

SALMON-TAGGING EXPERIMENTS IN ALASKA, 1924 AND 1925 ¹

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CONTENTS

	Page
Introduction.....	109
Experiments in southeastern Alaska.....	116
Tagging record.....	116
Returns from experiments in Icy Strait.....	119
Returns from experiments in Frederick Sound.....	123
Returns from experiments in Chatham Strait.....	123
Returns from experiments in Sumner Strait.....	128
Returns from experiments at Cape Muzon and Kaigani Point.....	135
Returns from experiments at Cape Chacon.....	137
Returns from experiments near Cape Fox and Duke Island.....	141
Variations in returns of tagged fish.....	143
Conclusions.....	144
Experiments at Port Moller, 1925.....	145

INTRODUCTION

The extensive salmon-tagging experiments conducted during 1922 and 1923 ² in the region of the Alaska Peninsula proved so productive of information, both of scientific interest and of practical application in the care of these fisheries, that it was considered desirable to undertake similar investigations in other districts. Accordingly, experiments were carried on in southeastern Alaska in 1924 and again in 1925. In 1925, also, at the request of one of the companies engaged in packing salmon in the Port Moller district, along the northern shore of the Alaska Peninsula, the work done there in 1922 was repeated. The results of these experiments form the basis for the following report.

During 1922 and 1923 operations were carried on under the direct supervision of Dr. C. H. Gilbert and the author of this paper. It was impossible to give such supervision to the work conducted in 1924 and 1925; but the field work, including the actual tagging operations and the collection of data, was efficiently carried on by various other members of the bureau's staff.

Thanks are due to Dennis Winn, agent of the Alaska service, whose helpful cooperation in planning and arranging the work assured its success; to E. M. Ball, assistant agent, who conducted the tagging and collecting of data in southeastern

¹ Contribution No. 1 from the Seattle (Wash.) biological laboratory.

² Experiments in Tagging Adult Red Salmon, Alaska Peninsula Fisheries Reservation, Summer of 1922, by Charles H. Gilbert. Bulletin, U. S. Bureau of Fisheries, Vol. XXXIX, 1923-24 (1924), Document No. 943, pp. 39-50. Washington. Second Experiment in Tagging Salmon in the Alaska Peninsula Fisheries Reservation, Summer of 1923, by Charles H. Gilbert and Willis H. Rich. Bulletin, U. S. Bureau of Fisheries, Vol. XLII, 1926, Document No. 991, pp. 27-75. Washington.

Alaska in 1924; to Arnie J. Suomela, warden, who handled the work in southeastern Alaska in 1925; and to L. G. Wingard, warden, who conducted the tagging operations at Port Moller in 1925. Harlan B. Holmes, junior aquatic biologist, rendered material aid in tabulating the data.

The methods employed were almost the same as those followed in the experiments conducted in the Alaska Peninsula region. These were fully described by Gilbert and Rich³ and need not be set forth here.

Scales were taken from each fish tagged in southeastern Alaska, but it was not considered necessary to do so in the experiment at Port Moller, as none but red salmon were taken at that place, and confusion of the various species was therefore impossible. In the experiments conducted in southeastern Alaska the species of each fish tagged was recorded in the books in which the scales were preserved, and the identification of each fish returned was made by examining the scales taken at the time of tagging. A small proportion of the fish was found to have been incorrectly recorded as to species, but the number was so small that it has not seemed worth while to examine the scales of the fish that were not recaptured. The only reason for doing so would be to render more accurate the figures representing the total number of fish of each species tagged in each experiment, but we have satisfied ourselves that any error that may result from accepting the data as given by the records made at the time of tagging will in no way affect our conclusions.

The accompanying map of southeastern Alaska will serve to show the larger geographical features of that district, while the numerous minor localities from which returns were reported are included in the following list:

ALPHABETICAL LIST OF MINOR LOCALITIES FROM WHICH TAGGED FISH WERE RECORDED

- Adams, Point. Northern point of entrance to Moira Sound.
 Adolphus, Point. Northernmost point of Chichagof Island.
 Affleck Canal. Southern end Kuiu Island.
 Alava, Point. Southernmost point of Revillagigedo Island.
 Alexander, Port. South end of Baranof Island, Chatham Strait.
 Althorp, Port. Northwestern shore of Chichagof Island, Cross Sound.
 American Bay. Eastern shore of Dall Island, Prince of Wales Archipelago.
 Anan Creek. Cleveland Peninsula, across from Wrangell Island.
 Arrandale, British Columbia. Portland Inlet, just west of Nass Bay.
 Augusta, Point. Northeastern point of Chichagof Island.
 Auke Bay. Stephens Passage, just north of Douglas Island.
 Babine River, British Columbia. Tributary to the Skeena.
 Baker, Point. Northwestern point of Prince of Wales Island.
 Barnes Lake. Prince of Wales Island, tributary to Lake Bay, Clarence Strait.
 Barnes Point. Northern point of Stevenson Island, Clarence Strait, latitude 56° 04'.
 Barrie, Point. Southwestern point of Kupreanof Island, Sumner Strait.
 Barrier Island. Southwestern part of Cordova Bay.
 Basket Bay. Chichagof Island, Chatham Strait, latitude 57° 40'.
 Bay Point. Mainland shore, Frederick Sound, latitude 57° 06'.
 Bear Harbor. Affleck Canal, southern end of Kuiu Island.
 Beauclerc, Port. Eastern shore of Kuiu Island, Sumner Strait.
 Behm Canal. Between Revillagigedo Island and the mainland.
 Bendel, Cape. Northwestern point of Kupreanof Island.

³ See footnote 2, p. 109.

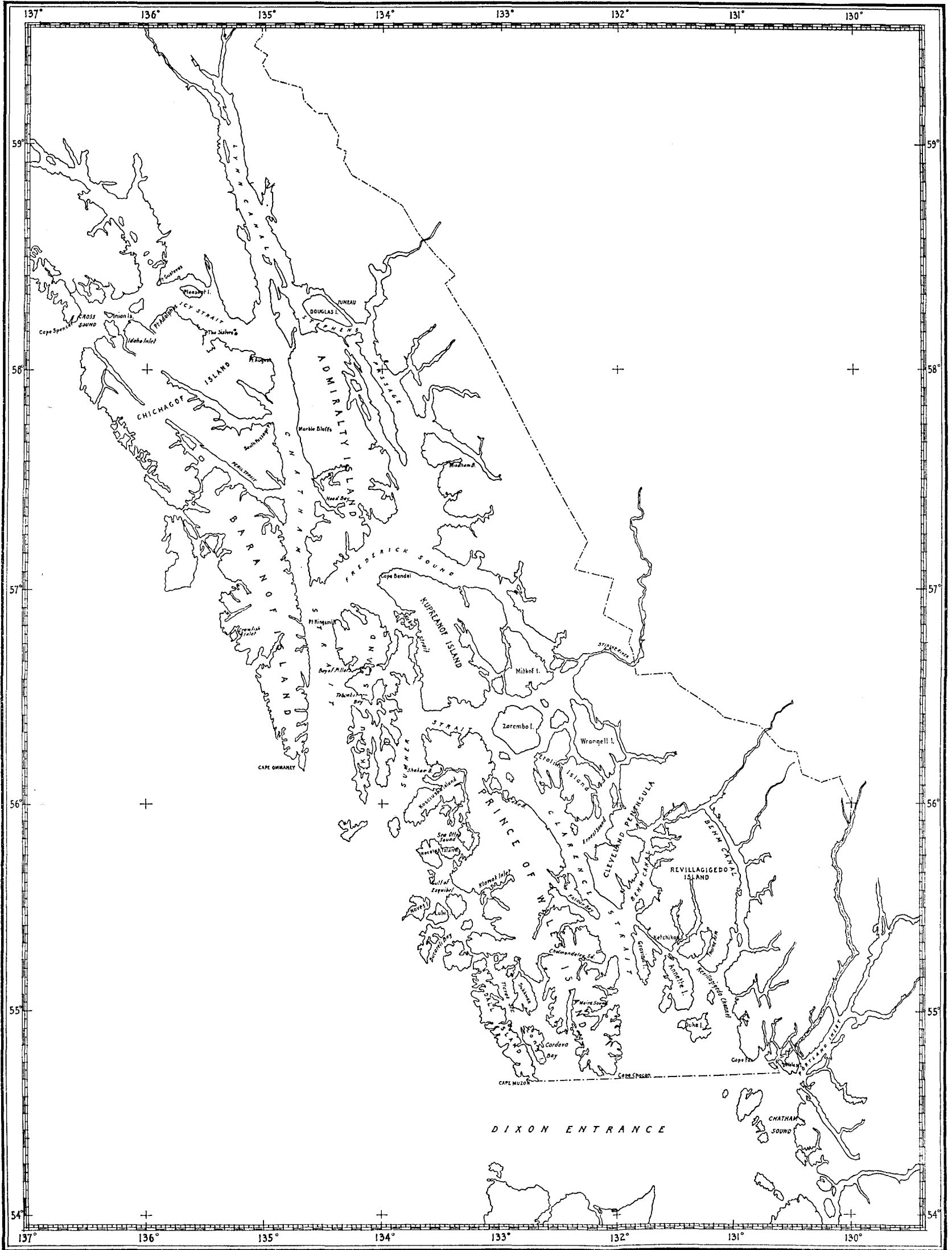


FIG. 1.

- Betton Island. At northern entrance to Behm Canal, Clarence Strait.
- Black Island. Behm Canal, northwest of Revillagigedo Island. Another near the southern entrance to Behm Canal.
- Blank Inlet. Southeastern shore of Gravina Island.
- Boat Harbor. West coast of Gravina Island.
- Boat Rock. At entrance to Naket Inlet, near Cape Fox, Revillagigedo Channel.
- Boca de Quadra. Inlet on mainland coast opening into Revillagigedo Channel.
- Bocas de Finas. Channel southwest of Heceta Island, Prince of Wales Archipelago.
- Bold Island. Between Annette and Revillagigedo Islands, Revillagigedo Channel.
- Bond Bay. At northern entrance to Behm Canal, east of Caamaño Point.
- Bostwick Inlet and Point. Southeastern shore of Gravina Island.
- Box Point. Behm Canal (exact location doubtful).
- Breezy Bay. Tlevak Strait, eastern shore of Dall Island.
- Brightman, Point. Southern shore of Admiralty Island, Frederick Sound; the southern point of entrance to Herring Bay.
- Bronaugh Island. Just south of Gravina Island, Clarence Strait.
- Bucareli Bay. West coast of Prince of Wales Archipelago, latitude 55° 20'.
- Burnett Inlet. Etolin Island, Clarence Strait.
- Calder Bay. Arm of Shaken Bay, Prince of Wales Island, Sumner Strait.
- Camden, Port. Keku Strait, Kuiu Island, latitude 56° 40'.
- Canoe Passage. Southeast of Etolin Island, Ernest Sound.
- Carroll Inlet. Southern shore of Revillagigedo Island, Revillagigedo Channel.
- Chacon, Cape. Southernmost point of Prince of Wales Island.
- Chaik Bay. Southwestern shore of Admiralty Island, Chatham Strait, latitude 57° 20'.
- Chatham Sound, British Columbia. Between Dundas Island and the mainland.
- Chicagof Bay. Prince of Wales Island, Clarence Strait, just south of Moira Sound.
- Chilkat River. The western one of the two great rivers entering the head of Lynn Canal.
- Chilkoot River. The eastern one of the two rivers entering the head of Lynn Canal.
- Cholmondeley Sound. East coast of Prince of Wales Island, Clarence Strait, latitude 55° 15'.
- Chelmand Passage. Just north of Cape Fanshaw, Frederick Sound, latitude 57° 12'.
- Clover Passage. Between Betton Island and Revillagigedo Island, Behm Canal.
- Coco Harbor. Eastern shore of Dall Island.
- Colpoys, Point. Northeastern point of Prince of Wales Island, Sumner Strait.
- Copper River, British Columbia. Branch of the Skeena River.
- Cordova Bay. Dixon Entrance, between Prince of Wales Island and Dall Island.
- Crab Bay. Annette Island.
- Craig. West coast of Prince of Wales Island, near Bucareli Bay.
- Crawfish Inlet. West coast of Baranof Island, latitude 56° 45'.
- Cross Sound. West of Inian Islands, Icy Strait.
- Dall Head. Southern end of Gravina Island.
- Dall Island. The most southwesterly one of the outer islands of the Prince of Wales Archipelago.
- Davidson Point. East side of Klakas Inlet, Prince of Wales Island.
- De Long Islands. Foggy Bay, Revillagigedo Channel.
- Desconocida, Point. Southern point of Heceta Island.
- Distant Point. Chatham Strait, southern point of entrance to Hood Bay, Admiralty Island, latitude 57° 24'.
- Douglas Island. Northern end of Stephens Passage.
- Criest Point. Western shore of Annette Island.
- Duke Island. The most southerly of the larger islands between Clarence Strait and Revillagigedo Channel.
- Duke Point. The eastern point of Duke Island.
- Dunbar Inlet. Sukkwan Island, opening into Tlevak Strait.
- Dundas Bay, point and shore. Northern shore of Icy Strait, near Inian Islands.
- Dundas Island, British Columbia. Just south of the international boundary, longitude 130° 50'.

- Eagle Creek. Northeastern shore of Prince of Wales Island, near Luck Point.
- Eagle Point, Cordova Bay.
- Eagle Point, Icy Strait. Northern shore of Chichagof Island, longitude $135^{\circ} 38'$.
- Eaton Point. Cleveland Peninsula, Ernest Sound, latitude $55^{\circ} 58'$.
- Edna Bay. Southern shore of Kosciusko Island.
- El Capitan Passage. Between Prince of Wales and Kosciusko Islands.
- False Point Retreat. Lynn Canal, about 2 miles south of the northern end of Admiralty Island.
- Fanshaw, Cape, and Bay. Mainland, eastern shore of Frederick Sound, latitude $57^{\circ} 10'$.
- Farragut Bay. Northern shore of Frederick Sound, longitude $133^{\circ} 14'$.
- Fillmore Inlet. Dixon Entrance, between Cape Fox and Portland Canal.
- Flaw Point. Western shore of Seymour Canal, about 10 miles from Stephens Passage.
- Foggy Bay. Mainland, about 12 miles north of Cape Fox.
- Foggy Point. Mainland, southern entrance to Foggy Bay.
- Fox, Cape. Mainland, at Dixon Entrance.
- Frederick, Point. Northeastern shore of Mitkof Island, Frederick Sound.
- Funter Bay. Admiralty Island, Chatham Strait, latitude $58^{\circ} 15'$.
- Gambier Bay. Eastern coast of Admiralty Island, Stephens Passage, latitude $57^{\circ} 28'$.
- Gardner, Point. Southernmost point of Admiralty Island, Chatham Strait.
- Gastineau Channel. Between mainland and Douglas Island, Stephens Passage.
- Gedney Harbor. Western shore of Kuiu Island, Chatham Strait.
- George Inlet. Southwestern shore of Revillagigedo Island.
- Grant Creek. Northern end of Gravina Island.
- Grant Island. About 8 miles from Clarence Strait, northern entrance to Behm Canal.
- Gravina Island. Clarence Strait, latitude $55^{\circ} 20'$.
- Gravina Point. The easternmost point of Gravina Island.
- Grenville Channel, British Columbia. Between the mainland and Pitt Island.
- Grindall Point. Northern point of entrance to Kasaan Bay, Clarence Strait, Prince of Wales Island.
- Ground Hog Bay. Near Juneau, Gastineau Channel.
- Gull Cove. Southern shore of Icy Strait, eastern point of entrance to Idaho Inlet.
- Gustavus, Point. Northern shore of Icy Strait, longitude $135^{\circ} 47'$.
- Halibut Creek. West shore of Clarence Strait, Prince of Wales Island, just south of entrance to Cholmondeley Sound.
- Halibut Harbor. Southwestern shore of Kosciusko Island, Prince of Wales Archipelago.
- Halibut Nose. Western coast of Prince of Wales Island, near the northern end of Dall Island.
- Hamilton Bay. Western shore of Kupreanof Island, Keku Strait.
- Hassler Harbor. Northeastern shore of Annette Island, Revillagigedo Channel.
- Hawk Inlet. Western shore of Admiralty Island, Icy Strait.
- Hayes, Point. Northern point of entrance to Peril Strait, Chatham Strait.
- Haystack, British Columbia. Near Wales Island, entrance to Portland Inlet.
- Heceta Island. Prince of Wales Archipelago, latitude $55^{\circ} 45'$.
- Hessa Inlet. West coast of Prince of Wales Island, near southern end.
- Higgins, Point. Westernmost point of Revillagigedo Island.
- Highland, Point. Mainland, northern shore of Frederick Sound, between Cape Fanshaw and Farragut Bay.
- Hobart Bay and Point. Mainland, Stephens Passage, next bay south of Windham Bay.
- Hole-in-the-Wall. Northwestern coast of Prince of Wales Island, latitude $56^{\circ} 15'$.
- Holland Rock, British Columbia. Near entrance to the Skeena River.
- Hood Bay. Western shore of Admiralty Island, latitude $57^{\circ} 23'$.
- Hoonah. Southern shore of Icy Strait, longitude $135^{\circ} 25'$.
- Hooniah Sound. Southern shore of Chichagof Island, Peril Strait.
- Houghton, Port. Mainland, Stephens Passage, near the southern end.
- Hourigan Point. Near Kingsmill Point, northwestern point of Kuiu Island.
- Hydaberg. Western shore of Prince of Wales Island, north of Sukkwan Island.

- Idaho Inlet. Chichagof Island, Icy Strait, longitude 136° 15'.
- Ildefonso Point. Western coast of Prince of Wales Island, latitude 55° 36'.
- Inian Island. Near the western entrance of Icy Strait.
- Island Point. There are at least six in the region covered by this report; occasionally one can be positively identified.
- Kah Shakes Point and Cove. Mainland, Revillagigedo Channel, latitude 55° 04'.
- Kah Sheets Bay. Southern shore of Kupreanof Island.
- Kaigani Point. Southernmost point of Long Island, Cordova Bay.
- Kanagunut Island. Dixon Entrance, southeast of Cape Fox.
- Kasaan Bay. Eastern coast of Prince of Wales Island, latitude 55° 25'.
- Kasook Inlet. Indenting the southern shore of Sukkwan Island, Cordova Bay.
- Kassa Inlet. Western coast, Prince of Wales Island, latitude 54° 55'.
- Keku Strait. Between Kuiu and Kupreanof Islands.
- Kell Bay. In Affleck Canal, southern end of Kuiu Island.
- Kendrick Bay. Eastern shore of Prince of Wales Island, Clarence Strait, about 10 miles above Cape Chacon.
- Khutzeymateen Inlet, British Columbia. An arm of Portland Inlet, about 10 miles from Dixon Entrance.
- Kincolith Bar, British Columbia. Near the mouth of the Nass River.
- Kingsmill Point. The northwestern point of Kuiu Island.
- Kirk Point. Northern point of entrance to Foggy Bay, Revillagigedo Channel.
- Kitkatlah Inlet, British Columbia. Western coast of Porcher Island, off the mouth of the Skeena River.
- Klakas Inlet. West coast of Prince of Wales Island, latitude 55° 00'.
- Klawak Inlet. West coast of Prince of Wales Island, latitude 55° 33'.
- Klukwan. Indian village on the Chilkat River.
- Lake Bay. Northeastern shore of Prince of Wales Island, Clarence Strait, latitude 56° 00'.
- Larch Bay. Western shore of Baranof Island, near Cape Ommaney.
- Leading Point, British Columbia. Exact location doubtful.
- Lemesurier Point. Cleveland Peninsula, the northern point on Clarence Strait.
- Line Point. Prince of Wales Island, east of Sukkwan Island.
- Limestone Inlet. Mainland, Stephens Passage, latitude 58° 02'.
- Lincoln Rock. Clarence Strait, between Etolin and Prince of Wales Islands, latitude 56° 03'.
- Luck Point. Eastern shore of Prince of Wales Island, latitude 55° 59'.
- Lucky Cove. Revillagigedo Island, Revillagigedo Channel, just north of Point Alava.
- Lyman Point. Prince of Wales Island, Clarence Strait, latitude 55° 33'.
- Lynch, Cape. The western point of Heceta Island.
- Lynn Canal. Extending north from Admiralty Island.
- McCartney, Point. Keku Strait, northwestern point of Kupreanof Island.
- McDonald, Lake. Tributary to Yes Bay, Behm Canal.
- McHenry Inlet. Etolin Island, Clarence Strait, latitude 56° 00'.
- McLean Point. Southern point of entrance to McLean Arm, Clarence Strait, just north of Cape Chacon.
- McLeod Bay. Just north of Cape Muzon, Cordova Bay.
- Mallard Bay. East coast of Prince of Wales Island, 5 miles north of Cape Chacon.
- Malmesbury, Port. Western coast of Kuiu Island, latitude 56° 20'.
- Marble Bluffs. Western shore of Admiralty Island, latitude 57° 43'.
- Marsden, Point. Northwestern shore of Admiralty Island, just south of Hawk Inlet.
- Marsh Island. Near Etolin Island, Clarence Strait, latitude 56° 06'.
- Marten Arm. Branch of Boca de Quadra.
- Metlakatla. Native village on west coast of Annette Island.
- Meyers Island. Near Cleveland Peninsula, Clarence Strait, just south of Ernest Sound.
- Moira Sound. Eastern coast of Prince of Wales Island, latitude 55° 02'.

- Mountain Point. Eastern shore of Kupreanof Island, Wrangell Strait; also on Revillagigedo Island, near the upper end of Annette Island.
- Muzon, Cape. Southernmost point of Dall Island.
- Nakat Bay. Just east of Cape Fox, Dixon Entrance.
- Naked Island. Near Funter Bay, at the southern end of Lynn Canal.
- Narrow Point. East coast of Prince of Wales Island, Clarence Strait, latitude $55^{\circ} 48'$.
- Nasoga Gulf. Portland Inlet, British Columbia.
- Nass River. Entering Portland Inlet, British Columbia.
- Niblack, Point. Cleveland Peninsula, Clarence Strait, latitude $55^{\circ} 32'$.
- Nichols Bay. Southern end of Prince of Wales Island.
- Nichols Passage. Between Gravina and Annette Islands.
- North Passage Point. Chichagof Island, Chatham Strait, 12 miles south of Point Augusta.
- Northumberland, Cape. Southern end of Duke Island.
- Northwest Cove. Cleveland Peninsula, 2 miles north of Ship Island, Clarence Strait.
- Noyes Island. Prince of Wales Archipelago, latitude $55^{\circ} 28'$, longitude $133^{\circ} 45'$.
- Nutkwa Inlet. Western coast of Prince of Wales Island, latitude $55^{\circ} 00'$.
- Ommaney, Cape. Southern point of Baranof Island.
- Onslow Island. Clarence Strait, near entrance to Ernest Sound.
- Peril Strait. Between Chichagof and Baranof Islands.
- Petersburg. Town at the northern end of Mitkof Island, Frederick Sound.
- Pillar Bay. Western shore of Kuiu Island, latitude $56^{\circ} 40'$.
- Pleasant Island. Icy Strait, longitude $135^{\circ} 40'$.
- Pole, Cape. Western point of Kosciusko Island, Prince of Wales Archipelago.
- Porpoise Islands. Icy Strait, just east of Pleasant Island.
- Portage Bay. Kupreanof Island, Frederick Sound, longitude $133^{\circ} 20'$.
- Portland Canal. Boundary between Alaska and British Columbia, between latitude $54^{\circ} 50'$ and $56^{\circ} 00'$.
- Portland Inlet. In British Columbia, just southeast of Portland Canal.
- Prince of Wales Archipelago. The group of islands between Dixon Entrance and Sumner Strait, including Prince of Wales Island and the smaller islands to the westward.
- Prolewy Point. Eastern point of Kupreanof Island, Frederick Sound.
- Pybus Bay. Southeastern shore of Admiralty Island, Frederick Sound.
- Quiet Harbor. Northwestern shore of Etolin Island, Stikine Strait.
- Red Bay. Northern shore of Prince of Wales Island, Sumner Strait.
- Reid Bay. Eastern shore of Kuiu Island, Sumner Strait, latitude $56^{\circ} 22'$.
- Retreat, Point. Northernmost point of Admiralty Island.
- Rocky Islet. At the eastern entrance to Icy Strait.
- Rocky Pass. Same as Keku Strait.
- Rodman Bay. Northern shore of Baranof Island, Peril Strait.
- Roe Point. Mainland, Behm Canal, 10 miles from the southern entrance.
- Rudyard Bay. Mainland, Behm Canal, 25 miles from the southern entrance.
- Ruins Point. Western coast of Kosciusko Island, latitude $56^{\circ} 04'$.
- Salmon Bay. Northeastern shore of Prince of Wales Island, near junction of Clarence and Sumner Straits.
- Sand Point. Northern shore of Whitewater Bay, Admiralty Island, Chatham Strait, latitude $57^{\circ} 10'$.
- Screen Islands. Clarence Strait, near Etolin Island, latitude $56^{\circ} 06'$.
- Seal Cove. Eastern shore of Gravina Island.
- Scaled Passage. Between Annette and Duke Islands.
- Seclusion Harbor. Kuiu Island, near southern entrance of Keku Strait.
- Security Bay. Northwestern shore of Kuiu Island, just east of Kingsmill Point.
- Seymour Canal. The large inlet on the eastern side of Admiralty Island.

- Shakan Bay. Northwestern shore of Prince of Wales Island, Sumner Strait.
 Shawlatlans, British Columbia. Near Prince Rupert.
 Ship Island. Clarence Strait, near Cleveland Peninsula, latitude 55° 35'.
 Ship Islands. Cordova Bay.
 Ship Islet. Tamgas Harbor.
 Shipley Bay. Western shore of Kosciusko Island.
 Sisters Islands, The. Icy Strait, northwest of Point Augusta.
 Sitklan Island. Dixon Entrance, east of Cape Fox.
 Sitkoh Bay. Chichagof Island just north of the eastern entrance to Peril Strait.
 Skeena River, British Columbia. About 35 miles south of the international boundary.
 Skowl Point. Southern point of entrance to Skowl Arm, Kasaan Bay.
 Slate Island. Revillagigedo Channel, near entrance to Boca de Quadra.
 Slocum Arm. Southwestern shore of Chichagof Island, just north of the western entrance to Peril Strait.
 Smeaton Bay. Mainland, Behm Canal, latitude 55° 18'.
 Smuggler Cove. Western shore of Annette Island.
 Snow Passage. Clarence Strait, along western shore of Zarembo Island.
 Soda Bay. West coast of Prince of Wales Island, opposite the northern end of Dall Island.
 Somerville Bay. Eastern end of Somerville Island, Portland Inlet, British Columbia.
 South Passage Point. Eastern shore of Chichagof Island, Chatham Strait.
 Staney Creek. Southern end of El Capitan Passage.
 Stanhope, Point. Clarence Strait, latitude 56° 02'.
 Steamer Bay and Rocks. Western shore of Etolin Island, Clarence Strait.
 Steamer Passage. Near the mouth of Portland Inlet, British Columbia.
 Stephens Passage. East of Admiralty Island.
 Stevenson Island. In Lake Bay, Kashevarof Passage, northeast of Prince of Wales Island.
 Stikine River. Mainland, opposite Mitkof Island, latitude 56° 40'.
 Stikine Strait. Between Etolin and Zarembo Islands.
 Stone Rock Bay. Just north of Cape Chacon, Clarence Strait.
 Strait, Cape. Northeastern point of Kupreanof Island, Frederick Sound.
 Streets Island. Clarence Strait, just north of Kasaan Bay, Prince of Wales Island.
 Sunset Island. Near Windham Bay, Stephens Passage.
 Surge Bay. Western shore of Yakobi Island, just south of the western entrance to Cross Sound.
 Suter Creek. At the southern entrance to El Capitan Passage, Prince of Wales Island.
 Sykes Point. Mainland, at the junction of Behm Canal and Revillagigedo Channel.
- Taku Inlet. Indenting the mainland at the northern end of Stephens Passage.
 Tamgas Harbor. Indenting the southern shore of Annette Island.
 Tebenkof Bay. Western shore of Kuiu Island, Chatham Strait, latitude 56° 30'.
 Tee Harbor. Eastern shore of Lynn Canal, latitude 58° 25'.
 Thatcher, Point. Southern point of entrance to Peril Strait, Chatham Strait.
 Thorne Arm. Indenting the southwestern shore of Revillagigedo Island.
 Three Mile Arm. Kuiu Island, near the southern entrance to Keku Strait.
 Tlevak Strait. East of Dall Island, Prince of Wales Archipelago.
 Tokeen Bay. Southern shore of Kosciusko Island.
 Tombstone Bay. Western shore of Portland Canal, latitude 55° 24'.
 Tongass Passage. Between Sitklan and Wales Islands, Dixon Entrance.
 Totem Bay. Southern shore of Kupreanof Island, Sumner Strait.
 Traitors Cove. Western shore of Revillagigedo Island, Behm Canal.
 Tree Point. Mainland, Revillagigedo Channel, a few miles north of Cape Fox.
 Trout Creek. Near Ruins Point.
 Tucks Inlet, British Columbia. Exact location doubtful.
 Tuxekan Passage. West coast of Prince of Wales Island, latitude 55° 50'.
- Union Bay and Point. Just east of the western point of Cleveland Peninsula, Ernest Sound.
 Vallonar Bay. North end of Gravina Island, Clarence Strait.
 Vixen Inlet. Cleveland Peninsula, Ernest Sound.

- Walden Point. Northwest end of Annette Island.
 Wales Passage and Island, British Columbia. Lower end of Portland Inlet.
 Walter, Port. Eastern shore of Baranof Island, Chatham Strait, latitude $56^{\circ} 23'$.
 Ward Cove. Southwestern shore of Revillagigedo Island, just north of Ketchikan.
 Warde, Point. Cleveland Peninsula, near the northern end of Ernest Sound, latitude $56^{\circ} 10'$.
 Wark Channel, British Columbia. The arm of Portland Inlet nearest Dixon Entrance.
 Warmchuck Inlet. Indenting southern shore of Heceta Island, Prince of Wales Archipelago.
 Warren Island. Just west of Kosciusko Island, entrance to Sumner Strait.
 Warren Cove. Eastern shore of Warren Island.
 Warren Channel. Between Warren Island and Kosciusko Island.
 Washington Bay. Western shore of Kuiu Island, about 10 miles south of Kingsmill Point.
 Watkins, Point. Cleveland Peninsula, near the upper end of Ernest Sound.
 Webster, Point. Prince of Wales Island, Cordova Bay, latitude $54^{\circ} 58'$.
 Whale Bay. Southwestern shore Baranof Island, latitude $56^{\circ} 40'$.
 Whale Passage. Between Prince of Wales and Thorne Islands, northeastern coast of Prince of Wales Island, latitude $56^{\circ} 03'$.
 White, Point. Western end of Duke Island.
 Windfall Harbor. Near the upper end of Seymour Canal, Admiralty Island.
 Windham Bay. Mainland, Stephens Passage, latitude $57^{\circ} 33'$.
 Woowoodski Harbor. Southern shore of Admiralty Island, Frederick Sound.
 Wrangell Narrows or Strait. Between Mitkof and Kupreanof Islands.
 Yellow Island. Tamgas Harbor, Annette Island.
 Yes Bay. Cleveland Peninsula, Behm Canal, latitude $55^{\circ} 55'$.

In giving the localities where tagged fish were captured, local names, which we have been unable to identify, were used occasionally. As these cases were comparatively few, they have been omitted from detailed consideration and have been included among those records with which no data were submitted.

Tagging operations were conducted in localities at or near the main channels through which the fish must pass in entering southeastern Alaska from the Pacific Ocean. The primary object of the experiments was to discover the main routes of salmon migration through the maze of channels of the Alexander Archipelago and the distribution of the fish following these routes to the various spawning grounds. It was expected, also, that the experiments would yield information relative to the rate of migration of various species in various localities at various times. In so far as the routes of migration are concerned the results obtained were fairly satisfactory; but in many cases so few returns were received from any one locality that the data as to the time that elapsed between tagging and recapture are not reliable enough to warrant detailed analysis.

The time available for the preparation of this report was not sufficient to permit as complete and careful an analysis as is desirable. For various reasons, however, it seemed important to present the available facts without delay, and as the experiments will be continued in subsequent years a more detailed analysis can be deferred until more data are at hand.

EXPERIMENTS IN SOUTHEASTERN ALASKA TAGGING RECORD

The following table gives the data for the tags attached in southeastern Alaska in 1924 and 1925. In cases where the numbers of fish tagged do not agree with the figures in the column headed "Serial numbers," the discrepancy is due to the loss or breaking of some of the tags.

TABLE 1.—Tags attached in southeastern Alaska in 1924 and 1925

Experiment No.	Serial Nos.	Number of fish tagged	Species	Locality	Date
1924					
1.....	3001-3015	3 1 4 5	Red..... Coho..... Pink..... Chum.....	Inian Island, Cross Sound.....	July 7
2.....	2001-2150	72 37 3 37	Red..... Coho..... Pink..... Chum.....	Ruins Point, Sumner Strait.....	July 12
3.....	3016-3218	37 133 31	Red..... Pink..... Chum.....	Inian Island, Cross Sound.....	July 14
4.....	2151-2300	18 82 16 34	Red..... Coho..... Pink..... Chum.....	Ruins Point, Sumner Strait.....	July 19
5.....	2301-2625	27 90 193 15	Red..... Coho..... Pink..... Chum.....	do.....	July 27
6.....	2626-2871	120 41 38 47	Red..... Coho..... Pink..... Chum.....	do.....	Aug. 3
7.....	4001-4600	1 3 573 20	Red..... Coho..... Pink..... Chum.....	3 miles east of Cape Bendel, Frederick Sound.....	Aug. 4
8.....	4601-5000	5 5 12 353 25	Red..... King..... Coho..... Pink..... Chum.....	4 miles south of Kingsmill Point, Chatham Strait.....	Aug. 7
9.....	1-25	2 22	Red..... Pink.....	West end of Kanuganut Island, Nakat Bay.....	Do.
10.....	26-300	36 203 32	Red..... Pink..... Chum.....	2 miles north of Tree Point, Revillagigedo Channel.....	Aug. 8
11.....	301-600	5 288	Red..... Pink.....	Duke Point, Revillagigedo Channel.....	Do.
12.....	601-800	3 194 2	Red..... Pink..... Chum.....	1 mile north of Point White (Duke Island), Clarence Strait.....	Aug. 9
13.....	2872-2970	13 86	Red..... Chum.....	Ruins Point, Sumner Strait.....	Aug. 10
14.....	2971-2988	18	do.....	do.....	Aug. 17
1925					
1.....	1-206	161 7 1 33	Red..... Coho..... Pink..... Chum.....	South shore of Pleasant Island, Icy Strait.....	June 23
2.....	207-400	104 29 4 54	Red..... Coho..... Pink..... Chum.....	do.....	June 24
3.....	401-800	114 64 152 66	Red..... Coho..... Pink..... Chum.....	Inian Island, Cross Sound.....	June 25
4.....	801-1080	58 22 153 45	Red..... Coho..... Pink..... Chum.....	do.....	June 27
5.....	1081-1152	17 1 35 19	Red..... Coho..... Pink..... Chum.....	Point Adolphus, Icy Strait.....	July 1
6.....	1153-1400	44 10 10 182	Red..... Coho..... Pink..... Chum.....	Eagle Point, Icy Strait.....	Do.
7.....	1401-1881	22 41 152 264	Red..... Coho..... Pink..... Chum.....	Hourigan Point, Frederick Sound.....	July 10
8.....	1882-2500	66 111 245 195	Red..... Coho..... Pink..... Chum.....	5 miles south of Kingsmill Point, Chatham Strait.....	July 11

TABLE 1.—Tags attached in southeastern Alaska in 1924 and 1925—Continued

Experiment No.	Serial Nos.	Number of fish tagged	Species	Locality	Date
9	2501-2793	16	Red	5 miles south of Kingsmill Point, Chatham Strait	July 14
		28	Coho		
		96	Pink		
		153	Chum		
10	2794-3350	27	Red	3 miles south of Kingsmill Point, Chatham Strait	July 15
		98	Coho		
		46	Pink		
		384	Chum		
11	3351-3540	20	Red	Ruins Point, Sumner Strait	July 18
		46	Coho		
		54	Pink		
		69	Chum		
12	3541-4119	53	Red	do	July 20
		117	Coho		
		119	Pink		
		289	Chum		
13	4120-4600	59	Red	do	July 21
		181	Coho		
		156	Pink		
		84	Chum		
14	4601-5400	89	Red	do	July 22
		276	Coho		
		296	Pink		
		136	Chum		
15	5401-6000	37	Red	do	July 24
		159	Coho		
		373	Pink		
		30	Chum		
16	6001-6600	105	Red	do	July 25
		200	Coho		
		219	Pink		
		75	Chum		
17	6601-7200	14	Red	Foggy Point, Revillagigedo Channel	July 30
		53	Coho		
		503	Pink		
		28	Chum		
18	7201-7800	31	Red	do	July 31
		26	Coho		
		540	Pink		
		3	Chum		
19	7801-8016	34	Red	Stone Rock Bay, Clarence Strait	Aug. 8
		17	Coho		
		51	Pink		
		114	Chum		
20	8017-8700	68	Red	do	Aug. 9
		24	Coho		
		504	Pink		
		88	Chum		
21	8701-9360	4	Red	Cape Chacon, Clarence Strait	Aug. 11
		3	Coho		
		637	Pink		
		16	Chum		
22	9361-10000	9	Red	Stone Rock Bay, Clarence Strait	Aug. 12
		6	Coho		
		609	Pink		
		15	Chum		
23	10001-10560	6	Red	Cape Chacon, Clarence Strait	Aug. 13
		7	Coho		
		540	Pink		
		7	Chum		
24	10561-11160	1	Red	Cape Muzon, Cordova Bay	Aug. 15
		1	Coho		
		595	Pink		
		1	Chum		
25	11161-11760	2	Coho	Kaigani Strait, 1 mile north of Kaigani Point, Cordova Bay	Aug. 16
		594	Pink		
		3	Chum		
		597	Pink		
26	11761-12360	3	Chum	do	Aug. 17
		3	Chum		
		170	Pink		
		2	Red		
27	12361-12530	2	Red	do	Aug. 18
		2	Red		
		1	Coho		
		546	Pink		
28	12531-13080	1	Coho	do	Aug. 21
		1	Coho		
		547	Pink		
		37	Chum		
29	13081-13680	1	Chum	Cape Muzon, Cordova Bay	Aug. 22
		4	Red		
		12	Coho		
		547	Pink		

RETURNS FROM EXPERIMENTS IN ICY STRAIT

RED SALMON

The returns from the tagging experiments conducted in Icy Strait are presented in Table 2.

TABLE 2.—Returns from red salmon tagged in Icy Strait

[In this and subsequent tables the figures in the columns headed "Time" indicate, in days, the least and the greatest time that elapsed between tagging and reported recapture]

Locality of recapture	Locality and date of tagging														Total number returned	
	1924: Inian Island, July 14	1925														
		Pleasant Island				Inian Island				Point Adolphus, July 1	Eagle Point, July 1					
		June 23		June 24		June 25		June 27			Number	Time	Number	Time		
Number	Time	Number	Time	Number	Time	Number	Time	Number	Time							
Surge Bay.....			1	7					1	7						2
Icy Strait:																
Dundas Point and Bay.....					1	3	1	4	1	2						3
Pleasant Island.....			2	2-5									1	5		3
Pleasant or Sisters Islands ¹			22	0-7	19	0-6	7	0-5	10	0-3	3	(¹)	6	(¹)		67
Sisters Islands.....	1	7														1
Eagle Point.....	1	3					1	8								2
Point Gustavus.....			2	3	1	2										3
Near Porpoise Island.....					1	2									2	3
10 miles west of Point Augusta.....							1	42	1	40	2	8-9	1	9		5
Near Rocky Island, eastern entrance to Icy Strait.....					1	2	4	8-13						1	3	6
Chatham Strait:																
(No details).....			1	18												1
Near Hawk Inlet.....									1	8				2	²	3
Hawk Inlet.....							1	7								1
North of Passage Point.....							1	15								1
South of Passage Point.....			2	11-20	(?)	1	1	18	1	18						5
Marble Bluffs.....					1	42	1	18								2
Basket Bay.....									1	17					1	13
Sitkoh Bay.....			1	9												1
Frederick Sound.....									1	40					2	36-38
Lynn Canal:																
Lynn Canal, near Funter Bay.....									1	21						1
Funter Bay.....			1	(?)												1
Between Funter Bay and Point Retreat.....					1	13	1	6								2
False Point Retreat.....							1	15								1
Ground Hog Bay—Gastineau Channel.....							1	5								1
Naked Island—Lynn Canal.....							1	20								1
Tee Harbor.....							1	8								1
Chilkat River—Klukwan.....			1	(?)	1	(?)	1	(?)								3
Total.....	2		33		27		24		18		5		16			126
Percentage returned.....	5.4		20.5		26		21		31		29.4		36.4			23.4

¹ All the returns under this heading were obtained from one company, which, unfortunately, though perhaps unavoidably, had not kept accurate records of either the time or place of capture. All were reported as taken at either Pleasant or Sisters Islands between June 23 and 30.

² Taken either at Eagle Point or Gull Cove.

³ One was recorded as taken on June 24—obviously an error.

These data indicate two main routes of migration for the fish entering southeastern Alaska through Icy Strait. Some of the fish turn southward upon reaching Chatham Strait and traverse this channel to its junction with Frederick Sound, where three of the tagged fish were taken. It is conceivable, of course, that the fish taken in Frederick Sound may have reached there by another route, passing around the north end of Admiralty Island and south through Stephens Passage, but the evidence certainly favors the other hypothesis. No doubt some of the fish taken along this route were destined to enter local spawning streams on Admiralty, Chichigof, or Baranof Islands.

Other fish entering Icy Strait turn north on reaching Chatham Strait, traverse Lynn Canal, and in all probability find their spawning grounds in the Chilkat and Chilkoot Rivers at the head of the Canal. These rivers are noted for their red-salmon runs and probably are the two most important salmon streams in the northern part of southeastern Alaska. It is not surprising, therefore, that a migration to this region is indicated. Only one tagged fish was taken outside of Icy Strait or one or the other of these two main lines of migration. That was reported from Ground Hog Bay, near Juneau.

COHOES

A total of 133 cohoes was tagged in Icy Strait during 1925. Only 15 (11.3 per cent), representing only four experiments, were returned. The data are presented in Table 3.

TABLE 3.—Returns from coho salmon tagged in Icy Strait in 1925

Locality of recapture	Locality and date of tagging								Total number returned
	Pleasant Island				Inian Island, June 25		Eagle Point, July 1		
	June 23		June 24		Number	Time	Number	Time	
	Number	Time	Number	Time					
Icy Strait:									
Idaho Inlet.....			1	57					1
Pleasant or Sisters Islands ¹	2	0-7			1	0-5			3
Gull Cove.....					1	6			1
Point Gustavus.....							1	11	1
Near Rocky Islands.....							1	3	1
Chatham Strait:									
Near Hawk Inlet.....					1	4			1
Marble Bluffs.....			1	42	1	(?)			2
Basket Bay.....			1	30					1
Hood Bay.....			1	57					1
Crawfish Inlet.....									1
Sumner Strait: Point Colpoys.....					1	11			1
Stephens Passage: Auk Bay.....			1	22			1	32	1
Total.....	2		5		5		3		15
Percentage.....	28.6		17.2		7.8		30		

¹ See footnote 1 in Table 2 (p. 119).

The returns are too meager to show details of the migration from Icy Strait, but they indicate, unmistakably, that the main route is south in Chatham Strait. Only one fish went north, and it was retaken near the northern end of Stephens Passage. One returned to the open ocean and was retaken on the outside coast of Baranof Island at Crawfish Inlet, and one went to Sumner Strait.

Except for the fish recaptured in Icy Strait or the immediate vicinity, the time that elapsed between tagging and recapturing was noticeably longer than was the case with the red salmon. Most of the red salmon tagged in Icy Strait and retaken in Chatham Strait were captured less than 20 days after they were tagged, but most of the cohoes were free for a much longer time (30 to 57 days). The significance of this is not clear, but it seems probable that the cohoes were taken close to their spawning grounds, while the reds taken in Chatham Strait were destined for more distant streams. It has been shown conclusively (by the tagging experiments along the Alaska Peninsula) that salmon bound for distant streams travel at a more rapid rate than those bound for near-by spawning grounds. In this case the fact that the red salmon spawn somewhat earlier than the cohoes may also have influenced their more rapid progress.

PINK SALMON

As in the case of the reds and cohoes, the pink salmon tagged in Icy Strait showed a distinct migration southward in Chatham Strait and into the region of Frederick Sound. There can be little doubt that many of the fish were bound for local spawning grounds close to the place where they were recaptured. On the other hand, it is altogether probable that some were taken while en route to other spawning regions. It is quite impossible to determine what percentage was bound for strictly local spawning grounds and what for more distant streams. The only thing positively shown by these data is that the main migration route of the pinks found in Icy Strait during June was southward in Chatham Strait to Frederick Sound. A few individuals were taken north of the eastern entrance to Icy Strait in Chatham Strait and Lynn Canal, but it is apparent that the extent of this northerly migration was by no means as great in the case of the pinks as it was in the case of the red salmon. Two individuals passed out again into the open ocean and were taken along the western shores of Chichagof and Yakobi Islands. The data are presented in Table 4.

TABLE 4.—Returns from pink salmon tagged in Icy Strait

Locality of recapture	Locality and date of tagging										Total number returned
	1924: Inian Island				1925						
					Inian Island				Point Adolphus, July 1		
	July 7		July 14		June 25		June 27				
	Number	Time	Number	Time	Number	Time	Number	Time	Number	Time	
Surge Bay.....					1	9					1
Icy Strait:											
Dundas Shore (Icy Strait).....							1	20			1
Near Inian Island.....	1	5			2	11-16	1	3			4
Pleasant Island.....			4	1-2	1	5					5
Pleasant or Sisters Islands ¹					4		8	0-3	2	(?)	14
Eagle Point or Gull Cove.....			3	3	2	6-8					5
Point Gustavus.....					1	6					1
Near Porpoise Island.....							1	12			1
Point Augusta.....			3	7-9	1	41	1	40	1	9	6
Rocky Island.....							5	5-6			5
Chatham Strait:											
(No details).....							1	25			1
Near Hawk Inlet.....					2	8-9	3	6-10			5
North of Passage Point.....							1	19			1
South of Passage Point.....									1	14	1
Marble Bluffs.....							1	30			1
Point Hayes.....							1	35			1
Distant Point.....							1	11	1	7	2
Frederick Sound:											
Near Point Brightman.....					2	22					2
Pybus Bay.....									1	23	1
Stephens Passage: Windham Bay.....							1	28			1
Lynn Canal:											
Near Funter Bay.....							2	5-8			2
Funter Bay.....							1	19			1
False Point Retreat.....					1	(?)					1
(No details).....									1	37	1
Slocum Arm.....							1	11			1
Doubtful locality.....			1	15			4	2-10	1	9	6
Total.....	1		11		17		34		8		71
Percentage.....	25		7.9		11.2		22.2		22.8		14.5

¹ See footnote 1 to Table 2 (p. 119).² Date lacking in the case of 1 fish.

CHUMS

The returns from the tagging of chum salmon in Icy Strait are given in Table 5. This species is somewhat more widely scattered than any of the others, but the essential features of the distribution are the same, the main route of the migration being south in Chatham Strait and thence to Frederick Sound. The wider distribution of this species is indicated by the records of tags taken in Rodman Bay and Hooniah Sound, Peril Strait; in Keku Strait; in Chatham Strait, south of the western entrance to Frederick Sound; in Sumner Strait; and at Cape Lynch, on Heceta Island. There is also evidence of a relatively unimportant northerly migration from Icy Strait into the region of Stephens Passage.

TABLE 5.—Returns from chum salmon tagged in Icy Strait

Locality of recapture	Locality and date of tagging														Total number returned	
	1924, Inian Island, July 14		1925													
			Pleasant Island				Inian Island				Point Adolphus, July 1		Eagle Point, July 1			
			June 23		June 24		June 25		June 27		Number	Time	Number	Time		
Number	Time	Number	Time	Number	Time	Number	Time	Number	Time	Number	Time	Number	Time			
Icy Strait:																
Inian Island.....							1	10								1
South shore of Icy Strait (no details).....	1	4														1
Pleasant or Sisters Islands ¹				1	0-6	3	3			1	(?)	4	22-29			9
Port Althorp.....												1	11			1
Hoonah.....			1	38								2	30			3
Point Adolphus.....												1	9			1
Eagle Point.....												2	2			2
Gull Cove.....												1	9			1
Point Gustavus.....												1	11			1
Near Porpoise Island.....				1	12											1
Point Augusta.....						1	42	1	37							2
Near Rocky Island.....				2	9-13							2	1-6			4
Chatham Strait:																
Hawk Inlet.....									2	13						2
(No details).....				1	28	1	27									2
Near Hawk Inlet.....												1	3			1
Point Marsden.....											1	1				1
South of Passage Point.....												1	5			1
Marble Bluffs.....										1	(?)	1	35			2
Basket Bay.....						1	19					4	13-29			5
Near Peril Strait.....												2	20-30			2
Chaik Bay.....												1	35			1
Near Kingsmill Point.....						1	33									1
Tebenkof Bay.....												1	21			1
Peril Strait:																
Rodman Bay.....												1	22			1
Hooniah Sound.....						1	30									1
Cape Lynch.....												1	51			1
Frederick Sound:																
Pybus Bay.....												1	17			1
Frederick Sound.....											1	38				1
Port Houghton.....						1	29									1
Point Frederick.....			1	18												1
Keku Strait:																
Point McCartney.....												1	31			1
Hamilton Bay.....												1	32			1
Point Colpoys.....	1	27														1
Lynn Canal:																
Near Funter Bay.....				1	9	1	23									2
Tee Harbor.....				1	14											1
Taku Inlet.....						1	16									1
No locality given.....												2	6			2
Total.....	2		2		7		12		3		4		32			62
Percentage.....	6.4		6.1		13.0		18.2		6.6		21.0		17.6			14.4

¹ See footnote 1 to Table 2 (p. 119).

RETURNS FROM EXPERIMENTS IN FREDERICK SOUND

One red salmon, 3 cohoes, 20 chums, and 573 pink salmon were tagged at Cape Bendel, Frederick Sound, on August 4, 1924. None of the reds or cohoes were returned. Seven of the chums were recovered, five near the point of tagging. Two were taken in Hamilton Bay, Keku Strait, on August 7 and 11, and one each from near Woewoodski Harbor on August 16, the southern end of Admiralty Island on August 10, and at Kingsmill Point (date uncertain, recorded as taken July 29). One was taken on August 13 at Nakat Bay, east of Cape Fox, and one was recorded from "Kadakes" Bay, an unidentified locality, possibly Kah Shakes Cove on the mainland north of Cape Fox.

PINK SALMON

The returns of tagged pink salmon are given in Table 6. The distribution of these fish was mainly through Frederick Sound and north along Stephens Passage as far as Douglas Island. A sufficient number was taken to the westward of Cape Bendel (especially along the western shore of Kuiu Island) to indicate a definite movement in this direction. A few passed northward in Chatham Strait and were taken in Icy Strait near Point Augusta, but so few did this that it seems possible that the records are in error, especially as none were taken in Chatham Strait between Frederick Sound and Icy Strait. Others went south, either in Chatham Strait or through Kuiu Strait, and were taken in the region of Sumner Strait, along the east coast of Kuiu Island and the northern part of Prince of Wales Island.

TABLE 6.—Returns from pink salmon tagged near Cape Bendel, August 4, 1924

Locality of recapture	Number	Time	Locality of recapture	Number	Time
Frederick Sound:			Stephens Passage—Continued.		
Point Brightinan.....	7	7-9	Limestone Inlet.....	6	2-7
2 miles northeast of Woewoodski Harbor.....	7	2-8	Douglas Island.....	5	4-27
Pybus Bay.....	7	10-7	Icy Strait: 4 miles west of Point Augusta.....	4	5
9 miles north of Cape Bendel.....	3	11-1	Keku Strait: Hamilton Bay.....	2	2-8
Cape Fanshaw.....	2	5	Chatham Strait: West shore of Kuiu Island.....	15	6-14
Bay Point.....	2	5	Sumner Strait:		
Portage Bay.....	4	6-7	Point Colpoys.....	5	9-13
Between Cape Bendel and Portage Bay.....	1	3	Eagle Creek, northwest shore, Prince of		
Cape Strait.....	8	7-8	Wales Island.....	1	8
4 miles north of Prolewy Point.....	3	5	Kell Bay, Affleck Canal.....	2	22
12 miles north of Petersburg.....	3	3-11	Bear Harbor, Affleck Canal.....	2	10
Farragut Bay.....	1	4	Kadakes Bay ¹	3	2-5
North end of Wrangell Narrows.....	1	12	Shelter Cove ⁴	5	2-7
Stephens Passage:			Scow Bay ⁴	1	7
Port Houghton.....	16	2-7	Suko Island ⁴	1	8
Hobart Bay and Point.....	8	2-12			
Gambler Bay.....	2	14	Total.....	139	
Windham Bay.....	10	7-9	Percentage.....	24.2	
Seymour Canal, south end.....	2	7			

¹ One recorded as taken before tagged.
² Three recorded as taken before tagged.

³ Two recorded as taken before tagged.
⁴ Unidentified localities.

RETURNS FROM EXPERIMENTS IN CHATHAM STRAIT

Five tagging experiments were conducted in Chatham Strait at or near Kingsmill Point, on the northwestern shore of Kuiu Island, one on August 7, 1924, and four between July 10 and 15, 1925. Most of the first lot of fish tagged were pinks (353 out of a total of 400). In 1925, however, more chums than pinks were tagged, and fairly good samples of both reds and cohoes were also included. As the experiments of 1925 were undertaken about three weeks earlier in the season than in 1924, it is of

interest to compare the results in the two years, although this can not be done fairly with any species except the pink salmon on account of the poor representation of the other species in the 1924 experiment.

RED SALMON

The returns for the red salmon tagged at Kingsmill Point are given in Table 7. The majority of the recaptures were made in Frederick Sound and Stephens Passage, as far north as Taku Inlet. Four fish were taken in the Stikine River; and this, together with the fact that relatively numerous returns were received from Frederick Sound, indicates that the Stikine River is the source of an important part of the red-salmon run entering southeastern Alaska through Chatham Strait and Frederick Sound. Other tagged reds were taken in the southern part of Chatham Strait along the western coast of Kuiu Island, and three were taken in the southern part of Clarence Strait near Dixon Entrance. These returns indicate a southerly migration of minor importance, possibly to the Nass and Skeena Rivers.

TABLE 7.—Returns from red salmon tagged at Kingsmill Point

Locality of recapture	Locality and date of tagging										Total number returned
	1924: 4 miles south of Kingsmill Point, Aug. 7		1925								
			Hourigan Point, July 10		Kingsmill Point						
					July 11		July 14		July 15		
	Number	Time	Number	Time	Number	Time	Number	Time	Number	Time	
Frederick Sound:											
Kingsmill Point.....					1	5			2	4	3
Hamilton Bay.....	2	6-9									2
Point McCartney.....					1	49					1
Point Brightman.....									1	18	1
Woowoodski Harbor.....			1	18							1
Fanshaw Bay.....									1	7	1
Stephens Passage:											
Port Houghton.....					1	21					1
Windham Bay.....					2	6-11					2
Seymour Canal.....					1	9					1
Taku Inlet.....			1	7	2	6-10					3
Stikine River.....					3	9-10					4
Chatham Strait:											
Washington Bay.....									1	10	1
Tabankof Bay.....			1	22	1	11					2
Port Malmesbury.....					1	35					1
Southern end of Clarence Strait:											
Point Adams.....							1	22			1
Driest Point.....					1	13					1
Foggy Bay.....					1	27					1
Total.....	2		3		15		1		6		27
Percentage.....	40		13.6		22.7		6.2		22.2		19.8

¹ One taken at Grand Rapids on Aug. 20.

COHOES

The returns from coho salmon tagged at Kingsmill Point, as given in Table 8, indicate a migration of considerable importance through Frederick Sound and probably to the Stikine River, where 6 of the 44 returns were secured. No fish were taken north of Frederick Sound in Stephens Passage. Others, however, were taken south of Frederick Sound in Chatham Strait, Keku Strait, Sumner Strait, along

the western shores of Prince of Wales Island, and along the shores of the southern part of Clarence Strait and Dixon Entrance, both in Alaskan and British Columbian waters. The southerly movement of cohoes from Kingsmill Point is well marked, 26 of the 44 returns being from this region. Some of these fish doubtless were bound for the Nass and Skeena Rivers, but it seems probable that others were on their way to local spawning streams.

TABLE 8.—Returns from coho salmon tagged at Kingsmill Point in 1925

Locality of recapture	Locality and date of tagging								Total number re-turned
	Hourigan Point, July 10		Kingsmill Point						
			July 11		July 14		July 15		
	Number	Time	Number	Time	Number	Time	Number	Time	
Frederick Sound:									
Hourigan Point.....	1	8					1	15	2
Security Bay.....	1	33	1	22			1	20	3
Point McCartney.....							1	15	1
Point Brightman.....			1	5					1
Pybus Bay.....			1	6					1
Frederick Sound.....			2	23					2
Cape Fanshaw.....	1	10							1
Stikine District:									
Stikine Flats.....			2	46-54	1	45	1	38	4
Stikine River.....							2	34-35	2
Chatham Strait:									
Kingsmill Point.....			2	10-15			2	8-33	4
Near Washington Bay.....	1	6							1
Tebenkof Bay.....			2	4-23	1	4	1	17	4
Cape Ommaney.....	1	19					1	64	2
Sumner Strait:									
Keku Strait.....							1	16	1
Snow Passage.....			1	24					1
Ruins Point.....			2	11-20			1	12	3
Bocas de Finas.....					1	16	1	14	2
Clarence Strait:									
Cape Chacon.....			1	38	1	33			2
Betton Island.....			1	34					1
Kanagunut Island.....			1	31					1
British Columbia:									
Prince of Wales Island.....	1	31							1
Steamer Passage.....			1	26					1
Burke Channel.....							1	58	1
Wark Channel.....							1	36	1
Doubtful locality.....							1		1
Total.....	6		18		4		16		44
Percentage.....	14.6		16.2		14.3		16.3		15.8

PINK SALMON

In the five experiments conducted at Kingsmill Point 892 pink salmon were tagged and 185 (20.7 per cent) were recaptured. The data are given in Table 9. As has been stated, the experiment of 1924 was made about three weeks later in the season than those of 1925. In spite of this the percentage of return was almost identical, although the distribution was different. In 1924 a very great majority of the recaptures were made close to the point of tagging and in near-by localities in Frederick Sound. In 1925 a distinct migration south in Chatham Strait was shown, which was not indicated in the results for 1924, and comparatively few fish were taken close to the point of liberation. In other respects the returns for the two years were practically the same. A slight movement north in Chatham Strait from Frederick Sound occurred, but the main migration was through Frederick

Sound and north in Stephens Passage as far as Taku Inlet. South of Kingsmill Point the fish were distributed mainly along the shores of Chatham Strait and Sumner Strait, with a scattering few along the mainland in Ernest Sound, Behm Canal, and at Cape Chacon. It is interesting to note that none were taken along the western shore of Prince of Wales Island or on the smaller islands of the Prince of Wales Island or on the smaller islands of the Prince of Wales Archipelago.

TABLE 9.—Returns from pink salmon tagged at Kingsmill Point

Locality of recapture	Locality and date of tagging										Total number returned
	1924: Kingsmill Point, Aug. 7		1925								
			Hourigan Point, July 10		Kingsmill Point						
					July 11		July 14		July 15		
Number	Time	Number	Time	Number	Time	Number	Time	Number	Time		
Kingsmill Point	35	10-11	1	2	3	1-7	1	5			40
North in Chatham Strait:											
Distant Point	1	2			2	10-11					3
Marble Bluffs							1	22			1
Basket Bay					1	7	1	10			2
Frederick Sound:											
Hourigan Point					1	7					1
Security Bay			4	7-25	4	0					8
Point Brightman	5	4-6			1	15	1	12	1	18	7
Woowoodski Harbor			4	9-12	3	8-17					7
Hamilton Bay	4	5-6			4	11-35					8
Point McCartney					2	14-16	2	11-13			4
Cape Bendel	6	3-4									6
Pybus Bay	1	4							1	9	2
Frederick Sound			3	12-29	1	11					4
Cape Fanshaw	1	4									1
Portage Bay	2	4-5									2
Bay Point					1	21					1
Petersburg Creek	1	34									1
Stephens Passage:											
Point Hobart	1	1	1	20	2	17-18					4
Port Houghton	4	1-4	7	10-49			1	7	1	43	13
Sunset Island			1	16	2	11-15	2	8-10			5
Windham Bay	6	5	2	12-14	2	18-20	2	11-20			12
Seymour Canal			1	6	2	9-16	1	16			4
Taku Inlet							1	7			1
Stikine District:											
Stikine Flats			1	17							1
Stikine River							1	98			1
South in Chatham Strait:											
Washington Bay							2	11-19			2
Pillar Bay			5	5-14	3	13-20	4	2-16	2	7-19	14
Tabenkof Bay			1	15			2	12	1	19	4
Port Walter					1	42					1
Sumner Strait:											
Kell Bay	1	19									1
Bear Harbor	1	7							1	22	2
Port Beauchere			1	36			1	32			2
Ruins Point			1	21	2	11-20					3
Koku Strait	1	6					4	11-21			6
Totem Bay			1	20							1
Snow Passage									1	9	1
Cape Chacon					1	12	1	33-37			2
Anan Creek					1	21					1
Boca de Quadra									1	71	1
Sitkian Island					1	25					1
Unknown	4										4
Total	74		34		40		28		9		185
Percentage	21		22.4		16.3		29.1		19.6		20.7

¹ Four recorded as taken before date of tagging.

² Three recorded as taken before date of tagging.

CHUMS

As was the case with the pink salmon, a migration of minor importance was indicated north in Chatham Strait as far as Icy Strait. A much more important route of migration was through Frederick Sound and north in Stephens Passage as far as Seymour Canal; but the main distribution of chums from the region of Kingsmill Point appeared to be to the south, especially along the western shore of Kuiu Island and in Keku Strait, nearly three-fourths of the returns having been from these districts. A few returns came from Sumner Strait, the west coast of Prince of Wales Island, and two fish were recaptured at Revillagigedo Island. These fish, therefore, appear to be mainly of local origin, spawning in the numerous small streams along the intricate coast line where they were taken. The results from this experiment are shown in Table 10.

TABLE 10.—Returns from chum salmon tagged at Kingsmill Point

Locality of recapture	Locality and date of tagging										Total number returned		
	1924: Kingsmill Point, Aug. 7		1925										
			Hourigan Point, July 10		Kingsmill Point								
	Number	Time	Number	Time	July 11		July 14		July 15				
				Number	Time	Number	Time	Number	Time				
North in Chatham Strait:													
Point Gardner.....					1	5	1	7				2	
Distant Point.....					3	3-15	1	8	2	7-11		6	
Point Thatcher.....							1	4				1	
Basket Bay.....			1	9								1	
10 miles west of Point Augusta.....									2	19		2	
Frederick Sound:													
Kingsmill Point.....	2	5-6					2	4	1	8		2	
Hourigan Point.....			2	5-8								5	
Security Bay.....			23	5-25	6	6-24	3	2-25	16	1-24		48	
Point Brightman.....	1	6	1	17			1	12				3	
Point McCartney.....					1	19	1	37	2	15-27		4	
Pyhus Bay.....			2	18	1	8	1	14				4	
Near Woowoodski Harbor.....							2	5-14				2	
Frederick Sound.....			1	10	1	4			1	8		3	
Point Highland.....			1	16								1	
Bay Point.....							1	18				1	
Stephens Passage:													
Port Houghton.....							1	16				1	
Hobart Bay.....					1	14						1	
Near Sunset Island.....							1	10	2	11		3	
Windham Bay.....					1	11	1	9	1	4		3	
Seymour Canal.....					3	4-9						3	
Keku Strait:													
Hamilton Bay.....			6	11-17			1	13	6	3-27		13	
Port Camden.....					1	35						1	
(No details).....			10	10-28	9	7-21	5	11-19	11	6-28		35	
South in Chatham Strait:													
Kingsmill Shore.....			16	2-13			10	4-15	7	2-7	21	2-13	54
Washington Bay.....			6	13-20								6	
Pillar Bay.....			28	3-31	59	2-23	38	1-22	114	1-24		239	
Tebenkof Bay.....			7	13-29	7	11-28	6	8-25	14	0-29		34	
Gedney Harbor.....									1	15		1	
Port Malmesbury.....							1	24	1	26		2	
Bear Harbor.....			1	27			1	23	4	22		6	
Sumner Strait:													
Reid Bay.....									1	15		1	
Red Bay.....							1	13				1	
Point Colpoys.....									1	8		1	
El Capitan Passage.....									1	18		1	
Shipley Bay.....									1	11		1	
Ruins Point.....					1	26			1	7		2	
Hallbut Harbor.....			2	14					1	11		3	
Bocas de Finas:													
Point Stanhope.....					1	20						1	
Thorne Arm.....					1	29						1	
Point Alava.....					1	30			1	18-27		1	
Doubtful.....			1									1	
Total.....	3		108		108		78		205			502	
Percentage.....	12		40.9		55.3		51		53.4			50.4	

¹ One with no date given.

² Three recorded as taken previous to tagging.

RETURNS FROM EXPERIMENTS IN SUMNER STRAIT

Twelve experiments were carried out at Ruins Point—six in 1924 and six in 1925. Fairly good series of each species were tagged, especially in 1925, and the results are of correspondingly increased value and interest. As comparatively few returns were obtained in 1924, it has not seemed worth while to show in detail the data for each experiment of that year; therefore those referring to the reds, cohoes, and pinks have been combined in the tables. There appear to be significant differences in the results obtained from the experiments with chum salmon during July as compared with those for August, 1924, and in the table (Table 14) the data for the two months have been kept separate. The returns for each experiment of 1924 were studied separately, and it is believed that no information of importance is obscured by combining the records.

One striking feature of the returns is the great number of localities from which tagged fish were recorded. This is doubtless due to the intensity of the fishing in this region as well as to the character of the gear used, a great many small purse seines having been operated in the numerous small bays as well as traps in the main channels.

RED SALMON

The data relative to the red salmon tagged at Ruins Point are given in Table 11. The main route of migration clearly is through Sumner Strait and south in Clarence Strait. Six fish were recorded as taken north of Ruins Point in the region of Chatham Strait and Frederick Sound, and 5 were taken along the west coast of Prince of Wales Island. The rest (with the exception of five doubtful records), 169 in all, were taken along this one main migration route, in the adjacent waters, and in British Columbia. Seven were taken in the Stikine River and 5 at the hatchery of the Bureau of Fisheries on Lake McDonald, tributary to Yes Bay. Two were taken in the Nass and 13 in the Skeena River. Other local streams also doubtless contributed to the run of reds in the region of Ruins Point.

TABLE 11.—Returns from red salmon tagged at Ruins Point, Sumner Strait

Locality of recapture	Locality and date of tagging														Total number returned	
	1924: July 12 to Aug. 10		1925													
	Number	Time	July 18		July 20		July 21		July 22		July 24		July 25			
Number	Time	Number	Time	Number	Time	Number	Time	Number	Time	Number	Time	Number	Time			
Chatham Strait and Frederick Sound:																
Gedney Harbor.....														1	19	1
Tebenkof Bay.....							1	10								1
Point Brightman.....					1	7			1	11						2
Sand Point.....	1	(?)														1
Portage Bay.....	1	8														1
Sumner Strait:																
Ruins Point.....					2	6	1	9	2	1-8	1	0-3	3	0-7		9
Shipley Bay.....	18	10-12														18
Shakan Bay.....	2	24														2
Afleck Canal.....	1	23														1
Reid Bay.....			1	12												1
Red Bay.....							3	3-6	2	2						5
Point Colpoys.....	1	6	1	4	1	4			4	2-9			1	5		8

¹ Two recorded as taken previous to tagging.

² One with date of capture not recorded.

TABLE 11.—Returns from red salmon tagged at Ruins Point, Sumner Strait—Continued

Locality of recapture	Locality and date of tagging														Total number re-turned	
	1924: July 12 to Aug. 10		1925													
	Number	Time	July 18		July 20		July 21		July 22		July 24		July 25			
		Number	Time	Number	Time	Number	Time	Number	Time	Number	Time	Number	Time	Number	Time	
Stikine district:																
Stikine Flats.....			1	7	2	3-4	2	4								5
Stikine River.....	2	5-12														2
West coast Prince of Wales Island:																
Tokeen Bay.....							1	7								1
Suter Creek.....			1	4					1	2						2
Staney Creek.....							1	18								1
Halibut Nose.....	1	13														1
Clarence Strait, north of Tolstoi Point:																
Clarence Strait.....	2	9-10														2
Snow Passage.....									1	9			6	6-10		7
Salmon Bay.....			1	4												1
Eagle Creek.....	1	4					1	11			1	8	1	8		4
Whale Passage.....													1	4		3
Quiet Harbor.....									1	8			2	5		3
Steamer Bay and Rock.....							1	17	2	5-8			2	5-13		5
Marsh Island.....									1	21			2	3-6		3
Screen Islands.....									1	8			2	7-9		3
Lincoln Rocks.....	1	13									1	7	1	5		3
Point Stanhope.....	1	7											1	6		2
Narrow Point.....							1	15								1
Lemesurier Point.....											1	13				1
Meyers Island.....									1	10						1
Clarence Strait, south of Tolstoi Point:																
Northwest Cove.....							1	11	1	14						2
Ship Island.....	3	6-7			1	21	3	8-21	6	6-12	2	10-11	1	9		16
Point Niblack.....									1	10			2	6-7		3
Streets Island.....													1	25-27		1
Grindall Point.....							1	24	1	23						2
Island Point.....													1	10		1
North end of Behm Canal.....	1	4														1
West shore of Gravina Island.....	1	8			1	8										2
Dall Head.....	1	11	1	28	1	20			1	11						4
Halibut Creek.....														1	6	1
Moirs Sound.....	2	9-12														2
Mallard Bay.....									1	22						1
Cape Chacon.....							1	26	1	25-29	1	12-27				3
Tamgas Harbor.....									1	16			1	13		2
Ernest Sound:																
Union Bay.....	1	5			2	5-31					1	6	1	17		5
Point Eaton.....													1	12		1
Point Watkins.....													1	12		1
Point Warde.....											1	6	1	2		2
Anan Creek.....											1	6				1
Yes Bay hatchery.....							2	50-51	2	52-58			1	55		5
Revillagigedo Channel:																
Gravina Point.....					1	12			1	9						1
Thorne Arm.....																1
Point Sykes.....	1	9									1	8				2
Kah Shakes Cove.....	1	9														1
Foggy Bay and Point.....											1	10				1
Nakat Bay.....	1	12														1
British Columbia:																
Kincolth Bar.....											1	13				1
Nass River.....							1	18								1
Holland Rock.....													3	2-12		3
Skeena River.....	9	8-16			1	27							3	(³)		13
Doubtful.....	3						1						1			5
Total.....	66		6		13		22		33		13		42			185
Percentage.....	22.4		30		24.5		37.2		37.1		35.1		40			30.1

³ All recorded as taken July 4 and 5 (possibly taken Aug. 4 and 5).

⁴ Shawatlans, British Columbia.

COHOES

The distribution of the cohoes tagged at Ruins Point was very much the same as that of the reds, except that a much larger percentage was taken along the west shore of Prince of Wales Island and in the adjacent islands. Twenty-four (nearly 11 per cent) of the recaptures were reported from this locality. Eight fish were taken in Chatham Strait and one on the west coast of Baranof Island, in Whale Bay. With the exception of these two localities, all of the other returns came from Sumner and Clarence Straits and the adjacent waters, with a few from British Columbia. Table 12 shows the results of this experiment.

TABLE 12.—Returns from coho salmon tagged at Ruins Point, Sumner Strait

Locality of recapture	Locality and date of tagging														Total number returned	
	1924: July 12 to Aug. 3		1925													
	Number	Time	July 18		July 20		July 21		July 22		July 24		July 25			
Whale Bay, Baranof Island	1	37														1
North in Chatham Strait:																
Cape Ormaney							1	30			1	25				1
Baranof Island (no details)													1	0		
Port Alexander					1	23			2	24-26					3	
Tebenkof Bay					2	19-36									2	
Security Bay																
Sumner Strait:																
Ruins Point			3	4-12	4	3-17	9	1-19	11	1-16	7	0-7	11	1-15	45	
Shipley Bay	2	11													2	
Shakan Bay	1	24													1	
Hole-in-the-Wall											1	13			1	
Point Baker													1	26	1	
Point Beauclerc									1	29					1	
Reid Bay							1	7			2	6-13			3	
Three Mile Arm	1	30													1	
Point Barrie	1	6							1	13					2	
Totem Bay													1	8	1	
Red Bay											1	10			1	
Point Colpoys	1	11	2	5-26	3	16-24	4	3-15	1	8	1	13	4	1-19	16	
Mountain Point			1	68											1	
Stikine District:																
Stikine Flats					1	45			1	42	2	11-42			4	
Stikine River													1	31	1	
West coast of Prince of Wales Island:																
Cape Pole							3	6-32	1	24	3	7-35			7	
Warren Island									1	25					1	
Warren Channel							3	0-18	1	13	1	11			5	
Edna Bay							1	7	1	17	1	4			3	
Tokeen Bay													1	60	1	
El Capitan Passage									1	21					1	
Bocas de Finas									2	9-31	1	8	2	2-11	5	
Nichols Bay									1	8					1	
Clarence Strait, north of Tolstol Point:																
Snow Passage			2	13			1	12	2	9-10	1	14	4	6-10	10	
Eagle Creek	1	10							3	10-20	2	7-11	1	7	7	
Whale Passage									1	31			1	6	2	
Stevenson Island	1	19													1	
Point Barnes									1	13					1	
Quiet Harbor							1	9							1	
Steamer Bay and Rock									1	9	1	14	2	9-28	4	
Marsh Island													1	8	1	
Screen Islands					1	10			2	8-15	2	8-13			5	
Lincoln Rocks									2	9-27					4	
Narrow Point	2	20					1	32	1	25			1	12	3	
Lemesurier Point	1	12													1	
Meyers Island							1	28							1	

1 One recorded as taken previous to tagging.

TABLE 12.—Returns from coho salmon tagged at Ruins Point, Sumner Strait—Continued

Locality of recapture	Locality and date of tagging														Total number returned	
	1924: July 12 to Aug. 3		1925													
	Number	Time	July 18		July 20		July 21		July 22		July 24		July 25			
		Number	Time	Number	Time	Number	Time	Number	Time	Number	Time	Number	Time	Number	Time	
Clarence Strait, south of Tolstoi Point:																
Northwest Cove.....														1	14	1
Ship Island.....	2	10-18	1	19					2	13-15	2	12-13				7
Point Niblack.....			1	13					1	22	1	20		1	13	4
Grindall Point.....	1	8			1	24			1	16	1	20		1	18	5
Island Point.....	4	11-26							1	27						5
Skowl Point.....							1	27								1
Vallenar Bay (north end of Gravina Island).....									1	20	1	16				2
Dall Head.....									2	22-24				1	21	3
Metlakatla.....														1	16	1
Driest Point.....									1	15						1
Halibut Creek.....	1	34														
Chichagof Bay.....							1	21								1
Stone Rock Bay.....					1	17										1
Cape Chacon.....											1	26		1	22-26	2
Ernest Sound:																
Onslow Island.....									2	13-14						2
Union Bay.....	2	17-18														2
South end of Etolin Island.....	1	(?)														1
Vixen Inlet.....							1	24								1
Point Eaton.....									1	18						1
Behm Canal:																
Bond Bay.....					1	0	1	13								2
Clover Passage.....							1	37								1
Grant Island.....			1	31												1
Yes Bay hatchery.....									1	85						1
Revillagigedo Channel:																
Duke Island.....	1	71														1
De Long Island.....					1	28										1
Foggy Point and Bay.....							1	17						1	23	2
Cape Fox.....	1	13														1
Nakat Bay.....									1	22						1
British Columbia:																
Wales Island.....									1	56						1
Arrandale.....									1	33						1
Wark Channel.....														1	24	1
Skeena River.....							1	45	1	89	1	65				3
Grenville Channel.....	1	42														1
Leading Point (?).....			1	52												1
Haystack (?).....					1	30										1
Copper River (Skeena).....									1	123						1
Doubtful.....									1					2		4
Total.....	26		12		17		34		57		34		42		222	
Percentage.....	10.4		20.1		14.5		18.8		20.6		21.4		21		18.1	

¹ August.

PINK SALMON

The importance of local spawning runs of pink salmon is well illustrated by the results of the tagging at Ruins Point, as shown in Table 13. Out of a total of 555 returns, 352 fish (63.4 per cent) were taken in Sumner Strait and adjacent waters. A great many of these, as shown in the table, were taken in the immediate vicinity of Ruins Point within a few days of the tagging. It was reported that the fish were taken chiefly in purse seines operating just below Ruins Point in Sumner Strait, and it seems probable that some, at least, were bound for the small streams along the western shore of Prince of Wales Island and the shores of the smaller islands of the Prince of Wales Archipelago. Thirty-four tagged pink salmon were actually reported from this region, and it seems probable that the number would

have been larger had it not been for the intensive fishery in Sumner Strait near the point of tagging. This region is therefore an important source of the pink salmon found in Sumner Strait.

A few of the pinks went north and were taken in Chatham Strait, at Whale Bay on the western coast of Baranof Island, in Frederick Sound, and as far north as Seymour Canal in Stephens Passage. This northerly migration is of little practical importance, however, as only 10 tagged fish were reported from these regions.

The remaining fish were taken in the waters of Clarence Strait, Ernest Sound, and Revillagigedo Channel. None was taken in British Columbia. The local nature of the pink-salmon runs is further evidenced by the fact that a large percentage of the fish taken in Clarence Strait came from the northern part above Tolstoi Point and from Ernest Sound, just 100 fish being reported from these localities. Only 40 came from the southern part of Clarence Strait and 15 from Revillagigedo Channel. In the case of the reds and cohoes, the fish were distributed about equally between the northern and the southern parts of Clarence Strait.

TABLE 13.—Returns from pink salmon tagged at Ruins Point

Locality of recapture	Locality and date of tagging														Total number returned	
	1924: July 12 to Aug. 3		1925													
	Number	Time	July 18		July 20		July 21		July 22		July 24		July 25			
		Number	Time	Number	Time	Number	Time	Number	Time	Number	Time	Number	Time	Number	Time	
Whale Bay	2	9														2
Chatham Strait, Frederick Sound, and Stephens Bay:																
Tebenkof Bay										1	6					1
Point Brightman					1	4										1
Windham Bay	1	1			1	11	1	10	1	9	1	8				5
Seymour Canal												1	13			1
West coast of Prince of Wales Island:																
Halibut Harbor										1	3					1
Warren Cove							1	18			4	15-19				5
Edna Bay	2	11							1	4						3
Tokeen Bay	1	(?)														1
El Capitan Passage					1	8			1	6			8	3		10
Suter Creek														1	1	1
Staney Creek	1	19														1
Tuxekan Passage							1	10						1	6	2
Bocas de Finas									2	2-18				1	7	3
Noyes Island	1	7														1
Halibut Nose	1	(?)														1
Kassa Inlet							1	0								1
Klakas Inlet											1	55				1
Barrier Islands	1	9														1
Kaigani Point											1	23				1
Cape Muzon													1	3		1
Sumner Strait:																
Ruins Point ¹	1	15	4	4-9	33	1-16	33	2-15	59	0-15	69	2-18	57	0-11	256	
Shipley Bay	6	0-14			1	8			1	8	6	0-6	4	15-17	18	
Shakan Bay	3	18-26													3	
Calder Bay	5	3-14													5	
Hole-in-the-Wall											1	13			1	
Affleck Canal	2	8-9													2	
Kell Bay	1	18													1	
Port Beauclerc					1	27									1	
Reids Bay					2	10					1	13	1	6	4	
Seclusion Harbor											1	18			1	
Three Mile Arm					1	16									1	
Keku Strait	1	17					1	25	1	15			2	12-16	5	
Point Barrie	1	6													1	
Red Bay					2	3-7	6	2-6	2	1-8	2	3-6	3	2-9	15	
Point Colpoys	6	5-11	1	5	3	3-10	6	2-5	15	1-9	3	2-6	4	4-6	38	
Stikine Flats										1	9				1	

¹ Mainly taken by purse seines just south of Ruins Point.

² Two recorded as taken previous to tagging.

³ Three with date of capture not reported.

TABLE 13.—Returns from pink salmon tagged at Ruins Point—Continued

Locality of recapture	Locality and date of tagging														Total number returned	
	1924: July 12 to Aug. 3		1925													
			July 18		July 20		July 21		July 22		July 24		July 25			
	Number	Time	Number	Time	Number	Time	Number	Time	Number	Time	Number	Time	Number	Time		
Chatham Strait, north of Tolstoi Point:																
Eagle Creek											1	7	1	7	2	
Snow Passage											4	7-9	2	6	8	
Quiet Harbor							3	9-10	2	9-10	1	8	1	7	5	
Steamer Bay and Rock				1	4	3	15-17	3	9-15	5	6-10	6	5-7	23		
Marsh Island				1	8			3	6-15	2	4-6	1	5	7		
Screen Islands			2	8			1	5	6	4-29	2	6-8	2	7-10	13	
Lincoln Rock	3	6-17											2	4-8	6	
Point Stanhope					1	9					1	7			2	
Whale Passage											1	7			1	
Lake Bay													1	(?)	1	
Point Barnes											1	13			1	
Narrow Point													1	6	1	
Meysers Island					1	4			1	15					2	
Chatham Strait, south of Tolstoi Point:																
Northwest Cove					1	10							1	6-7	2	
Ship Island	1	8						1	11		2	6-14	1	9	5	
Point Niblack								1	26-31		1	6	1	9	3	
Lyman Point													1	24	1	
Streets Island	1	13													1	
Grindall Point											1	10	2	11-12	3	
Island Point	3	9-10											2	3-8	5	
Grant Island									1	6					1	
Vallenar Bay									1	(?)					1	
West shore of Gravina Island											2	8-12			2	
Boat Harbor											1	9			1	
Driest Point											2	7			2	
Dall Head	1	6			1	15	1	23			4	8-14			7	
Halibut Creek									1	18					1	
Stone Rock Bay											1	20			1	
Cape Chacon									1	25-29	1	23-27			2	
Ernest Sound:																
Onslow Island					1	17					5	8-12	1	9	6	
Union Bay					1	7					2	13-17			1	
Point Eaton	1	5									2	8-17			4	
Point Watkins											2	11			2	
Point Warde	1	23	1	6	1	14			6	5-9	1	8	2	5-12	12	
Anan Creek							1	9	3	8-10	2	8			6	
Revilagiedo Channel:																
Gravina Point											1	9			1	
Thorne Arm	1	8													1	
Point Alava											1	24			1	
Point Sykes											1	11			1	
Slate Island											1	16			1	
Foggy Bay	1	16									2	22			3	
Tree Point					1	11									1	
Cape Fox													1	6	1	
Nakat Bay											1	9			1	
Kanagunut Island					1	10			1	21	1	(¹)			3	
Portland Inlet											1	12			1	
Doubtful	1								1		1				3	
Total	50		8		57		60		120		148		112		555	
Percentage	20		14.8		47.9		38.5		40.5		30.6		51.1		37.8	

¹ Recorded as taken previous to tagging.

CHUMS

The chum salmon are distributed chiefly along the western shore of Prince of Wales Island and in Sumner and Clarence Straits. Seventeen fish (8.4 per cent) were taken in Chatham Strait, Frederick Sound, and Stephens Passage as far north as Seymour Canal. None was taken far from the main line of migration or in British Columbia. While the chums tagged at Ruins Point appeared to be mainly of local origin, this was not as clearly shown as in the case of the pink salmon. The results of this experiment are set forth in Table 14.

TABLE 14.—Returns from chum salmon tagged at Ruins Point

Locality of recapture	Locality and date of tagging																Total number returned
	1924 ¹				1925												
	July 12-27		Aug. 3-17		July 18		July 20		July 21		July 22		July 24		July 25		
	Num-ber	Time	Num-ber	Time	Num-ber	Time	Num-ber	Time	Num-ber	Time	Num-ber	Time	Num-ber	Time	Num-ber	Time	
Chatham Strait, Frederick Sound, and Stephens Passage:																	
Tebenkof Bay							2	12-24									3
Kingsmill Point	1	6	1	8			1	6	1	5	1	11				1	7
Rodman Bay													1	6			1
Security Bay							1	19									1
Woewoodski Harbor									1	2							1
Bay Point							1	12									1
Windham Bay			1	0			2	5-6			1	4					4
Seymour Canal											1	13					1
West coast Prince of Wales Island:																	
Warren Island											1	21					1
Warren Cove							2	19-23									2
Edna Bay			3	11-15			2	8-29									5
Token Bay					2	16-18											2
El Capitan Passage									1	12	1	11					2
Suter Creek							1	4									1
Staney Creek					1	6	3	8-16									4
Tuxekan Passage							1	12									1
Point Desconocida			1	10													1
Bocas de Finas							2	4-10	1	11	1	8	1	14	1	11	6
Point Idefonso			1	9													1
Craig									1	28							1
Point Davidson					1	14											1
Coco Bay					1	59											1
Cape Muzon			1	0 (?)													1
Sumner Strait:																	
Ruins Point			1	14	1	35	15	2-17	3	2-15	5	1-12	1	2	5	1-15	31
Shipley Bay			1	4			3	3-22							1	17	5
Shakan Bay			5	5-12													5
Calder Bay	1	8					4	13-33							1	5	5
Afleck Canal	2	11-16					2	16-22							1	11	5
Kell Bay			1	16													1
Port Beauclerc			1	17	1	21	2	10-18			2	10-17					6
Relds Bay					1	12			2	3-5	1	11					4
Seclusion Harbor							4	15-18			1	10			1	10	6
Three Mile Arm							1	29	2	13-18	1	17			1	8	5
Keku Strait	2	11-28					1	26	2	9-11			2	6-13			7
Port Camden											1	3					1
Totem Bay					1	14	1	10							1	7	3
Red Bay					1		1	26	1	3	1	8					3
Kah Sheets Bay					1		1	19									1
Point Colpoys	1	26	3	4-12			2	2-3	1	3					2	5-11	9
Chatham Strait, north of Tolstoi Point:																	
Eagle Creek			1	10													1
Snow Passage							2	4-13			1	10					3
Quiet Harbor							1	11			1	9					2
Steamer Bay											1	11					1
Screen Islands							2	10-12							1	26	3
Point Stanhope	1	7															1
Stevenson Island	2	11-15															2
Barnes Lake			1	8													1
Onslow Island							1	33									1
Union Bay							1	23									1
Narrow Point															1	11	1

¹ The returns from the experiments of 1924 were too few to warrant detailed tabulation of each experiment. As the distribution during the later experiments seems to differ from that of the earlier ones, we have arbitrarily separated the data secured from the experiments made in July and August.

TABLE 14.—Returns from chum salmon tagged at Ruins Point—Continued

Locality of recapture	Locality and date of tagging																Total number returned
	1924				1925												
	July 12-27		Aug. 3-17		July 18		July 20		July 21		July 22		July 24		July 25		
	Num-ber	Time	Num-ber	Time	Num-ber	Time	Num-ber	Time	Num-ber	Time	Num-ber	Time	Num-ber	Time	Num-ber	Time	
Chatham Strait, south of Tolstoi Point:																	
Northwest Cove.....											1	10					1
Ship Island.....										1	6					1	10
Point Niblack.....							3	14-33	1	26-31							4
Streets Island.....					1	32-34											1
Grindall Point.....							2	14-18			2	11-23				1	11
Kassan Bay.....																1	20
Island Point.....										1	16						1
Betton Island.....									1	23							1
Vallenar Bay.....							1	22									1
Dall Head.....					1	22					1	27					2
Bostwick Inlet.....							1	18								1	18
Hallbut Creek.....	1	34															1
Molra Sound.....									1	20							1
Chichagof Bay.....					1	20	1	18							1	13	3
Cape Chacon.....					1	20-23	1	27-31			1	25-29	1	22	1	22-26	5
Revilagidedo Channel:																	
Mountain Point.....							1	22									1
Bold Island.....							1	24									1
Point Sykes.....															1	11	1
Boca de Quadra.....							1	19									1
Tree Point.....													1	13			1
Cape Northumberland.....							1	26									1
Doubtful.....			1				1				1						3
Total.....	11		23		13		76		19		29		7		24		202
Percentage.....	12.8		15.2		18.8		26.3		22.6		21.3		23.3		32		21.9

RETURNS FROM EXPERIMENTS AT CAPE MUZON AND KAIGANI POINT

Six tagging experiments were conducted here from August 15 to 22, 1925, inclusive. Out of a total of 3,117 fish tagged, 3,049 were pink salmon, 7 were reds, 16 cohoes, and 45 chums. Very few returns were obtained from species other than the pink.

One red salmon, tagged on August 15 at Cape Muzon, was taken at Kasook Inlet, Sukkwan Island, on August 22. One coho, tagged on August 16 at Kaigani Point, was taken at Kassan Inlet, Cordova Bay, on August 22; and another, tagged at Cape Muzon on August 22, was taken September 18 in Coco Bay, Dall Island. Of the chum salmon, one tagged at Kaigani Point on August 17 was taken in Coco Bay on September 15. One of two fish tagged at Cape Muzon on August 22 was retaken at Hydaberg Creek on August 29 and the other in Coco Bay on September 18. The scattering returns from these three species do not indicate any extensive or definite migration.

PINK SALMON

The data relative to the recapture of pink salmon tagged at these localities are given in Table 15.

TABLE 15.—Returns from pink salmon tagged at Cape Muzon and Kaigani Point in 1925

Locality of recapture	Locality and date of tagging												Total number returned	
	Cape Muzon, Aug. 15		Kaigani Point								Cape Muzon, Aug. 22			
	Number	Time	Aug. 16		Aug. 17		Aug. 18		Aug. 21		Number	Time		
West coast Prince of Wales Island:														
Cape Muzon.....	16	2-7	19	1-6	29	0-5	11	0-4	4	10-1	5	0-16	84	
McLeod Bay.....	2	2	1	1	2	0-5			1	1			6	
Kaigani Point.....	24	1-7	7	1-6	19	1-5	3	4	2	0-1	6	0	61	
Cordova Bay (no details).....	1	5					1	(?)			1	(?)	3	
Cordova Bay—														
Eagle Point.....					1	3	1	2					2	
Ship Island.....	2	3											2	
Point Webster.....	9	6-7	19	2-6	13	1-5	5	4	5	1			51	
Lime Point.....	8	3-7	9	5-6	8	1-5			2	0-1			27	
Hessa Inlet.....					1	2							1	
Klakas Inlet.....	2	5-44	2	3	3	2-3	2	2-4					9	
Kassa Inlet.....	9	5-7	12	3-6	16	2-5	2	4	3	1			42	
Nutkwa Inlet.....	19	3-7	39	2-6	33	1-8	11	1-4	7	0-1	1	(3)	110	
American Bay.....	1	3	1	6			1	0					3	
Coco Bay.....	9	31-45	3	4	4	0-3	1	2	2	25-35	2	24-34	21	
Kasook Inlet.....	15	1-7	27	2-6	20	3-5	9	2-4	4	1			75	
Dunbar Inlet.....			1	(?)			1	1			3	28	5	
Breezy Bay.....									1	28			1	
Hydaberg.....	3	1-5	6	0-4	5	0-5	3	0-2	4	(9)	2	(9)	23	
Soda Bay.....	2	4			1	33(?)					1	30	4	
Tlevak Straits.....	1	7											1	
Bucarell Bay.....	3	5-10	1	6									4	
Craig.....	2	1-5	8	104	20	110-3			1	9			31	
Bocas de Finas.....	2	5-7			1	1							3	
Cape Lynch.....	1	6	1	5	2	4							4	
Warmchuck Inlet.....			1	5									1	
Tokeen Bay.....											1	30	1	
Clarence Strait, south of Tolstol Point:														
Cape Chacon.....	18	1-7	16	0-6	5	3-5			3	1			42	
Molra Sound.....	2	2-5											2	
Hallbut Creek.....	1	3	1	2	2	1							4	
Cholmondeley Sound.....									2	27			2	
Dall Head.....	3	2-3											3	
Bronaugh Islands.....	1	0(?)											1	
Kasaan Bay.....	5	4-6	2	2-3					1	28	1	68	9	
Clarence Strait, north of Tolstol Point:														
Lemesurier Point.....	3	4-7	1	6									4	
Narrow Point.....	1	7	1	6									2	
Onslow Island.....					1	5							1	
Luck Point.....	1	7			1	5							2	
Revillagigedo Channel:														
Cape Northumberland.....	1	3											1	
Crab Bay, Annette Island.....	1	4											1	
Sea Cove, Gravina Island.....	2	3-5	1	4	2	3							5	
Blank Inlet.....					1	51							1	
Vallenar Bay.....	5	2-4	2	2-3									7	
Point Alava.....							1	(?)					1	
Wales Passage, British Columbia.....	1	36			1	32							2	
Total.....	176		181		191		52		42		23		665	
Percentage.....	29.6		30.5		32		30.6		7.7		4.2		21.8	

- 1 One taken Sept. 17.
- 2 August.
- 3 Recorded as taken previous to tagging.
- 4 Except one reported as taken Aug. 20.
- 5 One taken Sept. 17.
- 6 One recorded taken Sept. 15.
- 7 Recorded as taken Sept. 19. It seems more likely that it was taken Aug. 19.
- 8 One taken Oct. 13.
- 9 Two recorded as taken before Aug. 15 and 20, and two as taken Oct. 13.
- 10 Two with date of capture not recorded.
- 11 Four with date of capture not recorded.

From this table it is quite evident that most of these fish were bound for local spawning grounds along the western shore of Prince of Wales Island and on the islands west of Prince of Wales Island. Quite a number were taken in the salmon traps near Cape Chacon, and significant numbers were recovered along Clarence Strait between Cape Chacon and Luck Point. One fish was taken in Revillagigedo Channel

and two in Wales Bay, British Columbia. The extremely local distribution of the fish is very apparent.

It is interesting to note that most of the fish taken in other localities than those along the western side of Prince of Wales Island were of the first three experiments. Returns from the later experiments came almost exclusively from the west coast. However, the last two experiments were not nearly as successful as the earlier ones, in so far as the percentage of return is concerned. In the first four experiments a very uniform recovery was reported—approximately 30 per cent. Then, after a lapse of only two days, the recaptures dropped to less than 8 per cent, and on the next day to less than 5 per cent. This was undoubtedly the result of the closing of this area to commercial fishing (except by trolling) on August 22.

RETURNS FROM EXPERIMENTS AT CAPE CHACON

RED SALMON

Thirty-seven red salmon out of 121 tagged were recaptured, and all but four of the returns were from the southern part of Clarence Strait, a comparatively short distance from the point of tagging. Three of the fish were taken along the western coast of Prince of Wales Island between Kassa Inlet and Hydaberg, and one was recaptured in the Babine River, a tributary of the Skeena River in British Columbia. No definite conclusions can be drawn from these few data, although it appears that some of the fish are of local origin and others come from the large rivers in the northern part of British Columbia. The data relative to the returns of red salmon tagged at Cape Chacon are given in Table 16.

TABLE 16.—Returns of red salmon tagged at Cape Chacon and Stone Rock Bay in 1925

Locality of recapture	Locality and date of tagging										Total number returned
	Cape Chacon, Aug. 8		Stone Rock Bay, Aug. 9		Cape Chacon, Aug. 11		Stone Rock Bay, Aug. 12		Cape Chacon, Aug. 13		
	Number	Time	Number	Time	Number	Time	Number	Time	Number	Time	
Clarence Strait, south of Tolstoi Point:											
Cape Chacon.....	6	1-12	4	1 6-11			2	3-8			12
Stone Rock Bay.....	1	10	2	4-7					1	3	4
Mallard Bay.....			1	6			1	1			2
Chichagof Bay.....			4	2							4
Bostwick Inlet.....			1	7							1
Molra Sound.....	1	5	3	3-8					1	4	5
Kassan Bay.....			1	11			1	8			2
Dall Head.....	1	7	1	3	1	5					3
West coast Prince of Wales Island:											
Kassa Inlet.....							1	3			1
Nutkwa Inlet.....			1	8							1
Hydaberg.....			1	54							1
Babine River, British Columbia.....			1	78							1
Total.....	9		20		1		5		2		37
Percentage.....	26.4		29.4		25		55.5		33.3		30.6

¹ One with date of capture not given.

COHOES

Nine cohoes were returned of the 48 tagged at this locality. Seven were taken locally not far from Cape Chacon and 1 each in the Nass and Skeena Rivers. Although too few to be conclusive, the data point to the Nass and Skeena Rivers as the sources of an important part of the run of cohoes in this part of southeastern Alaska. The results of the experiment are given in Table 17.

TABLE 17.—Returns from coho salmon tagged at Cape Chacon and Stone Rock Bay in 1925

Locality of recapture	Locality and date of tagging						Total number returned
	Cape Chacon, Aug. 8		Stone Rock Bay, Aug. 9		Cape Chacon, Aug. 13		
	Number	Time	Number	Time	Number	Time	
Clarence Strait, south of Tolstoi Point:							
Cape Chacon.....			2	7-13	1	5	3
Kalgani Point.....			1	13			1
Stone Rock Bay.....	1	5					1
Duke Island.....	1	33					1
British Columbia:							
Nass River.....	1	1	1	42			2
Skeena River.....			1	36			1
Total.....	3		5		1		9
Percentage.....	17.6		20.8		14.3		18.7

PINK SALMON

Most of the salmon tagged at Cape Chacon were pinks. In five experiments conducted between August 8 and 13, 1925, inclusive, 2,341 fish of this species were tagged. Of these 983 were recovered from a great many minor localities, mainly along the shores of Clarence Strait and the west coast of Prince of Wales Island. The locality of recapture was not recorded for 11 of the returns; 87 fish (8.8 per cent of the total number returned) were taken along the west coast of Prince of Wales Island; 1 was captured on the west shore of Kuiu Island in the southern part of Chatham Strait; 71 (7.2 per cent) were from Clarence Strait above Tolstoi Point; and the remaining 813 (82.7 per cent) were taken in the southern part of Clarence Strait and adjacent waters. The results of the experiment are shown in Table 18.

TABLE 18.—Returns from pink salmon tagged at Cape Chacon and Stone Rock Bay in 1925

Locality of recapture	Locality and date of tagging										Total number returned
	Cape Chacon, Aug. 8		Stone Rock Bay, Aug. 9		Cape Chacon, Aug. 11		Stone Rock Bay, Aug. 12		Cape Chacon, Aug. 13		
	Number	Time	Number	Time	Number	Time	Number	Time	Number	Time	
West coast Prince of Wales Island:											
Cape Muzon.....			1	10	4	5-8	6	4-10	5	3-9	16
Cordova Bay.....			1	6							1
Ship Island.....			9	3-12	2	5-7	3	5-8	6	5	20
Klakas Inlet.....			1	39			3	8-10	2	7 & 35	6
Kassa Inlet.....			2	6	1	11	2	3-10	2	6-9	7
Point Webster.....			1	13					3	8-9	4
Kasook Inlet, Sukkwan.....							3	4			3
Lime Point.....			2	12-13					1	9	3
Nutkwa Inlet.....			1	8	4	6-11	3	10	1	9	9
Hydaberg.....			1	6-11					1	61	2
Bucarelli Bay.....			1	11							1
Craig.....					2	4-9	1	8	1	7	4
Klawak Inlet.....			1	11							1
Bocas de Finas.....					2	7-9			1	7	3
Warmbuck Inlet.....			1	10	3	11			3	3-9	7
Tebenkof Bay.....			1	4							1

⁴ The part of Clarence Strait above Tolstoi Point is included by the current regulations in the Prince of Wales district, and the part below Tolstoi Point is in the southern district of southeastern Alaska.

TABLE 18.—Returns from pink salmon tagged at Cape Chacon and Stone Rock Bay in 1925—Contd.

Locality of recapture	Locality and date of tagging										Total number returned
	Cape Chacon Aug. 8		Stone Rock Bay, Aug. 9		Cape Chacon, Aug. 11		Stone Rock Bay, Aug. 12		Cape Chacon, Aug. 13		
	Number	Time	Number	Time	Number	Time	Number	Time	Number	Time	
Clarence Strait, south of Tolstoi Point:											
Cape Chacon.....	15	1-12	29	1-3-13	91	1-2-11	80	0-12	85	1-7	300
Mallard Bay.....			6	4-7	11	2-7	19	1-6	18	3-5	54
McLeans Point.....									2	1	2
Chicago Bay.....	1	7	17	2-6	3	2	6	1			27
Moirs Sound.....			6	4-11	6	6-7	4	3-6	5	4-5	21
Point Adams.....	1	3	5	1-9	1	3	1				8
Halibut Creek.....			4	3-9	3	3-7	6	5-6	9	4-5	22
Cholmondeley Sound.....			2	8					1	4-2	3
Bronaugh Island.....					2	4-7	2	3	4	2	8
Dall Head, south end of Nichols Pass.....	1	10	12	1-9	16	2-7	13	1-6	8	2-5	50
Driest Point.....			1	5			1	4			2
Seal Cove.....									1	4	1
Bostwick Inlet.....			1	3	3	5	2	4	1	3	7
Metlakatla.....							1	5			1
Crab Bay (Annette Island).....			1	5					1	6	2
Nichols Passage, north end.....			1	3							1
George Inlet.....			2	4-5			2	4-2			4
Ward Cove, Tongass.....					1	46	1	45	2	14&44	4
West shore, Gravina Island.....			1	6	8	4-7	8	1-4			17
Vallenar Bay, north end of Gravina Island, Grant Creek.....			7	3-7	13	1-8	12	1-6	7	3-6	39
Point Higgins.....					1	6	1	5	1	4	3
Kassan Bay, Skowl Point, Island Point.....	2	5-11	23	3-10	31	4-9	14	2-8	16	3-7	86
Grindall Point.....					4	4-7	1	4	1	4	6
Streets Island.....			1	10-12	7	7-10	9	7-9	6	5-8	23
Lyman Point.....			1	9	1	7	1	6	2	5	5
Niblack Point.....	3	8-13	8	3-12	20	5-10	9	4-9	6	0-8	46
Behm Canal:											
Betton Island.....					1	3					1
Behm Canal (no details).....							1	3			1
Bond Bay.....					6	5-8	1	6	1	6	8
Traitors Cove.....			1	9	1	7	1	6	4	5	7
Black Island.....			1	7							1
Ernest Sound:											
Union Bay.....			5	3-13	4	2-13	4	2-10	1	9	14
Vixen Inlet.....			1	5	2	8			1	6	4
Point Watkins.....					3	10	2	9-10			5
Anan Creek.....			1	5							1
Canoe Pass.....							1	8			1
Onslow Island.....							1	10			1
Clarence Strait, north of Tolstoi Point:											
Meyers Island.....			1	9	2	7	3	5-6	1	5	7
Lemesurier Point.....					2	9-11	3	10			5
McHenry Inlet.....							1	7			1
Narrow Point.....			1	4			1	10	1	9	3
Luck Point.....			2	12	1	10	3	9-10	4	8	10
Point Barnes.....			1	10	3	8					4
Lincoln Rocks.....					1	10			1	9	2
Screen Islands.....							1	8			1
Whale Pass.....					2	8			1	5	3
Steamer Bay.....			2	13			2	9-10	4	7-8	8
Burnet Inlet.....					1	10					1
Revillagigedo Channel:											
Cape Northumberland.....					1	4	4	6	2	5	7
Smeaton Bay.....	1	(?)									1
Sykes Point.....			1	5	2	3-6	2	6	3	1-5	8
Slate Island.....			1	8			1	5	1	4	3
Point Alava.....	1	2	1	9	5	2-7	4	2-6	2	6	13
Tree Point.....					3	3-5	5	0-8	1	5	9
Cape Fox.....			1	5	1	4			1	5	3
Nakat Bay.....			2	5-8			2	3-5			4
Tamaas Harbor.....					1	(?)					1
Kanagunut Island.....					2	6	1	5			3
Unknown.....			2		5		4		1		12
Total.....	25		175		289		262		232		983
Percentage.....	49.1		34.7		45.4		43.1		43.0		42.0

1 Three without records as to date of recapture.
 2 Two without records as to date of recapture.
 3 One taken on Sept. 25.
 4 One recorded as taken previous to tagging.

5 Two recorded as taken previous to tagging.
 6 One record with no date given.
 7 Recorded as taken previous to tagging.

CHUMS

Two hundred and forty chum salmon were tagged, chiefly in the experiments of August 8 and 9, and of these 54 were returned. The distribution was much the same as in the case of the pink salmon, although a somewhat greater percentage of chums went to the west coast of Prince of Wales Island. Of the 54 returns 10 (18.5 per cent) were from this region, and the remaining 44 (81.5 per cent) were taken in the general region including the southern part of Clarence Strait, Revillagigedo Channel, and adjacent water. None was taken north of Tolstoi Point in the Clarence Strait region. The data are given in Table 19.

TABLE 19.—Returns from chum salmon tagged at Cape Chacon and Stone Rock Bay in 1925

Locality of recapture	Locality and date of tagging										Total number returned
	Cape Chacon, Aug. 8		Stone Rock Bay, Aug. 9		Cape Chacon, Aug. 11		Stone Rock Bay, Aug. 12		Cape Chacon, Aug. 13		
	Number	Time	Number	Time	Number	Time	Number	Time	Number	Time	
West coast Prince of Wales Island:											
Cape Muzon.....	1	(?)	1	11							2
McLeod Bay.....			1	8							1
Kaigani Point.....			1	13							1
Klakas Inlet.....									1	9	1
Kassa Inlet.....	1	12									1
Lime Point.....			1	9							1
Nutkwa Inlet.....			2	12-13							2
Boca de Finas.....	1	8									1
Clarence Strait, south of Tolstoi Point:											
Cape Chacon.....	9	1-12	3	6-11							12
Stone Rock Bay.....	2	3	1	7							3
Mallard Bay.....									1	3	1
Kendrick Bay.....			1	6							1
Chichagof Bay.....	2	3	3	2							5
Moirs Sound.....	7	5-9	4	3-9							11
Point Niblack.....	2	8-13									2
Vallena Bay.....			1	6							1
Dall Head.....	2	5-7	1	9							3
Cape Northumberland.....	1	5									1
Revillagigedo Channel:											
Bold Island.....	1	7									1
Thorne Arm.....					1	(?)					1
Sykes Point.....	1	7									1
Tree Point.....							1	5			1
Total.....	30		20		1		1		2		54
Percentage.....	26.3		22.7		6.2		6.7		28.6		22.5

RETURNS FROM EXPERIMENTS NEAR CAPE FOX AND DUKE ISLAND

RED SALMON

Comparatively few red salmon were tagged in the experiments at these points, and the returns were too few to warrant tabulation. In 1924, 2 fish were tagged at Kanagunut Island on August 7; 36 at Tree Point and 5 at Duke Point on August 8; and 3 at Point White on August 9. In 1925, 14 fish were tagged at Foggy Point on July 30, and 31 on July 31.

Twenty recaptures were made, of which 10 were along the mainland shore between Kanagunut Island and the mouth of Boca de Quadra. Three fish were taken in the Skeena River, 2 at Smeaton Bay (Behm Canal), and 1 each from the following localities: Chatham Sound (British Columbia), Nass River, Portland Canal, Hassler Harbor, and Black Island. Practically all of the returns were secured between the 1st and the 15th of August. Although inconclusive, due to inadequate data, the indications are that the Nass and the Skeena Rivers are important sources of the red salmon found in the region about Cape Fox, at least during the latter part of July and the 1st of August.

COHOES

No cohoes were tagged in this region during 1924, but 53 were tagged at Foggy Point on July 30, 1925, and 26 at the same place on July 31 of that year. Six tags from the first lot and 8 from the second were returned. Ten of these were taken along the mainland shore between Sitklan Island and the southern entrance to Behm Canal, and 1 was recaptured at each of the following places: Nutkwa Inlet, Moira Sound, Dall Head, and Wrangell Narrows. These results indicate a somewhat wider distribution of the cohoes than of the reds, but they are too meager to warrant even tentative conclusions.

PINK SALMON

Out of a total of 1,987 salmon tagged in this region, 1,750 were pinks. Six experiments in all were carried out—four in 1924 between August 7 and 9, and two in 1925 on July 30 and 31. The results in the two years were very similar, except that in 1924 no tags were reported from British Columbia, while in 1925 a little over 11 per cent of the total number of returns came from Canadian waters. The data are presented in Table 20.

TABLE 20.—Returns from pink salmon tagged in the Cape Fox region

Locality of recapture	Locality and date of tagging												Total number returned
	1924								1925: Foggy Point				
	Kanagunut Island, Aug. 7		Tree Point, Aug. 8		Duke Point, Aug. 8		Point White, Aug. 9		July 30		July 31		
	Number	Time	Number	Time	Number	Time	Number	Time	Number	Time	Number	Time	
Point Davidson (Klakas).....											1	12	1
Clarence Strait:													
Cape Chacon.....			1	8			2	7			2	12	5
Duke Point.....			2	2-4	43	0-11	5	1-12					50
Sealed Pass.....					1	8							1
Tarngas Harbor.....			1	5			2	6					3
Dall Head.....							1	3	1	10	2	5	4
Bostwick Inlet and Point.....			1	5			1	11					2
Smugglers Cove.....					1	12							1
Metlakatla.....					1	3							1
Halibut Creek.....							1	3					1
West shore of Gravina Island.....			1	3									1
Kasaan Bay.....	1	4											1
Vallenar Bay.....			1	4							1	7	2
Point Niblack.....											2	5-7	1
Streets Island.....					1	8							1
Union Bay.....									1	15	4	13-14	5
Onslow Island.....											3	5-22	3
Behm Canal:													
(No details).....							1	11			1	15	2
Traitors Cove.....					1	13							1
Rudyerd Bay.....									1	7	1	6	2
Smeaton Bay.....					1	6			3	6-9	8	4-17	12
Roe Point.....			3	5-7	2	5-7			2	6	2	5	9
Sykes Point.....			2	8-9	4	2-8	2	3-8	5	2-8	10	1-15	23
Revillagigedo Channel:													
Gravina Point.....									1	5			1
Walden Point.....							1	5					1
George Inlet.....											2	13	2
Carroll Inlet.....	1	8	1	4									2
Hassler Harbor.....					1	9							1
Thorne Arm.....											1	10	1
Lucky Cove.....			1	6	2	6-10	1	9	3	6	3	2-5	10
Point Alava.....											5	10-18	5
Black Island ⁴					2	3-11			1	3	5	2-4	8
Slate Island.....									3	2-4	8	2-17	11
Boca de Quadra.....			1	13	1	13	1	13					3
Marten Arm.....											1	3	1
Kah Shakes.....	1	4-8	6	4-8	6	2-8	8	1-6	5	2-13	7	1-6	33
Kirk Point.....					1	1	1	3					2
De Long Island.....									2	12	2	7-11	4
Foggy Point and Bay.....			21	10-18	8	2-8	1	5	6	1-20	6	141	0-19
Tree Point.....	1	4-8			3	1-8	2	2-7					6
Dixon Entrance:													
Cape Fox.....			3	1-3	3	6-7	1	2					7
Boat Rock.....	1	4-8	1	5									2
Nakat Bay.....			15	4-9	16	5-9	11	4-6	6	3-7	10	2-8	58
Kanagunut Island.....	1	4-8					4	4-5	8	4-12	10	6-12	23
Sitklan Island.....									1	6	2	5	3
Fillmore Inlet.....	1	8	1	11	1	7							3
Portland Canal.....					1	5							1
Tombstone Bay.....									1	10	1	12	2
British Columbia:													
Portland Inlet.....									5	7-20			5
Wales Island.....									2	13	2	7-49	4
Somerville Bay.....											2	7	2
Steamer Passage.....									9	5-7	1	4-5	10
Kutzeymateen Inlet.....									1	11	3	5-10	4
Nasooqa Gulf.....											1	4	1
Nass River.....									9	5-22	1	10	10
Wark Canal.....									2	19			2
Skeena River.....									4	4-20	1	29	5
Kitkatlah Inlet.....									1	40			1
Tucks Inlet (?).....			1	34									1
Doubtful.....					4		1				2		7
Total.....	7		63		104		47		171		248		640
Percentage.....	31.8		31		36.1		24.2		34		45.9		36.6

1 One recorded as taken in August, but no date given.
 2 Two were recorded as taken on July 24.
 3 One recorded as taken before the date of tagging.
 4 This may possibly refer to the Black Island in Behm Canal north of Revillagigedo Island, but it is believed to refer to the Black Island in Revillagigedo Channel near Point Sykes.
 5 Three were recorded as taken previous to tagging.
 6 These include all taken in the general locality of Foggy Bay, including Cape Fox. Most of the fish were taken within three days after tagging. 7 Four recorded as taken previous to tagging. 8 One taken on the spawning grounds, no date given.

As would be expected, the returns were concentrated about the localities where the tagging was done. The pink salmon taken in Alaskan waters were distributed almost exclusively through the southern part of Clarence Strait, Revillagigedo Channel, Behm Canal, and Dixon Entrance, close to the mainland. One individual only was reported from the western shore of Prince of Wales Island, and only eight were recorded from north of Tolstoi Point in Clarence Strait, which marks the southern boundary (in Clarence Strait) of the Prince of Wales district. We may safely conclude, therefore, that the pinks found in the region of Duke Island, Foggy Bay, and Cape Fox late in July and early in August are practically all of local origin, spawning in the streams within a radius of 50 miles or less of Cape Fox on both sides of the international boundary.

CHUMS

In 1924 chums were tagged as follows: Thirty-two on August 8 at Tree Point, 2 on August 8 at Duke Point, and 2 on August 9 at Point White. In 1925, at Foggy Point, 28 were tagged on July 30 and 3 on July 31. Four fish of the first experiment were recaptured, 1 each from the second and third, 5 from the fourth, and 1 from the last. Again, most of the returns were from the shores of Revillagigedo Channel and Dixon Entrance between Kanagunut Island and Revillagigedo Island, 8 of the 12 recovered tags coming from this region. One each was taken at Kincolith Bay, near the mouth of the Nass River, and at Halibut Creek near the entrance to Cholmondeley Sound, and 2 were taken from Behm Canal. As usual, the chums appeared to be mainly of local origin.

VARIATIONS IN RETURNS OF TAGGED FISH

The percentages of tagged fish recaptured later vary greatly with the species and also with the locality where the tagging was done. The data are shown in Table 21.

TABLE 21.—Percentage of tagged fish recaptured

Locality where tagged	Red	Coho	Pink	Chum
Icy Strait.....	23.4	12.3	14.5	14.4
Frederick Sound.....			24.2	
Chatham Strait.....	19.8	15.8	20.7	50.4
Ruins Point.....	30.1	18.1	37.8	21.9
Cape Muzon.....			21.8	
Cape Chacon.....	30.6	18.7	42.0	22.5
Cape Fox.....			36.6	

It is not possible, from the information at present available, to determine the causes for these wide fluctuations, or even to know whether the data represent unusual or normal conditions. For instance, why were there approximately two and one-half times as many chums returned from the experiments at Kingsmill Point, in Chatham Strait, as were returned from any other experiment; and why were so many more chums than salmon of other species returned from these experiments? These are questions that can be answered only when more data are available, but it is quite apparent now that the fishing for some species and in some localities, at least, is so intensive as to require careful attention. It was pointed out in earlier tagging experiments⁶ that these percentages of returns are always a minimum, and that

⁶ See footnote 2, p. 109.

every factor that would modify the returns as we have them would increase the percentage of fish captured and would indicate a greater intensity of fishing than appears from the figures as given. Bearing this in mind, it is quite clear from the figures given above that the drain on some of the salmon runs in southeastern Alaska must far exceed the limits set in certain other localities. In some of the streams of Alaska, notably the Karluk and Chignik Rivers, where weirs are maintained in order that an accurate census of the spawning escapement may be taken, a 50 per cent escapement is required. Of course it is not possible to determine, in as complex a situation as that which exists in southeastern Alaska, just what the percentage of escapement to the various spawning areas is, but when 50 per cent of the released fish are again taken there can be no doubt that the actual drain on the resource is considerably greater than 50 per cent—so much greater as to menace the perpetuation of the supply.

CONCLUSIONS

It should be clearly understood that any general conclusions based on the data at present available are only tentative and must be considered as applying solely to those seasons of the year during which the tagging was done. It may very well be that the distribution at other times is quite different. Additional experiments have been planned and will be carried out in the future, which it is hoped will provide information on this subject. Based on the data presented above, the following tentative conclusions seem warranted:

1. The main route of migration of the salmon entering southeastern Alaska through Icy Strait is south in Chatham Strait and into Frederick Sound. In addition a distinct migration of red salmon of relative importance takes place northward into Lynn Canal, where important spawning areas are located in the Chilkat and Chilkoot Rivers. The experiments conducted farther south indicate that some of the red salmon there come from the rivers of northern British Columbia. There is no evidence to show that the reds of Icy Strait do so, for apparently their spawning grounds are confined to the region north of Frederick Sound.

2. Some of the fish found in Frederick Sound and Chatham Strait adjacent to Frederick Sound (Kingsmill Point) come from the north through Chatham Strait from Icy Strait, but it seems more than probable that many of them also enter through the southern entrance to Chatham Strait. These fish are distributed throughout Frederick Sound and Stephens Passage, and there is no evidence to show that the fish found in Frederick Sound and Stephens Passage enter these regions in any numbers except through Chatham Strait and the western entrance to Frederick Sound. In addition to the distribution through Frederick Sound and Stephens Passage, there is a distinct movement south through Chatham Strait and Keku Strait, especially on the part of the chum salmon. As to the other species, this southerly migration seems to be of much less importance than that to the region of Frederick Sound and Stephens Passage. The Stikine River apparently is an important spawning ground for reds and cohoes:

3. The distribution of the fish tagged near the western entrance to Sumner Strait (Ruins Point) varies with the species, but it is almost entirely to the south, either along the western shore of Prince of Wales Island or in Clarence Strait. The red salmon were taken chiefly along Clarence Strait and in streams running from the

Stikine River south into British Columbia. The cohoes were distributed over this same region and also along the western shore of Prince of Wales Island. The pinks and chums were taken chiefly along the western shore of Prince of Wales Island, in Sumner Strait and Clarence Strait. Very few were taken far from these waters, only one pink being reported from the Stikine River and none of either species from British Columbia.

4. The salmon taken at Dixon Entrance (Cape Muzon and Cape Chacon) were predominantly of local races and were distributed along the western shore of Prince of Wales Island and in Clarence Strait (mainly along the southern half), Revillagigedo Channel, and adjacent waters. Significant numbers of both reds and cohoes came from the Nass and Skeena Rivers in Northern British Columbia, but very few of any of the other species were taken in Canadian waters.

5. The fish tagged in the region of Cape Fox, Foggy Bay, and Duke Island (Dixon Entrance near the mainland) were chiefly distributed locally along the mainland shores, both in Alaska and south into British Columbia. Reds, pinks, and chums were taken in the rivers of northern British Columbia, especially in the Nass and the Skeena.

EXPERIMENTS AT PORT MOLLER, 1925

The purpose of the experiment conducted at Port Moller was to test again the theory that salmon taken off the mouths of the Bear and Sandy Rivers are of local origin and are not bound for Bristol Bay, as are many of the fish taken in the Ikatan-Shumagin Islands district. The tagging experiments of 1922 showed clearly that in that year the fish taken in Bering Sea near the Bear and Sandy Rivers were local residents. Out of 639 tagged, not a single specimen was taken in Bristol Bay.⁶ However, some of the cannery men interested in the fishery at this point felt that the experiment of 1922 was not sufficiently conclusive, as it was possible that 1922 was an unusual year. At their request the experiment was repeated during the summer of 1925, and 2,000 tags were attached to salmon taken with purse seines near the beach between the Bear and Sandy Rivers.

The methods followed were practically the same as those in use since 1922. Slight modification was introduced, however, and the salmon, instead of being tagged and liberated directly from the gear in which they were caught, were first placed in a live car and towed a short distance farther offshore. This was done to avoid interference with purse seines fishing close to shore, and also because it was thought that the fish might have a better chance to escape immediate recapture.

The tagging operations were planned by Dr. C. H. Gilbert, who visited Herendeen Bay late in June with the intention of immediately supervising the work. For various reasons this proved to be impossible, and the operations were actually carried out by L. G. Wingard, warden. The following numbers of the 1925 series of salmon tags were attached: 18001 to 18857 on July 1, 18858 to 19162 on July 4, and 19163 to 20000 on July 5.

The results completely confirmed those of 1922. Out of the 2,000 fish tagged, 949, or 47.5 per cent, were recaptured and the tags returned to us. Of these only 1

⁶ Experiments in Tagging Adult Red Salmon, Alaska Peninsula Fisheries Reservation, Summer of 1922, by Charles H. Gilbert. Bulletin, U. S. Bureau of Fisheries, Vol. XXXIX, 1923-24 (1924), Document No. 943, pp. 39-50. Washington.

fish was taken in Bristol Bay. The others were all taken within a few days in the region where they were tagged. The following table presents the data pertaining to the fish recaptured in the Bear and Sandy Rivers regions:

TABLE 22.—Returns from 2,000 red salmon tagged July 1, 4, and 5, 1925, near the mouths of the Bear and Sandy Rivers, Bering Sea, and recaptured near the point of liberation

Date of recapture	Date of tagging			Date of recapture	Date of tagging		
	July 1, 857 tagged	July 4, 305 tagged	July 5, 838 tagged		July 1, 857 tagged	July 4, 305 tagged	July 5, 838 tagged
July 2.....	7			July 15.....	4	3	7
July 3.....	45			July 16.....	1	1	7
July 4.....	43	1		July 17 ¹	12	4	13
July 5.....	37			July 18.....			1
July 6.....	38	37	55	July 23.....	1	1	
July 7.....	71	54	186	No date ²	89	29	76
July 8.....	2	2	7	Total.....	367	155	427
July 9.....	10	12	40	Percentage returned.....	42.8	50.8	51
July 10.....			1				
July 14.....	7	11	34				

¹ All but two were recorded as taken either July 16 or 17.

² All but four of these were received from one company, which had not submitted complete records at the time this paper was prepared.

The one fish taken in Bristol Bay was No. 19337, tagged on July 5 and recaptured at Naknek on July 13.

There is very little of interest in the results of this experiment other than the support it lends to the theory of the local origin of the fish taken in this region. The fact that a single individual was taken in Bristol Bay is entirely without practical significance. It may indicate that an occasional Bristol Bay fish is to be found among the schools of Bear and Sandy River fish, or it may mean that an occasional Bear or Sandy River fish strays into Bristol Bay. We know that the homing instinct in salmon is not absolutely unerring, although we are equally certain that an overwhelming percentage does return to the parent streams. It would not be surprising, therefore, if a few Bear or Sandy River fish did reach Bristol Bay, and the finding of one or even of several such cases would in no way affect the general conclusions. These may be summed up in the statement that in 1925, as in 1922, the fish found in Bering Sea in the vicinity of the Bear and Sandy Rivers were predominantly fish of local origin and were not natives of the important salmon streams of Bristol Bay.