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374  
MANUSCRIPT REPORTS OF THE BIOLOGICAL STATIONS

No. 260

Title

THE SALMON FISHING BANKS OFF BARKLEY SOUND AND  
NOTES ON THE FISHING

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1930

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The Salmon Fishing Banks off Barkley Sound  
and Notes on the Fishing.

by

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The Fishing Banks off Barkley Sound

The salmon trolling is carried on off Barkley sound by fleets that are located at Ucluelet and Bamfield. The fishing regions extend 25 miles south. The fish are not caught indiscriminately over the sea area, but usually on a limited number of banks, upon which the salmon concentrate from time to time.

Ucluelet District.

Inshore Grounds.

Inshore fishing is carried on at Amphitrite point (from the Red buoy to Fraser rock), in Ugly channel, and at Black rock. At Amphitrite point the surface current is usually westerly but the effect of the tide is felt on the line and spoon sunk deep.

At Fraser rock it is often advantageous to troll as near as possible to the reef but there is risk of the current carrying the boat over the sunken reef, when the lines are liable to be lost.

Amphitrite point area furnishes good catches of salmon and it may be the case that plankton forms issuing from Barkley sound provide part of the food of the lancefish, which in turn attract the salmon.

Small herrings were found in the stomachs of lancefish taken from the stomachs of salmon in April and May. It is probable that these little herrings had drifted out of the Sound.

In June there used to be a run of Tyee (big) spring salmon which appeared first at Wreck bay and then came eastward along the shore to Amphitrite point. They were then taken on the spoon anywhere along the shore between these two points. At other times no salmon were found there. They were, it was believed, bound for the Alberni canal. That would indicate that the line of attraction was along the shore, pointing to the existence of a current out of Barkley sound, round Amphitrite point and westward along the shore. This view is supported by the fact that a drift bottle, liberated by the writer in Vernon bay, Barkley sound, on January 28th, 1927, was found at the east end of Long beach on February 2nd, 1927; it had gone a distance of 27 miles in five days.

#### Offshore Grounds.

Middle bank,  $4\frac{1}{2}$  miles S.E. of the Red buoy.

South bank, 7 miles S.E. of the Red buoy. Here the bottom is sand and gravel, with an occasional rock on the east side on which the halibut line may foul. On this bank a less depth than that shown on the chart may be met with. A boat touched bottom with 25 fathoms inside line, which would mean a sounding of approximately 17 fathoms.

A bank, 5 miles S.E. of Red buoy.

Big bank, 18 miles to 25 miles S.E. from the Red buoy. Fishing may begin at 18 miles S.E. from the Red buoy, in a westerly direction as the fish are sometimes found just on or off the edge of the bank. From this point,  $2\frac{1}{2}$  miles to the east, there is a gravelly patch of bottom where fish are got.

On the Big bank the men usually fish South and North. The tides are sometimes very strong and the salmon may sometimes be found along the line of the tide rip. The surface current generally flows west except under the influence of strong winds. The Big bank is connected to a bank to the S.E. by a gravel neck, about 5 miles S.E. On this good catches of salmon are sometimes made. It happens at times on the Big bank that the tide is so strong that both the inside lines appear on the same side of the boat. Slack water is not so important here as a specially good fishing factor.

The bank, 18 miles S.E. of Shelter island is a continuation of the Big bank to the east.

Long Beach bank, 11 miles W.S. of the Red buoy. This bank is  $1\frac{1}{2}$  miles by  $\frac{1}{2}$  mile in area. There is sometimes a school of salmon on the east end of this bank. The bottom is mostly sandy.

Long Beach, Inside bank, 10 miles W.  $\frac{1}{2}$ S. of the Red buoy.

Wreck Bay bank,  $\frac{1}{4}$  to  $\frac{3}{4}$  of a mile S.W. of Florencia island, Wreck bay.

Jermat's bank,  $3\frac{1}{2}$  miles S.W.S. of the Red buoy.

S.W. bank, 14 miles S.W. of Red buoy, out to 17 miles. Trolling may commence at 10 miles S.W. of Red buoy.

S.S.W. bank is located to the east of the S.W. bank.

The depths on the banks are 20-35 fathoms. The top of the bank is usually gravel. This bottom is frequented by halibut.

Bamfield District.

The fishing regions are: Eastern channel; Middle channel; cape Beale, out to 15 miles from the Cape; Pachena bay; Clarewah.

Some of the banks are very small and they can only be accurately found from marks on the land. When fishing on the banks, the boats generally work along the trough of the swell.

Fishing on the Banks

The salmon are attracted to the banks, but not all the time. Occasionally good catches are made off the banks; i.e., over deeper water. The salmon concentrate for the time being on one bank, it may be, to the exclusion of the others. That seems to imply that the feed is, at one time, abundant on a bank and brings about a schooling of fish there. At another time the feed may be distributed over a wider area, and the salmon scattered likewise in pursuit. The salmon are most commonly got on the crest of the bank. It may be that the bank causes a concentration of the plankton forms; deep plankton forms will be here brought by the current nearer the surface. How far the distribution, local periodical swarming of the plankton, or its concentration through the action of currents, are factors in the production of a run of salmon at the place is a matter for inquiry.

On a bank, the school of salmon may be concentrated in an area not more than a quarter-mile square. When one trolls through the school, one may get salmon on several hooks simultaneously and when 100 yards away from the spot fail to get a bite. On the other hand a case is recorded which points to the existence of a very large school of salmon; on one occasion on the Big bank. A fisherman kept sailing in one direction for four hours, getting fish all the way. The salmon had been

spread over a distance of 6 to 8 miles in one direction. The salmon are expected to be found next morning at the place where they were in the evening, and a troller will sometimes anchor on the spot during the hours of darkness.

The state of the tide has an influence on the fishing in inshore waters, not so much on the banks. A very high tide is not regarded as favourable for the fishing. The strong tide may in some way affect the working of the spoon, or the distribution of the plankton. The experience of the fishermen gives rise to the belief that the slack water of high and low tide produces specially good fishing, but an examination made of the catches of the tagging boats does not quite bear this out.

It was found, on consulting the tide tables, that the biggest hourly catch was made most commonly in the last three hours of the ebb and the first half of the flood. Some were got at high water and during the first part of the ebb. On the Big bank the bigger hourly catches were made at low water, half flood, high water and first three hours of the ebb.

Inshore, good catches were made in the last hours of the ebb, at low water, and 1-3 hours flood.

As a rule the salmon are got "lighter", that is, nearer the surface, in the morning than during the middle of the day. When commencing fishing in the morning, therefore, the lines are short, and in order to discover at what depth the salmon are, they are made of different lengths.

In the records of the boats engaged in tagging, particulars were kept of the depth at which each fish was caught. The depth is given by the length of line out. Given a uniform speed of the boat, the same length of line should always fish at the same depth. Currents will affect this and the speed of the engine has to be altered to counteract their effect. The inside line of Boat A

fished a depth (sounding) equal to .7 of its length, while in the case of Boat B the ratio was .8. In the case of the outside line the ratio for the former was .3- .46, and for the latter .4. The ratio of .4 was adopted for the outside line for both boats.

The salmon are not, as a rule, restricted to a definite level, but are distributed throughout a more or less thick zone. This zone is not uncommonly, on any one day at least, 10 fathoms thick. The ranges of depths (below the surface) within which the salmon were got by the tagging boats in 1926 were as follows: April, 4-20 fms.; May, 6-19 fms.; June, 1-17 fms.; July, 4-15 fms.; August, 7-17 fms. There may have been salmon outside their depth limits. Two boats fishing on the same bank may not catch the fish at exactly the same level. For example, two boats fishing on the same day on the Big bank had catches of 50 and 41 salmon respectively. The former caught his fish in 10-17 fms.; the latter in 12-22 fms. The former caught more fish so that it would seem to indicate that the salmon, although distributed between 10 and 22 fms., were more plentiful at a depth shallower than 18 fms. Although then, the salmon are often distributed over a fairly big range of depth, it happens that there is a region where the fish are more numerous, judging from the numbers caught. The individual fisherman is not likely to fish through the whole vertical range of distribution since, if he is catching fish, he will tend to maintain his lines at a particular level.

It may be of interest here to give the temperatures and specific gravities occurring over the fishing banks in 1926.

<u>Month</u>	<u>Temperature</u>	<u>Specific Gravity at 15.6°C.</u>
March		22.5°
April	9.5° -- 11°C	23.5° -- 24.8°
May	11° -- 12.5°C	22.3° -- 24.4°
June	13° -- 14°C	22.5° -- 25°
July	13° -- 16°C	23.7° -- 24.7°
August	13.4° -- 14°C	24.5° -- 24.6°
September	14°C	

#### Individual Catches

The catch varies with the individual, and from day to day. Certain fishermen are generally more fortunate; that is, more skilful. While no doubt many good catches appear to be the result of luck in finding a body of fish, still, taken all over the season, the more experienced and persevering fishermen come out with fairly constant success. The success of the fishery is intermittent. Weather interferes a good deal with its prosecution, and the wandering habits of the schools of salmon introduce an ever present uncertainty as to the next day's results. Some days the catch is very small, and some men may miss the fish altogether. An average of \$10.00 per day throughout the fishing season is considered fairly good fishing. Some large catches are, however, made; \$100.00 is not infrequently made in one day. Catches over that value are rare but as much as \$276.00 has been made by one man in a day. 1800 lbs. of salmon have been received in one day. 3300 lbs. of spring salmon, weighing 6-30 lbs. of average weight, were caught in three days in the Strait of Georgia. Over 100 fish have been taken between 6 a.m. and 10 a.m., and also between 5.30 p.m. and 7.45 p.m. One man is said to have made \$2000 in a fortnight.

Big catches have in former times been made by men trolling from canoes. Chief Lovis, Sarita, Barkley sound, in February, 1914, caught 82 spring salmon weighing 17-45 lbs. each, in 9 hours. He used a Lubb Stewart Spoon, No. 6, Brass and Silver.

Most of the big fish are infected with numerous sealice (*Lepeophtheirus*) and always at the same place on either side of the base of the anal fin. The scales are sometimes missing at the part and the area may be countersunk and the derma blood shot. The whole of the cleared part may be covered with closely set sealice, the majority of which are females. There is much mucous on the part; it is evidently being secreted there in excessive quantity. None of the salmon had leonea in the Gill.

#### Damaged Salmon

A considerable number of salmon showed wounds and scratches: in some cases a piece of the flesh had been bitten out. These injuries are caused by dogfish, sharks, seals, sealions, and possibly by other salmon.

Some of the salmon show evidence in the shape of healed wounds having been previously hooked. One salmon had its snout split: the wound had healed, leaving a wide cleft. A 15-lb. salmon had the isthmus torn away from the urohyal. The injury was evidently a recent one, but still the salmon took the spoon bait.

A fish caught on the south bank had an old rusty hook imbedded in the jaw. A case was related where when the salmon was hauled, the hook of the spoon was found to be through the eye of a hook still in the jaw of the fish.

A blue shark engulfed a hooked salmon and was hooked itself. On one other occasion a shark bit a hooked salmon in half. A dogfish has been landed hanging on to the tail of the salmon.

Spring Salmon Marked in U.S. Rivers  
Caught off the West Coast of Vancouver Island

Such salmon have been from time to time captured in the troll. There fish are marked when small (fingerling stage) by cutting off certain of the fins; for example, the adipose and ventral fins. One captured in August 1926, had been marked as a fingerling at Big White Salmon River Hatchery, in 1923. It weighed 22 lbs., and was a male practically ripe. In March, 1927, a female fish, 10 lbs. in weight, was caught. It had been marked while a fingerling at Wallowa river in 1924. Two other U.S. marked fish were got in 1927.

In July, 1928, one U.S. marked fish was got at Kyuquot.