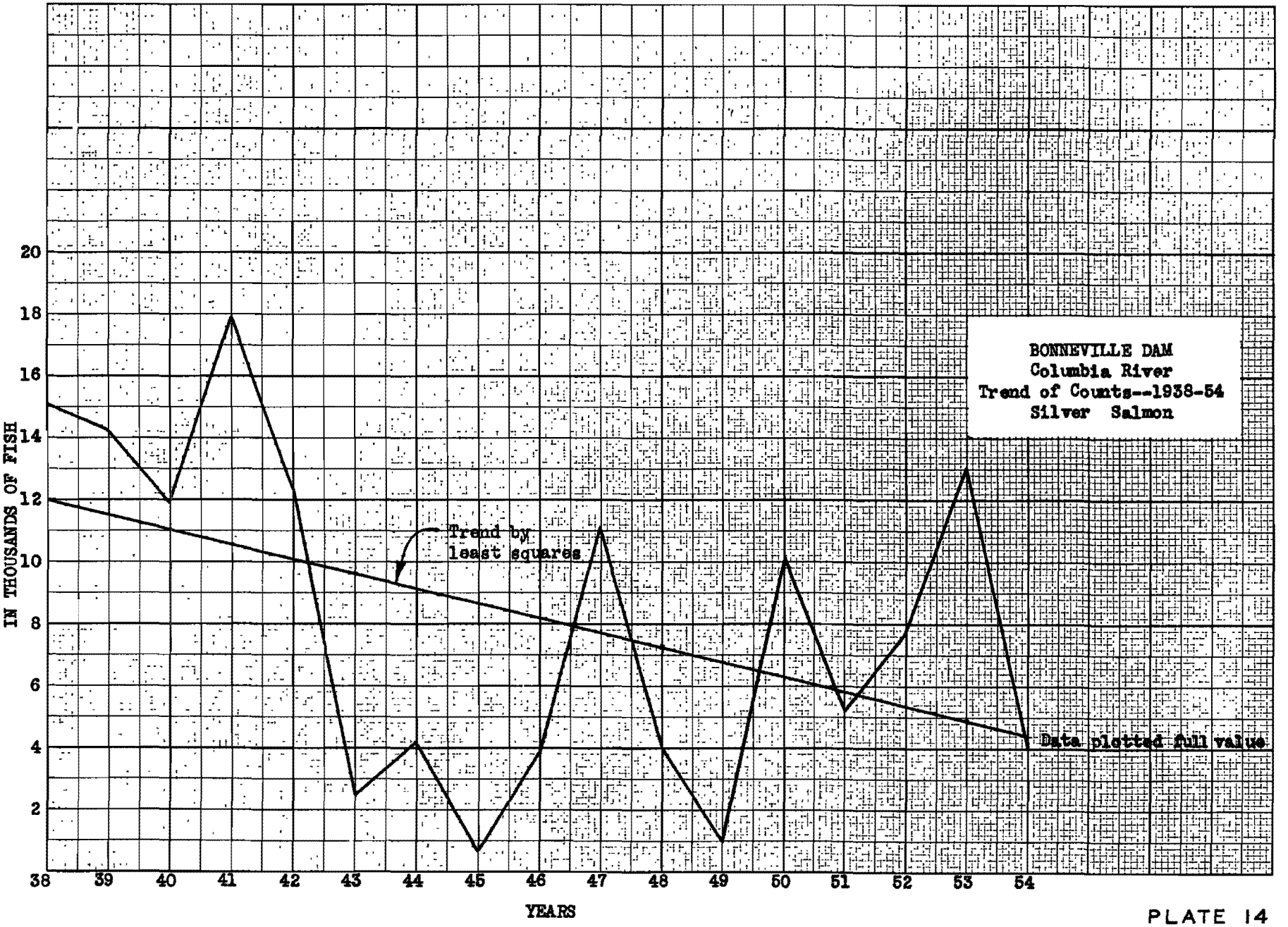


PLATE 14

PLATE 14

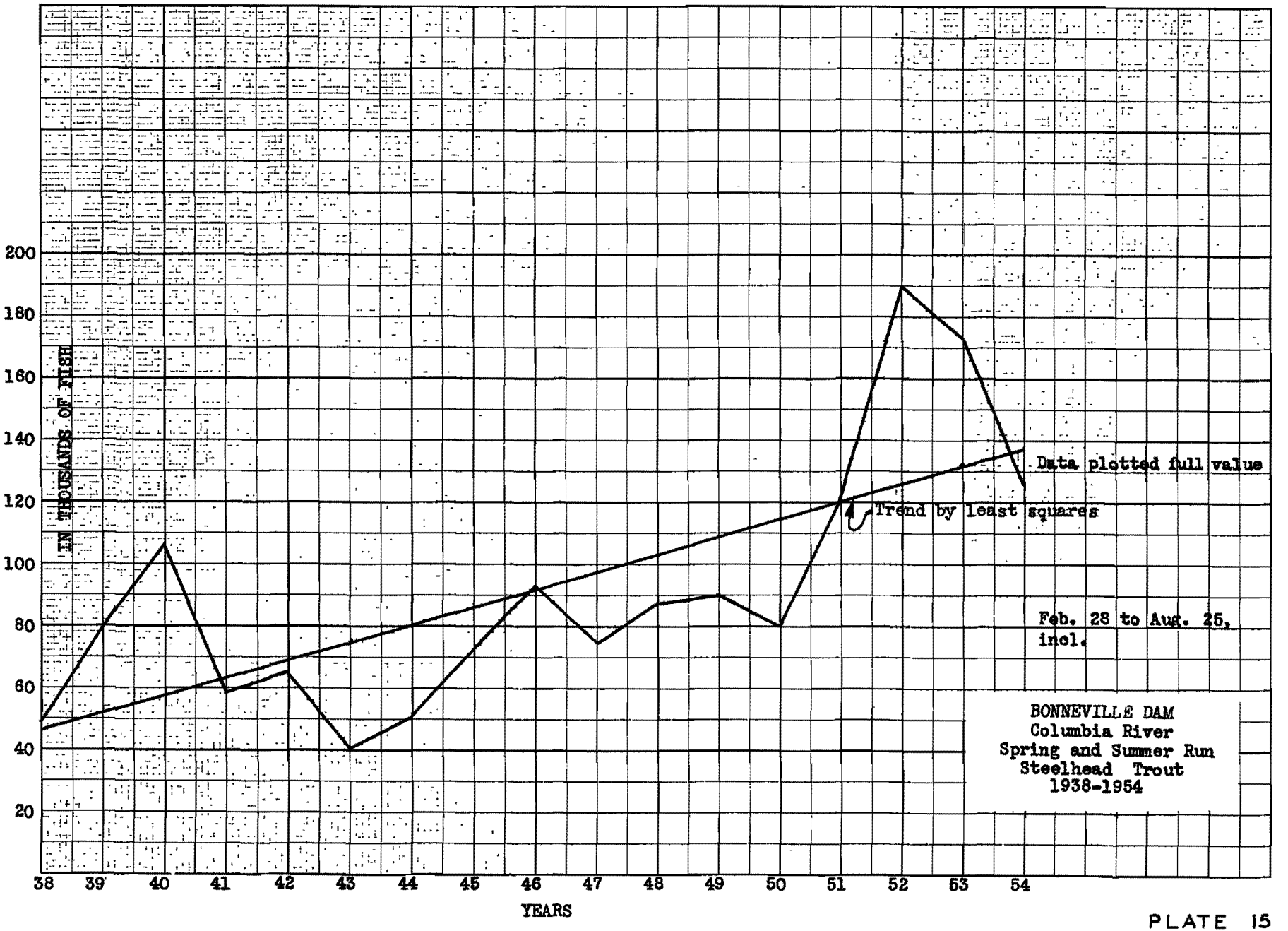

IN THOUSANDS OF FISH
200
180
160
140
120
100
80
60
40
20
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
YEARS
Data plotted full value
Trend by least squares
Feb. 28 to Aug. 25, incl.
BONNEVILLE DAM
Columbia River
Spring and Summer Run
Steelhead Trout
1938-1954

PLATE 15

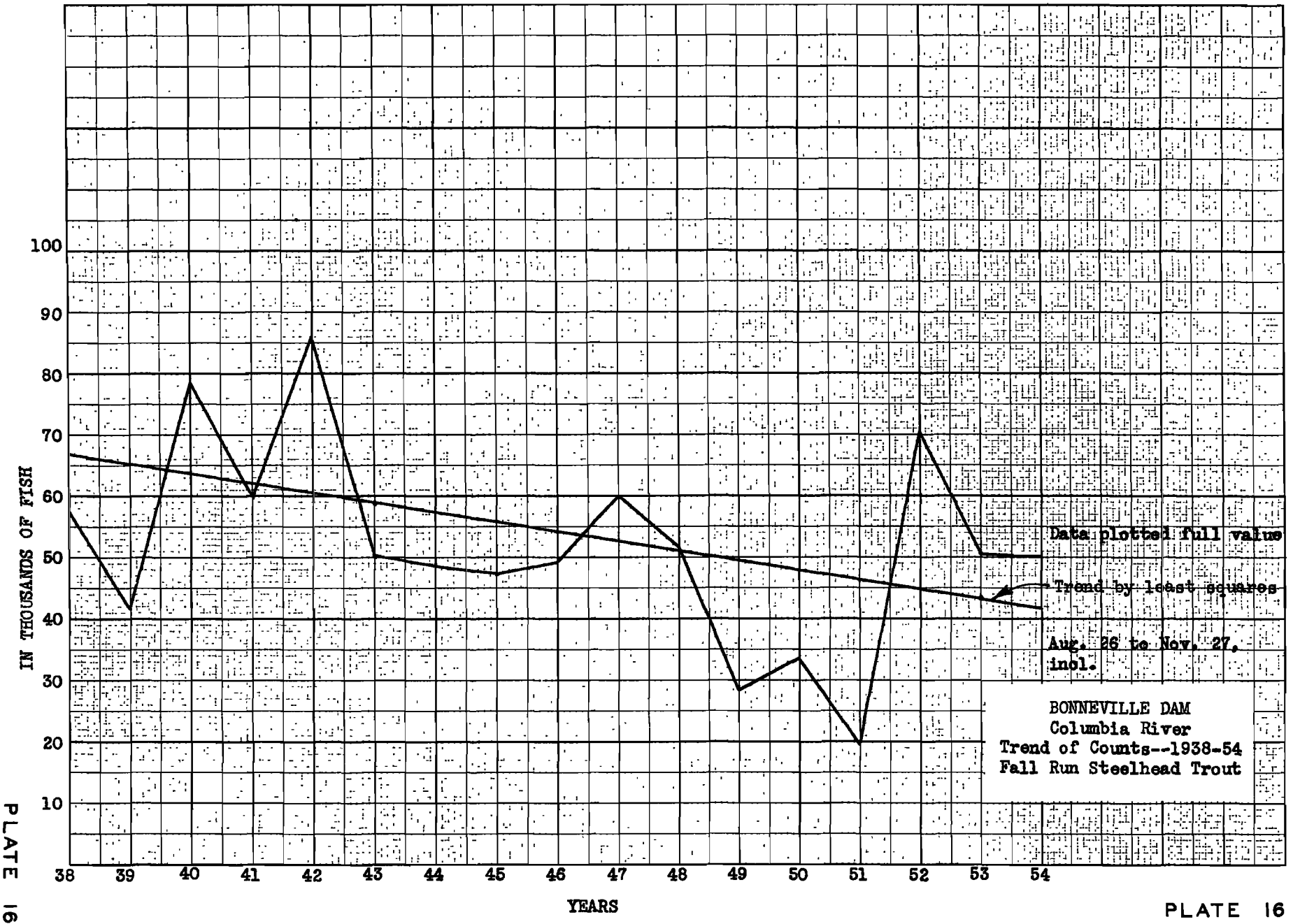


PLATE 16

PLATE 16

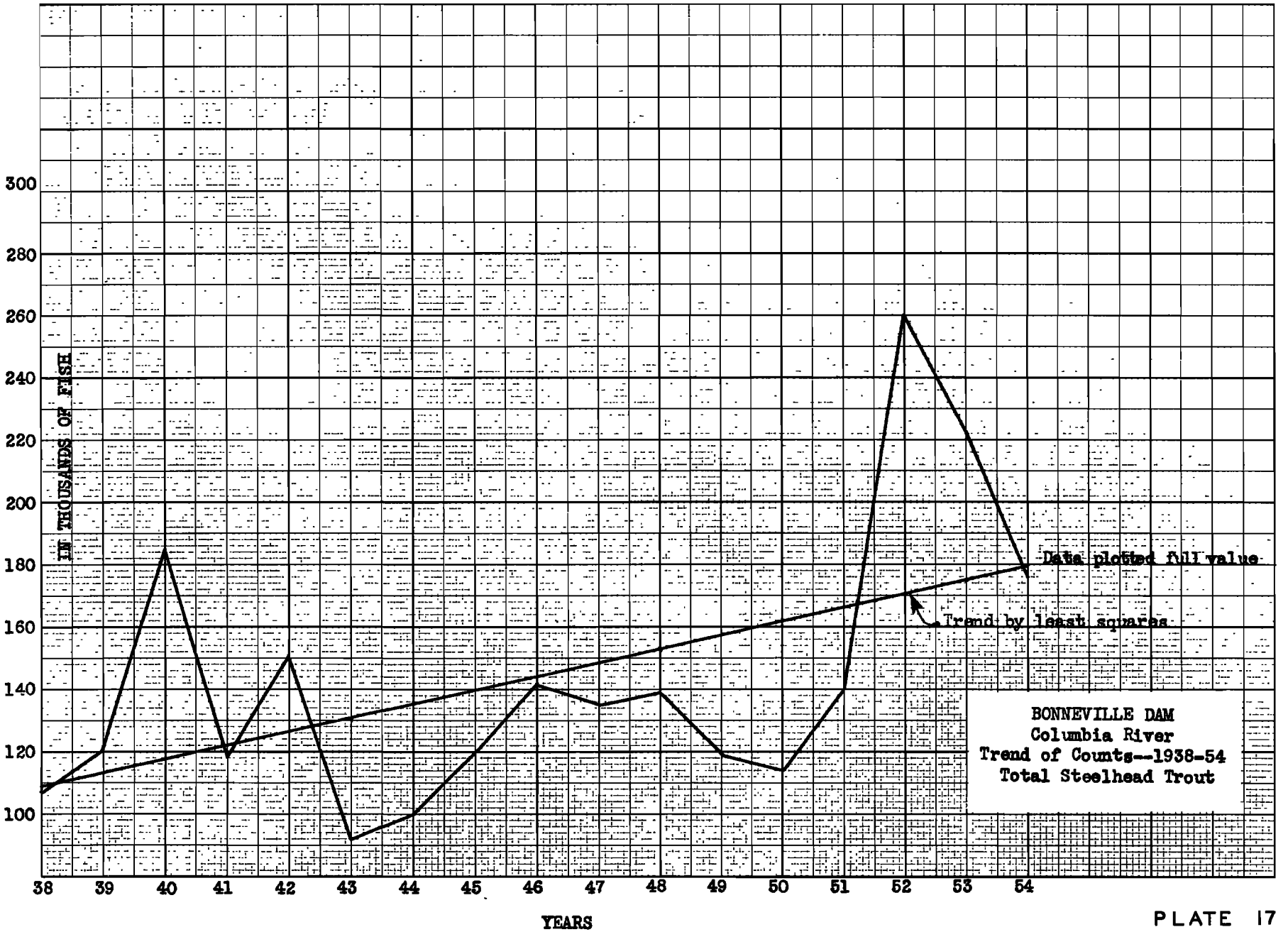


PLATE 17

PLATE 17

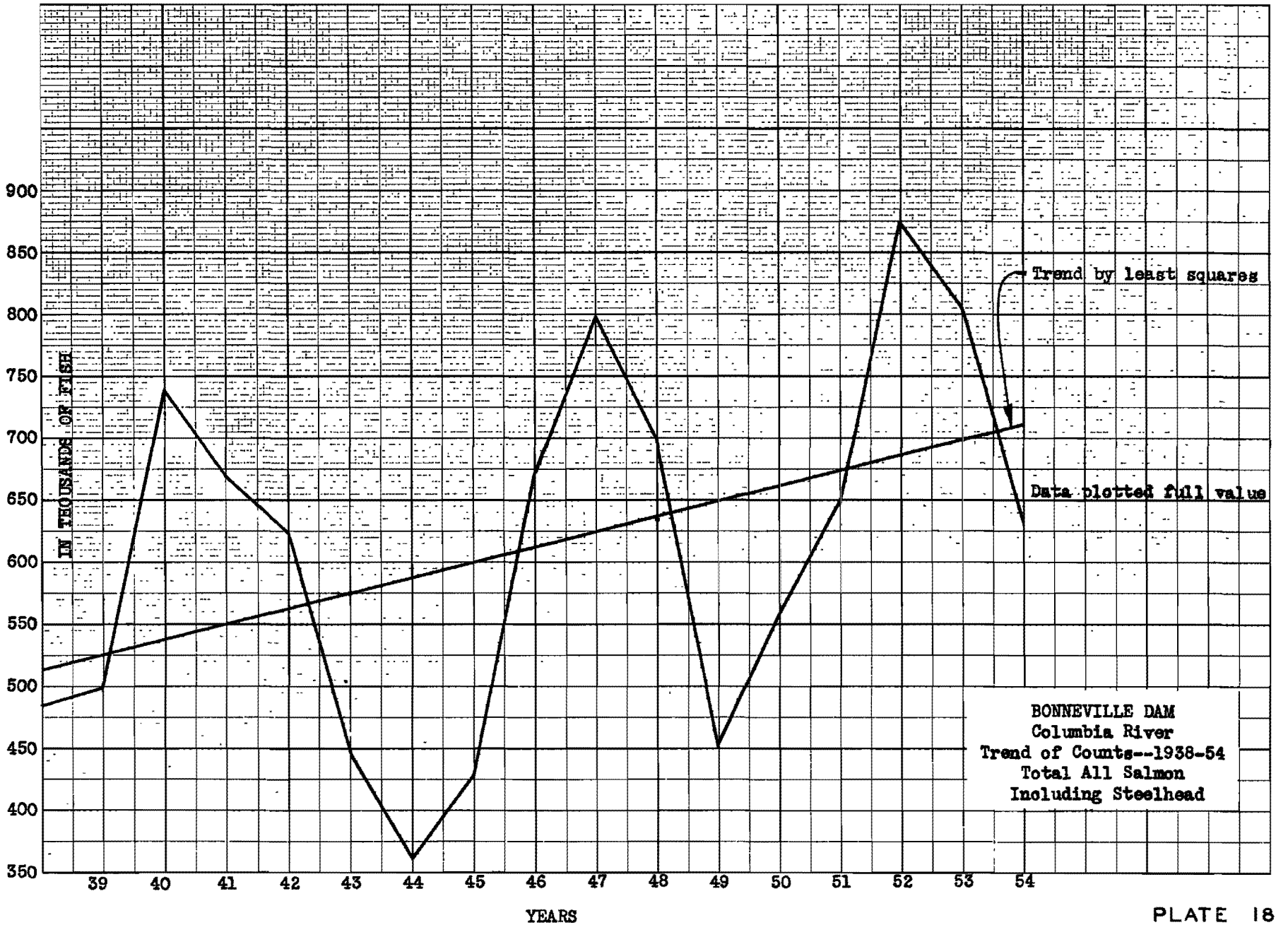

900
850
800
750
700
650
600
550
500
450
400
350
IN THOUSANDS OF FISH
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
YEARS
Trend by least squares
Data plotted full value
BONNEVILLE DAM
Columbia River
Trend of Counts--1938-54
Total All Salmon
Including Steelhead

PLATE 18

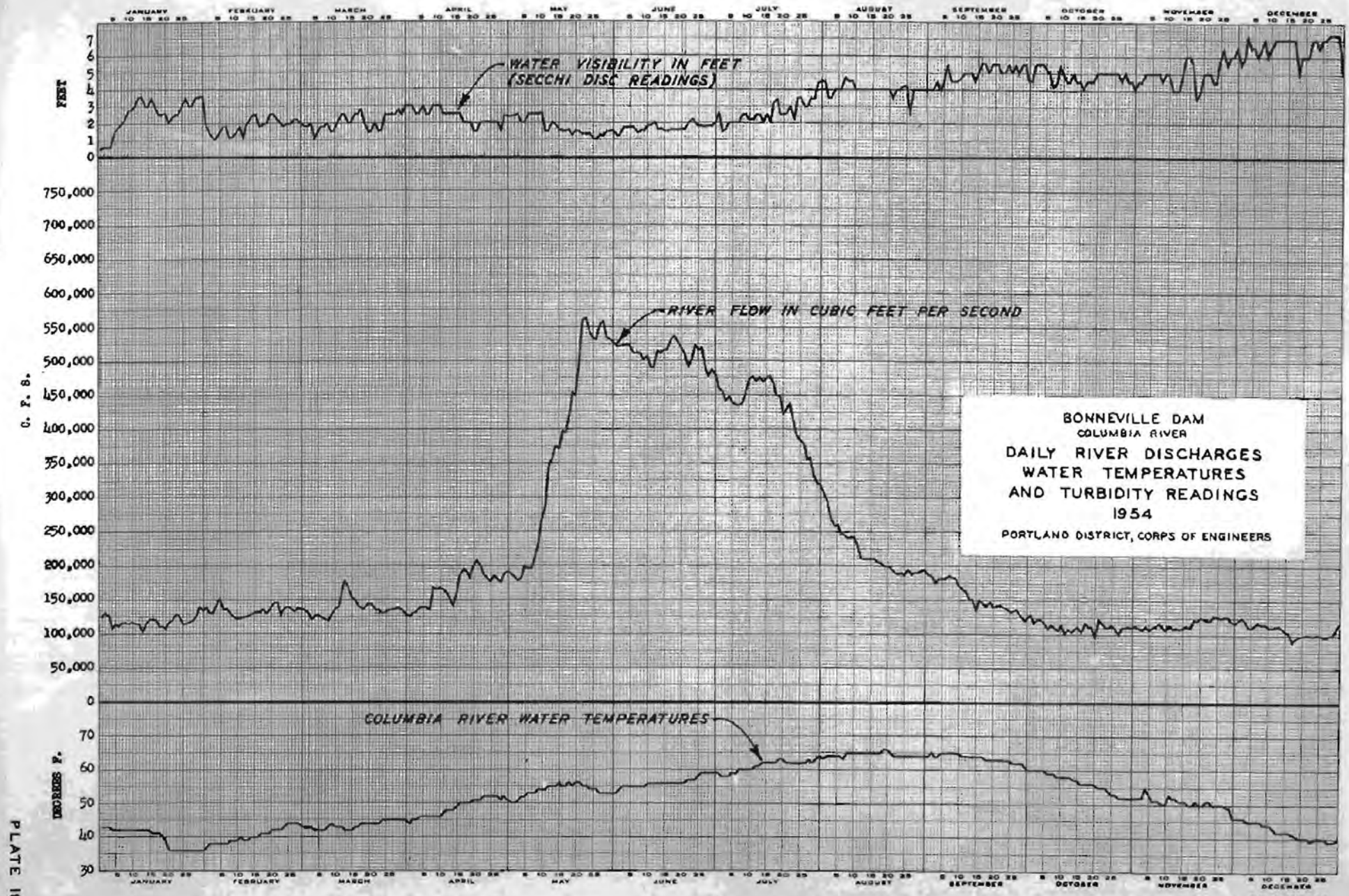


PLATE 19

PLATE 18

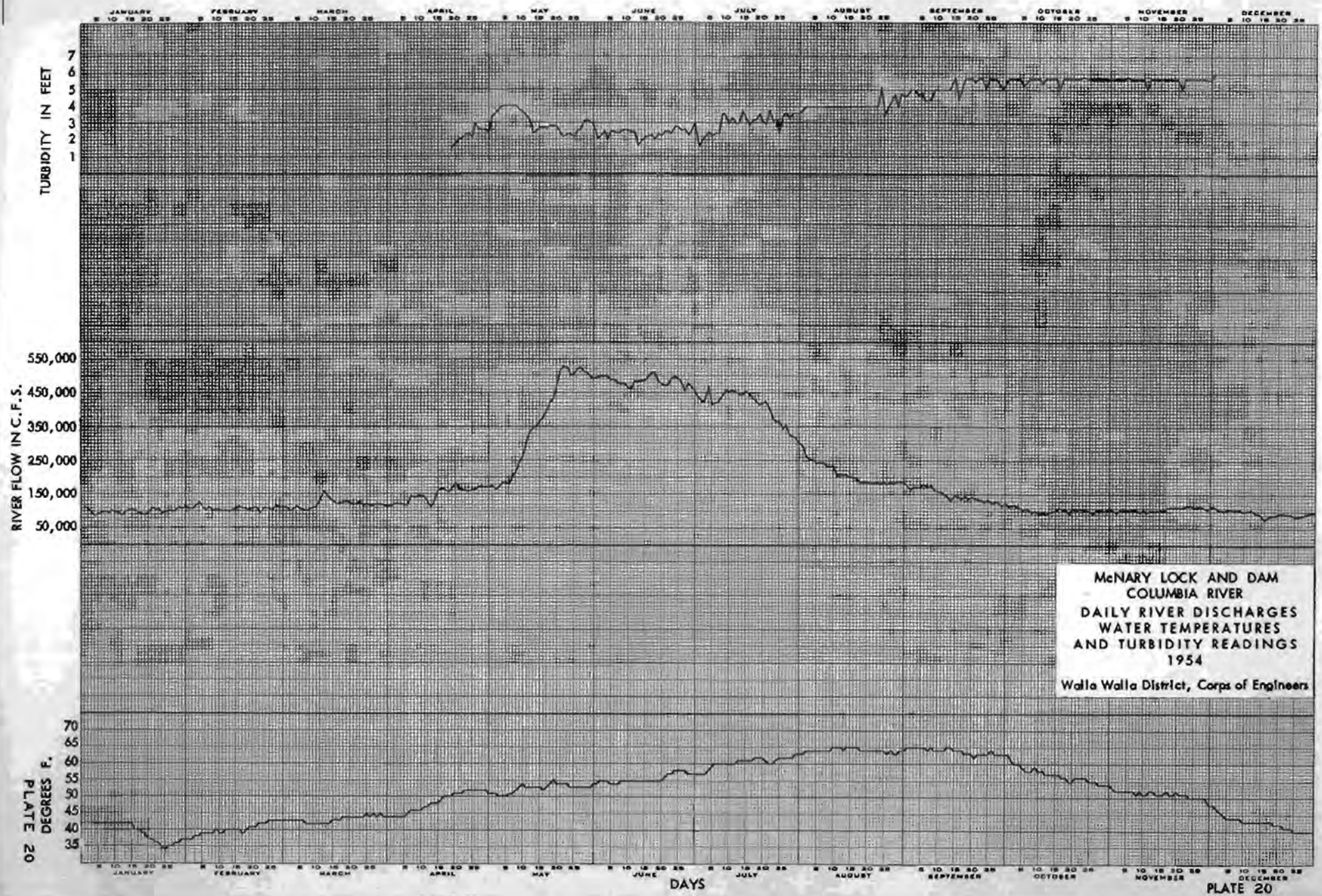
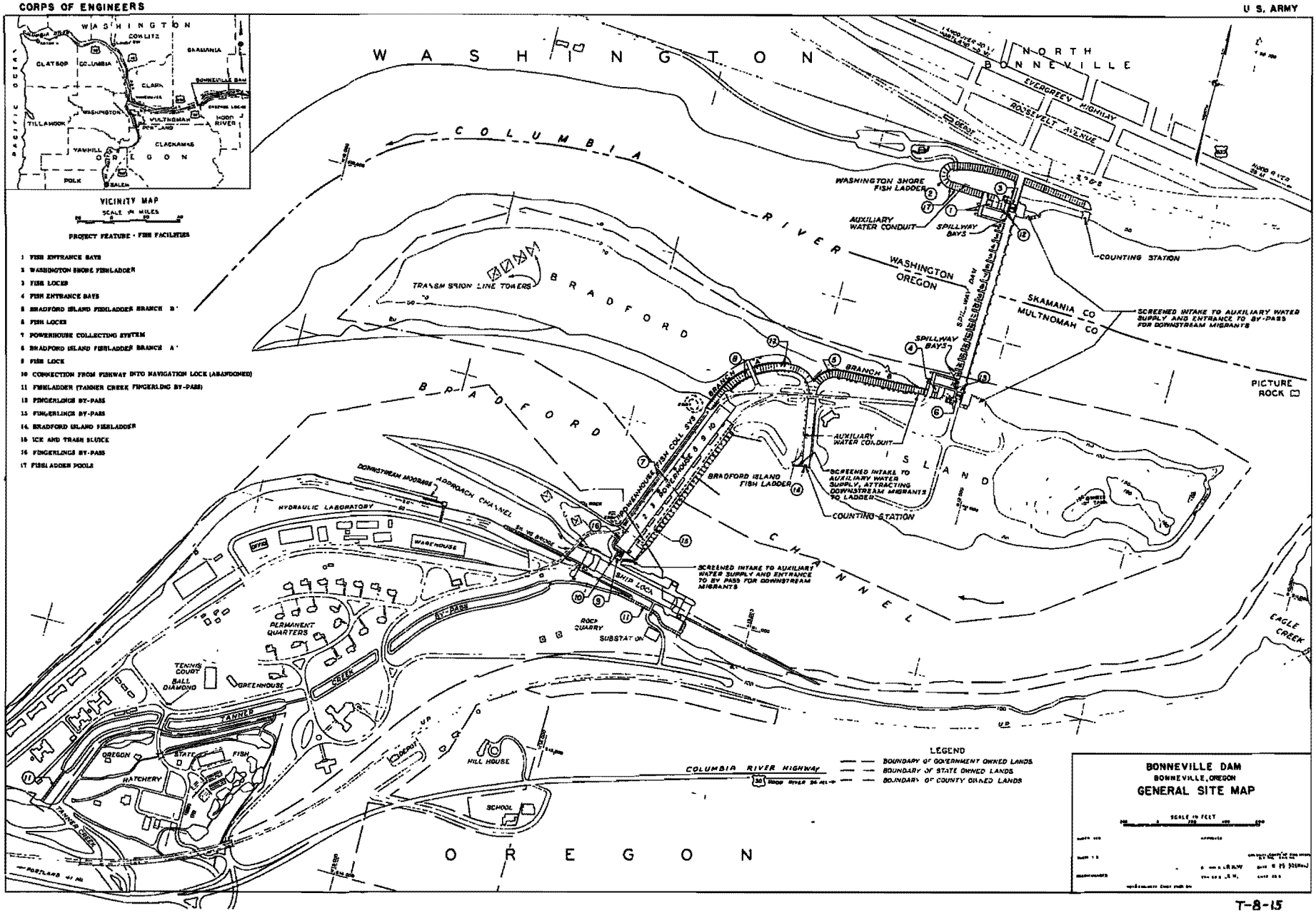

JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER
TURBIDITY IN FEET
7
6
5
4
3
2
1
RIVER FLOW IN C.F.S.
550,000
450,000
350,000
250,000
150,000
50,000
DEGREES F.
70
65
60
55
50
45
40
35
DAYS
McNARY LOCK AND DAM
COLUMBIA RIVER
DAILY RIVER DISCHARGES
WATER TEMPERATURES
AND TURBIDITY READINGS
1954
Walla Walla District, Corps of Engineers

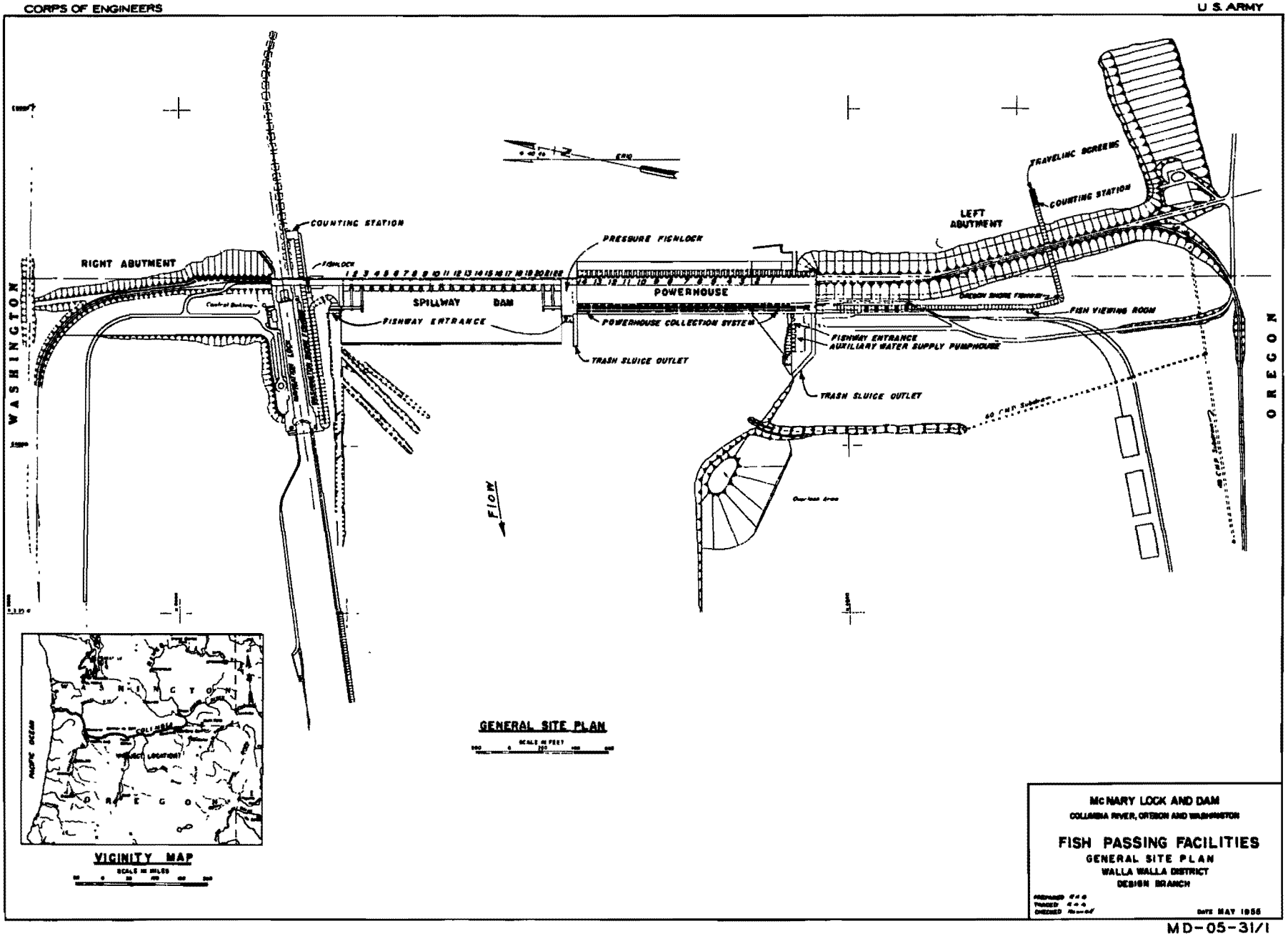
PLATE 20

CORPS OF ENGINEERS

U. S. ARMY



T-8-15


COUNTING STATION
RIGHT ABUTMENT
FISHLOCK
SPILLWAY DAM
FISHWAY ENTRANCE
PRESSURE FISHLOCK
POWERHOUSE
POWERHOUSE COLLECTION SYSTEM
TRASH SLUICE OUTLET
FISHWAY ENTRANCE
AUXILIARY WATER SUPPLY PUMPHOUSE
TRASH SLUICE OUTLET
LEFT ABUTMENT
TRAVELING SCREENS
COUNTING STATION
FISH VIEWING ROOM
WASHINGTON
OREGON
FLOW
GENERAL SITE PLAN
VICINITY MAP
PACIFIC OCEAN
WASHINGTON
OREGON
McNARY LOCK AND DAM
COLUMBIA RIVER, OREGON AND WASHINGTON
FISH PASSING FACILITIES
GENERAL SITE PLAN
WALLA WALLA DISTRICT
DESIGN BRANCH
DATE MAY 1956

MD-05-31/1

BONNEVILLE DAM

Photo No. 1. View of submerged orifice portion of one weir near upper end of Bradford Island fish ladder showing small orifice installed especially for shad and other miscellaneous species

Photo No. 2. Washington shore fish ladder

Photo No. 3. Debris in powerhouse collection system

Photo No. 4. Silt in powerhouse screen area

Photo No. 5. Powerhouse screen intake prior to cleaning

Photo No. 6. U. S. Fish and Wildlife Service - Fish-trapping and loading facility in connection with Washington shore fish-counting station

McNARY DAM

Photo No. 7. Looking south from the Washington shore

Photo No. 8. Washington fishway entrance, ladder and gravity lock

Photo No. 9. Washington fish ladder showing typical flow over weirs

Photo No. 10. Fishway entrance at nonoverflow section between spillway and powerhouse

McNARY DAM

Photo No. 11. Oregon fishway and auxiliary water pumping station

Photo No. 12. Washington fish ladder counting station