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1961 SALMON SURVEY, PROJECT CHARIOT
LABORATORY OF RADIATION BIOLOGY
UNIVERSITY OF WASHINGTON

Dates and Personnel

MASTER

R. F. Palumbo and A. H. Seymour were at the Chariot Site, August 9 to 19. (Left Seattle August 6, returned August 20).

L. R. Donaldson was at the Chariot Site August 31 to September 3. (Left Seattle August 31 returned September 6).

Salmon Observations

Chukchi Sea at Chariot Site: A 5 1/4-inch mesh nylon gill net 25 fathoms long and 1 fathom deep was fished from the beach in front of the Chariot Site. A small, light-weight monofilament gill net of 2-centimeter mesh and 10 meters long by 3 meters deep was attached to the inshore end of the 5 1/4-inch net. The small net extended onto the beach and, functioning somewhat like a tangle net, caught a large portion of the fish.

No fish were caught in the first set, which was made at 1730 on August 9 and lifted the following morning. The net was reset and the first two salmon were caught when the

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net was lifted the next morning, August 11. While resetting the net another salmon and two char were caught. As a consequence, the net was checked every hour or two and by 1630 of the same day 39 fish, including 22 salmon (15 chums, 6 pinks and 1 red) 15 char and 2 whitefish, had been caught. Most of the fish were caught in the small net as they tried to go around the shore end of the larger net. We observed six salmon hit the net at one time practically at our feet (four were caught). By 1630 the fish barrel was full and the net lifted.

The 5 1/4-inch net was not fished again because of barge operations, other work schedules or bad weather. The small net was fished occasionally by casting the net from the beach; some char and whitefish were caught. (For the catch record see Table 1).

The first 29 fish caught were preserved in formalin and shipped to the University of Washington. Some of the other fish were used as samples for radiological analysis and some, a few char and whitefish, were given to the Eskimos.

Kotzebue Fishery: Enroute to and from the Chariot Site salmon catches at Kotzebue were noted. On August 7 the racks for drying salmon were partly filled. Between the oil dock

and the southern part of the village 82 poles of approximately 30 salmon per pole were counted. The largest single rack, however, is north of the oil dock. The 82 value compares with 148 for August 20 of last year. Positive identification of the species was not made although most of the fish appeared to be chums. Salmon could be seen jumping frequently in Kotzebue Sound, several per minute. Although no later counts were made the peak of the run probably occurred after August 7. Most of the nets used were in very poor condition. If the Eskimos wanted more salmon the salmon appeared to be there for the taking, especially with better nets and greater effort.

Point Hope Fishery: The lee side of the spit at Point Hope is fished by several groups of Eskimos with small nets. One end of the net is held off the beach with a pole while the other end leads up onto the beach. When the fish, swimming close to shore, strike the net the open end is closed and the net is then pulled onto the beach. The Eskimos prefer the char for eating; the salmon usually are used as dog food. On August 13 no one was fishing at the time of our visit but a few fish, practically all char with an occasional pink or chum, had been caught recently. The Eskimos were of the opinion that the early Kukpuk River run was over.

Cape Seppings: There was an Eskimo camp -- two tents and a fish rack -- at Cape Seppings this summer. On August 10 there were only a dozen or so fish on the rack.

Kukpuk River: It was reported by the Geological Survey that a run of pink salmon was seen about ten miles above the mouth of the river on July 29. A heavy rainfall later that day produced flood conditions and reduced the chances for observing salmon to nil.

On August 13 the river was surveyed from a U. S. Fish and Wildlife Service aircraft, a Gruman Goose. The peak of the early run was expected at this time; however the river was high and extremely muddy (brown) and fish were not visible if present. The area covered extended from Maryatt Lagoon to the mouth of the Ipewik, the area where salmon were observed the two previous years.

On September 1 there was a fairly uniform distribution of spawned-out fish from below the Ipewik to near Maryatt Lagoon. In a 1/3-mile stretch of river 27 spawnouts were counted, all pink salmon of small size, 14 to 15 inches. The run is estimated roughly at 5,000 pinks.

A later run of salmon and char into the Kukpuk is fished in the river by the Eskimos and is reported for 1959 and 1960

by Foote.

Ogotoruk Creek: Salmon have not been observed in Ogotoruk Creek. The creek is small and often the mouth is closed to the sea. However in 1961 the creek was open all or most of the summer, after the ice left the Chukchi Sea in early July.

Singoalik River: Unlike 1959 and 1960, Singoalik Lagoon also was open to the sea most of the season. A few fish were seen in the lagoon in late July and also on August 8 by the pilot on a flight between Kotzebue and the Chariot Site.

On August 10 we entered Singoalik Lagoon by boat, turned around and then proceeded back to sea and onward to the next lagoon to the southeast, which was mistaken for Singoalik. Fish were not seen in either lagoon, the latter also having been visited in 1960.

The salmon count in Singoalik was 25 pinks for 1960, and it is likely that the number was not greatly different for 1961.

Wulik River: On August 8, when we were not able to reach the site because of fog, we stopped at Kivalina and talked with three of the Eskimos. They reported that there were a few

salmon in the river but not as many as last year. There are never large runs of salmon in the Wulik but in the fall there is an excellent run of char and big ones, up to hip length, about 25 pounds. Again, the Eskimos expressed a decided preference for char over salmon for eating and said that the salmon sometimes are not even good dog food.

On August 9 while enroute from Kotzebue to the Chariot Site, the Wulik, from about 12 miles above Kivalina to the lagoon, was surveyed from the air. This is approximately the area that was drifted with a Folbot last year. Conditions for observation (with Polaroid glasses) were very good because the sun was at our backs and the water was low and clear. We saw a few carcasses but could not identify positively any live fish. Apparently there were only a few fish in the river; therefore an on-the-ground survey of the Wulik was not undertaken.

Cape Krusenstern Area: On August 19, while enroute to Kotzebue, we observed one hundred or so dead salmon in a stream about 14 miles north of Cape Krusenstern and about 3 or 4 miles above the mouth of the stream. It was the largest of the streams in the area and enters the Chukchi Sea near the southern end of the first large lagoon north of Cape Krusenstern. The

location has been marked on a Laboratory copy of the USGS "Noatak" topographic map.

Noatak River: Tash, of the Arctic Health Center, reported that a few salmon were seen in the Noatak in the vicinity of the Kelly River during the first week in August. Also, there were some salmon on the racks in Kotzebue on August 7, salmon that probably were destined for either the Noatak or Kobuk River.

The Noatak River survey, which was scheduled for early September, was cancelled because of hospitalization of the scientist in charge. However, Schultz, a Wiens pilot, gave the following account of the Noatak salmon run in a letter of October 1, 1961.

. . . the other day I was at Noatak and here is an answer, a general average. There were considerably more fish this year when one considers the much greater volume of water in the stream. They "the natives" said that there was as great a variation as when the water was low, and they are estimated to have 50 tons of fish on the beach that have been caught in the last few days with nets. There is about four times as much

water in the river yet a fisherman caught 200#
with a hook and line in an hour last week.

The 1960 run of salmon to the Noatak was estimated to
be one million fish.

Water Samples

A water sample from the Chukchi Sea was obtained for
the Woods Hole Oceanographic Institution for Sr^{90} analysis.
The level of Sr^{90} in a sample collected in the Bering Straits
in 1959 was found to be about 10 micro-microcuries per 100
liters of water.

With the assistance of Schlacks, Wilimovsky and Lane,
a 30-gallon sample from 30 meters (about ten miles offshore)
and a 90-gallon sample of surface water were obtained. The
samples were shipped to Seattle by barge and later tran-
shipped to Bowen at Woods Hole.

Table 1. Fish Caught in Gill Nets at Chariot Site, 1961

Date	Hour	Fish		Sex*	Live weight	Total length**
		no.	Species		Pounds-ounces	Inches
August 11	0800	1	Chum	F	7-4	25.2
	"	2	Red	M	8-7	26.8
	0830	3	Pink	M	3-3	20.0
	"	4	Char	F im.	2-4	18.5
	0930	5	Char	-	2-1	17.4
	0830	6	Pink	M	3-0	21.0
	0930	7	Char	-	1-12	16.4
	"	8	Char	F im.	3-9	20.9
	"	9	Chum	F	10-4	27.1
	"	10	Chum	F	7-11	24.8
	1030	11	Whitefish	F im.	1-10	15.9
	1300	12	Char	F im.	6-1	24.9
	"	13	Char	-	2-11	18.4
	"	14	Pink	F	2-9	19.0
	"	15	Pink	M	1-13	17.8
	"	16	Pink	F	2-8	17.9
	"	17	Chum	F	6-6	25.2
	"	18	Chum	F	5-3	22.5
	1430	19	Char	-	1-11	16.6
	"	20	Char	F im.	1-11	16.6
	"	21	Char	F im.	2-5	18.0
	"	22	Char	F im.	4-6	21.5
	"	23	Whitefish	F im.	1-9	16.0
	"	24	Chum	M	8-5	27.8
	"	25	Chum	M	8-15	25.8
	"	26	Chum	F	8-2	25.8
	"	27	Chum	F	8-7	25.8
	"	28	Chum	F	5-12	24.1
	"	29	Chum	F	6-12	24.1

* F = female; M = male; im. = immature; -, not obvious from inspection

** Snout to end of caudal fin

Table 1 - (continued)

Date	Hour	Fish		Sex*	Live weight	Total length**
		no.	Species		Pounds-ounces	Inches
August 11	1645	30	Chum	F	7-7	25.2
	"	31	Chum	F	8-8	25.0
	"	32	Chum	F	7-8	25.6
	"	33	Chum	F	7-9	25.5
	"	34	Pink	M	4-3	21.6
	"	35	Char	F im.	2-12	18.2
	"	36	Char	F im.	1-3	15.2
	"	37	Char	M im.	2-2	17.1
	"	38	Char	-	1-15	16.6
	"	39	Char	M im.	1-5	14.2
	1030	40	Char		2-7	18.4
	"	41	Whitefish		0-7	10.8
August 12	1130	42	Whitefish		1-4	15.1
	1300	43	Pink	F	2-11	18.6
	"	44	Char		2-6	18.5
	"	45	Char		1-15	16.8
	"	46	Char		1-7	16.8
	1330	47	Char		2-4	18.4
	"	48	Char		4-1	21.6
	"	49	Char		2-3	18.2
	1430	50	Char		1-5	15.9
	"	51	Whitefish		0-7	10.9
	1600	52	Char		1-15	17.5
	1730	53	Char		0-8	11.0
August 14	"	54	Whitefish		0-5	10.1
	"	55	Whitefish		0-6	10.2
	2000	56	Char		2-3	18.0
	"	57	Whitefish		0-4	9.4
	"	58	Whitefish		0-5	10.5
	2240	59	Whitefish		0-13	13.0
	"	60	Whitefish		0-13	13.5

Table 1 (continued)

TOTALS, AUGUST 11-14

Species	No	Average weight Pounds-ounces	Average length Inches
Chum, males	2	8-10	26.8
" , females	13	7-7	25.1
	15		
Pink, males	4	3-5	20.1
" , females	3	2-9	18.5
	7		
Red, male	1	8-7	26.8
	1		
		<u>Weight, range</u>	<u>Length, range</u>
Char	26	0-8 to 6-1	11.0 to 24.9
Whitefish	<u>11</u>	0-4 to 1-10	9.4 to 16.0
Total	60		