AERIAL SURVEY OF CHINOOK SALMON SPAWNING FOR 1955 IN MAJOR TRIBUTARIES OF THE SNAKE RIVER

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With authorization from the Idaho State Fish and Game Department through the Corps of Engineers fishery research program, the aerial survey of Idaho and Oregon was carried out this year as in the previous year.

The aerial survey was begun by the training flight of the author by Forrest Hauck, of the Idaho Fish and Game Department. The surveys were made from two different airplanes, a Stinson 165 and a Stinson 450. They were flown approx-imately 200 to 400 feet above the streams at the rate of 60 to 80 miles per hour. Because of flying conditions that prevailed in the canyons, it was necessary to fly downstream. Some streams were flown twice or more to obtain accuracy in total redds, but a greater per cent were flown only once. Redds were so numerous in small areas an accurate count could not be made. The plane would have to be able to fly slower and lower to correct this.

The stream conditions and the methods of flight were about the same as last year which James Keating described in his Aerial Report of 1954.

TABULATED RESULTS OF ENTIRE SURVEY

On the following page is a table showing the complete data collected from the aerial flights. A tabulator was employed to count the redds, and the per cent of spawning was estimated. The streams are recorded in the order they were checked.

CHRONOLOGICAL RESUME OF AERIAL SURVEYS

August 17 Survey:

On this date the head waters of the Salmon River were surveyed and a total of 75 redds were recorded. Live fish were numerous and spawning was estimated at 40 per cent complete.

Sulphur Creek was surveyed and a total of 73 redds were recorded. This number being far less than the previous year because of a cloud burst that occurred July 25, 1955, taking a heavy toll of spawning fish. Spawning was estimated at 85 per cent complete.

Table 1

Numbers of Chinook Salmon Redds Counted During Aerial Surveys

Stream	Date	Miles Flown	Redd Count	Redds Per Mile	Per Cent Spawning Completed	Time of Flight
IDAHO STREAMS						
Head Waters of Salmon River	8/17	13	75	5.7	40	
Sulphur Creek	8/17	9	73	8.0	85	
Marsh Creek	8/17	15	67	4.4	65	
Beaver Creek	8/17	9	91	1.1	95	
Capehorn Creek	8/17	6	26	4.3	80	
Bear Valley Cr.	8/17	27	24	.8	30	
Elk Creek	8/17	14	129	9.2	90	0830-1100
Head Waters of Salmon River	8/27	19	840	44.0	95	
Valley Cr.	8/27	17	150	8.8	88	
Marsh Creek	8/27	15	248	16.5	100	
Beaver Creek	8/27	9	96	1.6	100	
Knapp Creek	8/27	6	18	3.0	100	
Capehorn Creek	8/27	6	122	23.0	100	
Sulphur Creek	8/27	9	132	14.0	100	0730-1020
Bear Valley Cr.	8/28	26	585	22.5	100	
Elk Creek	8/28	14	548	38.0	100	
Camas Creek	8/28	24	208	8.6	100	0730-11-30
Big Creek	8/29	36	731	2.3	98	0900-1200
East Cork	8/30	33	622	171.0	80	
Yankee Fork	8/30	20	64	3.2	100	
Salmon River	8/30	7	93	13.0	80	
Sunbeam-Stanley Salmon River	8/30	27	122	4.5	50	0830-1245
Sunbeam-Challis Panther Creek	8/31	37	25	.67	98	0800-0930
Salmon River	8/31	36	41	1.1	75	0940-1210
Salmon to Challis Lemhi River	9/1	52	444	8.5	90	0700-1030
Pahsimeroi River	9/1	18	127	7.0	90	1300-1430
Lake Cr. –Secesh	9/2	25	127	5.0	100	0630-0930
South Fork	9/2	72	2746	38.0	95	1000-1230
Loon Creek	9/10	30	265	8.8	100	0700-1130
Pistol Creek	9/10	8	38	4.5	100	
Johnson Creek	9/10	34	503	1.4	100	1200-1230
East Fork Salmon	9/11	33	709	21.4	100	0910-1115
Salmon River East Fork-Challis	9/11	20	100	5.0	95	1145-1415
Lemhi River	9/11	52	226	4.3	100	
Pahsimeroi	9/11	18	181	10.0	100	
Salmon River Challis-Salmon	9/11	53	138	2.6	90	
Valley Creek	9/11	17	235	13.1	100	1500-1600
Totals		866	11,969	13.8		

Table 1 (Continued)

OREGON STREAMS

Imnaha River	9/7	40	182	4.5	100	0800-1200
Catherine Creek	9/8	22	92	4.1	100	0700-0900
Lookingglass Cr.	9/8	10	28	2.8	100	1400-1700
Wenaha River	9/8	25	173	6.9	100	
Lostine River	9/9	20	68	3.4	100	0700-1000
Ninam River	9/9	21	12	5.7	100	1100-1330
Eagle Creek	9/9	35	29	.7	100	1400-1615
Totals		173	692	4.0		

Milages are estimated from scale maps and from previous survey data.

The Marsh Creek drainage, which includes Capehorn Creek, Beaver Creek, and Marsh Creek, was surveyed and a total of 205 redds were recorded. Live fish were seen and spawning was estimated at 90 per cent complete.

Bear Valley drainage (Elk Cr. And Bear Valley Cr.) was also surveyed. The total redd count was low because of dredge work at the head of Bear Valley Creek which caused the water to be colored. The total redds were numbered at 297. The majority was counted on Elk Creek. Spawning was estimated 95 per cent completed.

August 27 Survey:

The headwaters of the Salmon River were surveyed with a total of 840 redds. Spawning was estimated at 95 per cent complete.

The diversion ditches for irrigation at various points along the river were taking the greater portion of the water leaving sections of the river dry and impassable for salmon.

Valley Creek was surveyed with a total of 150 redds. Spawning was estimated as being 88 per cent complete. Diversion ditches at the head of Valley Creek were using so much water that the creekbed was nearly dry and the salmon would not be able to advance upstream.

Marsh Creek drainage had a total of 484 redds with spawning completed. A very few live fish were observed, however, redds were fresh and easily detected.

Sulphur Creek was also surveyed and had a total of 132 redds and spawning was estimated at 100 per cent complete.

August 28 Survey:

Elk Creek, a tributary of Bear Valley Creek, was checked with 548 redds, spawning was estimated at 100 per cent complete.

Bear Valley Creek was checked and stream conditions were excellent. The dredge operations had improved. On the first flight down, 506 redds were counted, and 585 on the second flight down. A few live fish were observed. The spawning was estimated as complete.

Camas Creek was surveyed for salmon redds. The spawning was noticed most heavily on the upper three quarters of the creek between Woodtick Cr. and Whitegoat Cr. A total of 208 redds were observed, and spawning was estimated 100 per cent complete.

August 29 Survey:

Big Creek, a tributary of the Middle Fork of the Salmon River, was surveyed. The most concentrated spawning was from Jacob's Ladder Creek to Logan Creek. The upper end of Big Creek was dry with only a few potholes full of water. A total of 731 redds were counted and spawning was estimated nearly completed with a few live fish on the lower 10 miles.

August 30 Survey:

The East Fork of the Salmon River was flown and had a total of 622 redds. Spawning was estimated at 80 per cent complete because many live fish were seen.

Yankee Fork was surveyed and had a total of 64 redds. No live fish were seen and spawning was estimated as complete. The dredge working on this stream is the most probable cause for the low redd count.

Headwaters of the Salmon River was surveyed between Sunbeam Dam and Stanley. Ninety-

The area between Sunbeam Dam and the steel bridge at Challis had a total of 129 redds. Spawning was estimated at 50 per cent complete. Diversion ditches along this area were taking large quantities of water from the river, which may have some effect on the spawning.

August 31 Survey:

Panther Creek was surveyed and had a total of 25 redds. A few live salmon were seen and spawning was estimated at 98 per cent complete. The water was clear down to Blackbird creek, but the silt of the cobalt mine on Blackbird Creek had left the Panther Creek bottom red from iron deposits. The water was colored enough in some places that the creek bed could not be seen. Accuracy was curtailed because of this.

Salmon River was surveyed from Salmon City to the steel bridge at Challis. A total of 41 redds was observed. Live fish were seen in deep holes and had not begun to make redds. The spawning was estimated to be 75 per cent complete.

September 1 Survey:

The Lemhi River was surveyed and had a total of 444 redds. Numerous live fish were seen from Leadore down 10 miles. Spawning was estimated at 90 per cent complete. Diversion ditches for irrigation was taking most of the water away from the River, leaving it dry in several places.

The Pahsimeroi River was also checked and a total of 127 redds was recorded. Brush along this creek made it hard to obtain an accurate count. A few live fish were seen and spawning was estimated 90 per cent complete.

September 2 Survey:

Lake Creek and the Secesh River were checked. Lake Creek had a total of 79 redds and the Secesh had 48 redds. The count on the Secesh may not be complete as a dredge was working near the river causing the water to be colored. The spawning was estimated as complete on both streams.

The South Fork was also checked at this date with a total of 2746 redds. The bulk of these redds was found in Stolle Meadows and Poverty Flat to Browns Airfield. Spawning was estimated at 80 per cent complete. Numerous amounts of live fish were seen on the redds.

September 7 Survey in Oregon:

Surveying of Oregon Tributaries began at this date.

The Imnaha River was surveyed down-stream from Imnaha Falls to the mouth which empties into the Snake River. A total of 182 redds was counted and spawning was estimated as complete. The total number of redds was probable more than the actual number of new redds because of the stream condition. The river bottom was basalt or dark granite which made it hard to observe the old redds.

Catherine Creek, a tributary of the Grande Ronde River, had a total of 96 redds and the spawning was estimated as complete. The gravel of the streams was basalt in nature making detection of redds very difficult.

September 8 Survey:

Lookingglass Creek, another tributary of the Grande Ronde, was surveyed. A total of 28 redds was counted, and spawning was estimated at 100 per cent complete. Believe there were many more older redds.

Wenaha River was also surveyed at this date, a total of 173 redds was counted. The spawning was estimated as complete. Flying was done in afternoon between storms. The lighting was below normal because of smoke in air from forest fires which seemed to put a glint on the water distracting the light.

September 9 Survey:

Minum River, which runs into the Wallowa River, was checked with a total of 120 Redds and spawning was estimated as complete. Redds were old and seemed to be more concentrated above and below the horse ranch.

The Lostine River, which is also a tributary of the Wallowa River, was surveyed and a total of 68 redds were observed. The spawning was estimated as complete. The spawning seemed to be more centralized below Lapover.

Approximately one mile above the town of Lostine a diversion dam three feet high was taking 95 per cent of the water for irrigation purposes. This no doubt had some effect on the spawning salmon.

Eagle Creek, the last creek to be surveyed in Oregon, had a total of 29 redds and spawning was estimated 100 per cent complete. Diversion dams at various points took 98 per cent of the water from the stream. This undoubtedly has had ill effect on the salmon. This drainage has the same formation as some of the best spawning streams in Idaho. It should have many more redds than it has.

September 10 Survey:

The aerial survey of Chinook salmon was resumed in the Salmon River Drainage on this date.

Loon Creek, a tributary of the Middle Fork of the Salmon River, was not on the itinerary but was surveyed and a total of 265 redds was counted. The spawning was estimated at 100 per cent complete.

Johnson Creek was surveyed and the redds were fresh and seemed to be concentrated below Cox's Ranch. A total of 503 redds was observed and spawning was estimated at 100 per cent complete.

September 11 Survey:

Mr. Pirtle accompanied the author on this date and the following streams were surveyed once again because of the late spawning that occurred.

The East Fork of the Salmon River had a total of 709 redds which was an increase over the redd count made August 30 by 87 redds. The spawning was estimated as complete.

The Salmon River from the East Fork to Challis was surveyed and a total of 100 redds was noted which was an increase of 78 redds over the last survey. The spawning was estimated as 90 per cent complete as a number of live fish were observed.

The Pahsimeroi River, a tributary of the Salmon River, was surveyed and a total of 181 redds was observed which was an increase of 54 redds. Spawning was estimated as 100 per cent complete.

These redds recorded for the Lemhi River were new redds over the last survey. A total of 226 redds was recorded. The old redds could not be readily detected so were not included. It must be taken into consideration that some of these may be redds of the last survey because where the water kept the stream clean from becoming covered with algae made the old redds appear new. The spawning was estimated as complete.

Another tributary of the Salmon River was surveyed. Valley Creek was found to have 235 redds, this was an increase of 85 redds. The spawning was estimated as complete.

This brings to conclusion the aerial check on redds in the Idaho and Oregon tributaries of the Snake River, for 1955.

Table 2

YEARLY AERIAL REDD COUNTS OVER COMPARABLE STREAM SECTIONS

Stream	1952	1953	1954	1955
Lemhi River	316	374	173	444
Pahsimeroi River	110	124	118	181
East Fork	252	569	346	622
Bear Valley Drainage	702	580	596	1054
Big Creek	370	341	258	484
Camas Creek	173	48	201	731
Valley Creek	73	39	109	208
Yankee Fork	182	185	241	235
Sulphur Creek	87	120	51	64
Johnson Creek	133	376	435	132
South Fork	138	23	112	503
Salmon River *	954	689	1285	2746
	1539	1420	763	1171
Totals	3490	2779	4688	8575

*Salmon River from mouth of Lemhi River to head, including Alturas Creek.
The Redd Count on Salmon River was 1140 for 1951.