

Oregon Fish Commission
Research Division

TROLL SALMON INVESTIGATION PROGRESS REPORT

January-June 1959

TABLE OF CONTENTS

| | <u>Page</u> |
|--------------------------------------|-------------|
| INTRODUCTION | 1 |
| REPORTS SUBMITTED | 1 |
| MEETINGS ATTENDED | 1 |
| PERSONNEL | 1 |
| SAMPLING AND MARK RECOVERY | 2 |
| HOOKING MORTALITY | 2 |
| SPRING TAGGING PROGRAM | 3 |
| OFFSHORE SALMON SURVEY | 5 |

INTRODUCTION

This period was largely devoted to preparing for and participating in two tagging experiments. Routine sampling of the catch for marks, average weights, and catch-per-unit effort continued. A listing of the boats engaged in the troll fishery in 1957 was made and work continued on a paper summarizing past troll tagging. Some marine fisheries budget revision was necessary during the period.

In June the project leader was transferred to Clackamas and Robert Loeffel was appointed to take over the Troll Salmon Investigation.

REPORTS SUBMITTED

A memorandum was written summarizing ocean migrations of chinook and silver salmon and a cruise report was prepared for the offshore salmon survey.

MEETINGS ATTENDED

A meeting was held in May with the Bureau of Commercial Fisheries to review past, present, and future sampling and mark recovery trends. A number of talks were given to various Astoria groups and the commercial fisheries class from OSU was given a tour of the fishing industries and the workings of the Fish Commission explained. Several program planning meetings were held with fishermen, oceanographers, Washington Department of Fisheries biologists, administrators, and supervisors regarding the offshore cruises and fiscal arrangements. Project leaders' and commission meetings were attended as necessary. The Western Association of Fish and Game Commissioners—American Fishery Society meeting in late June in Portland was also attended.

PERSONNEL

Jack M. Van Rynning transferred to Clackamas in June and Robert E. Loeffel was promoted from the Columbia River Investigation to project leader

of Troll Salmon. Robert E. Ellis worked through the period. Robert Rohland, trainee at Astoria, began in March and Gerald Pauley, at Coos Bay, in June. Both trainees were paid in large part from CRFDP ocean mark sampling funds.

SAMPLING AND MARK RECOVERY

Sampling of the fishery began when the troll chinook season opened on April 15. Following the trend of recent years, landings were very poor at the opening and the effort was low. Many trollers, noting the poor catches of our tagging boat during the closed period, left for California or Alaska, or stayed in port. Chinook fishing remained poor through May and June in all areas.

The silver season opened on June 15 and it likewise was poor.

Since the mark recoveries and sampling are now processed by IBM methods and are included in the summary issued by the Mark Analysis Section there is no need to go into detail here. Although the landings were low and thus the numbers of fish examined also low, the marked to unmarked ratio was unusually high. For the 3,898 chinook examined during the period there were 21 double marks for a ratio of 1:186. For silvers for June only, 10,197 were examined and 46 marks found for a ratio of 1:222. Approximately 15% of the chinook and 13% of the silvers landed were sampled.

The only mark of interest was the Ad-LV pellet-fed Klaskanine silvers, which outnumbered all the other marks combined. Chinook recoveries consisted of a scattering from several hatcheries on the Columbia River and Puget Sound with a slight majority from Spring Creek.

Some time was spent in reviewing and checking the 1958 IBM run and in making appropriate tabulations and calculations.

HOOKING MORTALITY

No field work was accomplished in this phase, but the lactic acid determinations for the 1958 collections were finished and a progress report

prepared on the year's work (this was included in the January-December 1958 progress report).

SPRING TAGGING PROGRAM

The alarming condition of the Columbia River fall chinook run led to an evaluation of the ocean fishery as a factor in the decline and subsequently to a recommendation through PMFC that the troll catch be reduced. After innumerable meetings and conferences the states of Oregon and Washington agreed to open the troll chinook season on April 15 instead of the previous March 15. This was made effective for the 1956 season. Alaska and British Columbia followed shortly and California already had a shorter season. This regulation, from its inception has met with the vigorous and unrelenting opposition of the trolling industry. This time closure principally affected the fishery from the Columbia River to Grays Harbor as little trolling occurs in other areas at this season. Fishermen contended: (1) Columbia River fall chinook are not abundant in this area at this time; (2) they migrate out of the area later, are caught in other areas, and contribute little or nothing to the escapement; and (3) the season is discriminatory. This conflict led to the PMFC advisors recommending in 1958 that a study be made of the Astoria-Westport spring troll fishery. This recommendation was accepted by the commission which instructed the states of Oregon and Washington to undertake such a study.

In 1959 funds became available for a tagging program. It was hoped that the program would answer questions concerning the present abundance of fish in the area during the closed season, the racial composition, the migration of chinook out of area, and their fate. Being even more optimistic, it was thought that an evaluation of the closed season in terms of additional spawning fish, might be realized.

Negotiations began early in the year and bids for chartering a commercial troller were opened on March 6, 1962. Larry Cooper of Newport was the successful bidder with his troller Cluny. This was a cooperative program with the Washington Department of Fisheries. The Washington boat was the Betty A. skippered by Clarence Anderson. Both were experienced in the early spring fishery in this area. The Oregon boat was to fish from the Columbia River to Willapa Bay and the Washington boat from Grays Harbor south to Willapa Bay. However, fishing was much better in the southern sector, and the Betty A. fished in that area during the last few days of the program.

The experiment began on March 15 and terminated on April 14. Fishing was accomplished on 15 days. The project leader fell victim to virus pneumonia after the first trip and the field work was ably carried on by Bob Ellis and Bob Rohland. A total of 326 chinook was caught and 311 tagged. In addition, 9 silvers were caught, but only one was in taggable condition. All salmon caught were measured and a scale sample taken.

Past experience in ocean salmon tagging has resulted in steady improvements in techniques. Tests by ourselves and others had suggested the advisability of using spaghetti tags, anesthetics, barbless hooks, and a reward for the return of tags. All of these improvements were incorporated into the program which resulted in the fish being released in better shape than in any other of our tagging experiments. Floy spaghetti tags were used, inserted just below the middle of the dorsal fin, and tied with a figure-8 knot. A \$1.00 reward was offered for the return of each tag and the word "Reward" printed on the tag. In addition we operated the boat expressly for tagging rather than incidental to a commercial operation. Another fisherman had devised a shallow landing net made of stainless-steel mesh which we copied. This enabled the large fish to be scooped from the sea in much better condition than when dipped by a twine-mesh bag.

Generally alternate fish were immersed in a 1:5,000 solution of MS 222 for about one minute. This calmed them and made hook removal and tagging much easier. Returns will offer a measure of the benefit of this procedure. After tagging they were placed in a tank of fresh sea water and released after gaining equilibrium.

Barbless hooks were fished on one side of the boat and barbed on the other—they were alternated from day to day to eliminate bias. It was necessary to use barbed hooks to afford a measure of the abundance of fish comparable to the regular commercial fishery and it was also felt desirable to compare the catching efficiency of the two types of gear. The barbed gear caught 184 fish and the barbless gear 142.

Further details on the results of the experiment will be presented in the next progress report.

OFFSHORE SALMON SURVEY

A cruise to study the offshore and pre-season distribution of silver salmon was undertaken during the period May 26 to June 12, 1959. In conjunction with this, barbed and barbless hooks were used, and salmon caught were tagged with three types of tags—Petersen, spaghetti, and dart—for comparison purposes. A cruise report has been submitted; the important results in brief were: (1) no salmon were caught more than 10 miles from shore even though temperatures were favorable; (2) a low abundance of silver salmon was noted which presaged a very poor catch later; and (3) barbless hooks were apparently as effective as barbed hooks in catching silver salmon. Considerable oceanographic data were gathered which may be of some use in albacore prediction studies.

Table 1 shows the size and age composition of the chinook caught.

Jack M. Van Hyning
Robert J. Ellis

November 5, 1963

Table 1. Size and Age Composition of Troll-Caught Chinook Salmon,
May-June, 1959.

| Total Length Inches | Age | | | | | | No Age | Total |
|---------------------------|----------------|----------------|----------------|----------------|----------------|----------------|--------|-------|
| | 2 ₁ | 3 ₁ | 3 ₂ | 4 ₁ | 4 ₂ | 5 ₂ | | |
| 15 | | | | | | | | |
| 16 | | | | | | | | |
| 17 | 4 | | | | | | | 4 |
| 18 | 2 | 1 | | | | | | 3 |
| 19 | | | 1 | | | | | 1 |
| 20 | | | 2 | | | | | 2 |
| 21 | | 3 | 3 | | | | 1 | 7 |
| 22 | | 3 | 2 | | | | | 5 |
| 23 | | 3 | 3 | | | | | 6 |
| 24 | | 5 | 1 | | | | | 6 |
| 25 | | 4 | | | 1 | | 1 | 6 |
| 26 | | 8 | | | 1 | | | 9 |
| 27 | | 4 | | 1 | 3 | | | 8 |
| 28 | | 4 | | | | | | 4 |
| 29 | | 3 | | | 2 | | | 5 |
| 30 | | 1 | | | 2 | | 1 | 4 |
| 31 | | 2 | | | 1 | | | 2 |
| 32 | | 1 | | | | | | 1 |
| 33 | | | | | 1 | 1 | | 2 |
| 34 | | | | 1 | 1 | | | 2 |
| 35 | — | — | — | — | — | — | — | — |
| Total | 6 | 42 | 12 | 2 | 11 | 1 | 3 | 77 |