Tagging of Herring in British Columbia during the 1980-81 Herring Season

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PREFACE

The herring tagging program began as a joint Federal-Provincial research project that was largely funded by the Marine Resources Branch, Ministry of Environment, Government of British Columbia until March 31, 1981 and directed from the Pacific Biological Station, Resource Services Branch, Department of Fisheries and Oceans, Canada. The Province continued to support the project beyond March 31, 1981 to July 15, 1981 by providing technical personnel but no other funding. With the withdrawal of Provincial support, the Pacific Biological Station has assumed increasing and finally full support for the project.

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Haegele, C. W., C. E. Turner, L. Hopwo, and D. C. Miller. 1982. Tagging of herring in British Columbia during the 1980-81 herring season. Can. Ind. Rep. Fish. Aquat. Sci. 132: xi + 95 p.

Herring are being tagged in British Columbia with an external anchor tag to determine the discreteness and migratory movements of herring stocks. This report summarizes tagging during the 1980-81 herring season and tag recoveries since the beginning of the project in the fall of 1979.

During the 1980-81 season 111,000 tagged herring were released. In the fall of 1980, 3,000 herring were tagged on the north coast, 4,000 in Johnstone Strait, 9,000 in the lower Strait of Georgia, and 14,000 offshore the west coast of Vancouver Island. During the roe fishing season and spawning period of 1981, 14,000 herring were tagged in the Queen Charlotte Islands, 13,000 on the north coast, 18,000 in the central coast, 6,000 in Johnstone Strait, 20,000 in the Strait of Georgia, and 9,000 on the west coast of Vancouver Island.

There have been 236 tag returns to June 30, 1981; 56 during the 1979-80 season and 180 in the 1980-81 season. Tag returns have been below expectations and there are several potential causes of which tag shedding, increased vulnerability to predation of tagged fish, and smaller and more polarized roe fisheries appear to be the major ones. Investigations will be undertaken to determine the precise cause of low tag returns and, as tagging continues, remedial steps will be implemented to improve tag returns.

Conclusions drawn from returns to date are as follows: herring return to spawn to the area of tagging or immediately adjacent areas; Queen Charlotte Islands and north coast spawners contribute to the Browning Entrance food fishery; fish found in Deepwater Bay and contiguous waters in the late fall and early winter spawn mostly in Johnstone Strait while some migrate to the mainland coast of the Strait of Georgia to spawn; there is no evidence that fish that spawn on the Vancouver Island side of the Strait of Georgia migrate through or reside in Johnstone Strait; some of the fish that feed offshore the west coast of Vancouver Island migrate into the lower Strait of Georgia, beginning in November, where they hold in large aggregations for at least 2 mo before dispersing to spawn in the Vancouver Island coastal waters of the Strait of Georgia; in addition to the migratory stocks entering the Strait of Georgia from offshore, there are fish that remain here throughout the year; some of the fish found in the lower Strait of Georgia between November and March spawn late in the lower mainland waters between Point Roberts and Point Whitehorn; fish that spawn on the west coast of Vancouver Island are found on offshore feeding grounds in Canadian waters in the fall

and further south, in American waters, in early summer; and, immediately before and after spawning, herring can travel considerable distances in a short period of time.

Key words: Pacific herring, stock identification, tagging, migration patterns.

RÉSUMÉ

Haegele, C. W., C. E. Turner, L. Hopwo, and D. C. Miller. 1982. Tagging of herring in British Columbia during the 1980-81 herring season. Can. Ind. Rep. Fish. Aquat. Sci. 132: xi + 95 p.

En Colombie-Britannique, on marque les harengs à l'aide d'une étiquette à ancrage afin de déterminer les mouvements migratoires et les caractères distinctifs des stocks de hareng. Le présent rapport résume les activités d'étiquetage au cours de la saison de pêche du hareng de 1980-1981 et les données de récupération des poissons étiquetés depuis le début du project en automne 1979.

Au cours de la saison de 1980-1981, 111 000 harengs étiquetés ont été relâchés. À l'automne de 1980, 3 000 harengs de la côte nord, 4 000 du détroit de Johnstone, 9 000 de la partie inférieure du détroit de Géorgie, et 14 000 de la zone au large de la côte ouest de l'île Vancouver ont été étiquetés. Au cours de la saison de pêche du hareng rogué et de la période de fraie de 1981, 14 000 harengs des Îles Reine-Charlotte, 13 000 de la côte nord, 18 000 de la côte centrale, 6 000 du détroit de Johnstone, 20 000 du détroit de Géorgie, et 9 000 de la côte ouest de l'île Vancouver ont été étiquetés.

Au 30 juin 1981, 236 poissons étiquetés avaient été récupérés: 56 au cours de la saison de 1979-1980 et 180 au cours de la saison de 1980-1981. Le taux de récupération s'est avéré inférieur aux prévisions. Les principales causes possibles sont les suivantes: perte d'étiquette, vulnérabilité accrue des poissons étiquetés à la prédation, et pêche plus polarisée du hareng rogué. On entreprendra un examen afin de déterminer la cause précise du faible taux de récupération et les mesure correctives seront prises pendant que l'étiquetage se poursuit.

Les conclusions suivantes ont été tirées des reprises effectuées jusqu'à maintenant: le hareng retourne frayer à la zone d'étiquetage ou les zones limitrophes; les reproducteurs des Îles Reine-Charlotte et de la côte nord font partie de la pêche de subsistance de l'entrée Browning; les poissons peuplant la baie Deepwater et les eaux contigues à la fin de l'autonme et au début de l'hiver frayent principalement dans le détroit de Johnstone tandis qu'une partie migre vers la côte continentale du détroit de Géorgie pour frayer; aucune indication ne laisse croire que le poisson qui fraie dans le détroit de Géorgie du côte de l'île Vancouver migre par le détroit de Johnstone oy y séjourne; une partie des poissons qui se nourrissent au large de la côte ouest de l'île Vancouver migrent vers la partie inférieure de détroit de Géorgie à partir de novembre, où ils se tiennent en grandes concentrations pendant au moins deux mois avant de se disperser pour frayer dans le détroit de moins deux mois avant de se disperser pour frayer dans le détroit de Géorgie, près des côtes de l'île Vancouver; les stocks qui migrent du large vers le détroit de Géorgie viennent s'ajouter aux poissons qui y

demeurent toute l'année; une partie des poissons peuplant la partie inférieure du détroit de Géorgie entre novembre et mars frayent tard dans les eaux côtières entre la pointe Roberts et la pointe Whitehorn; les poissons qui frayent sur la côte ouest de l'île Vancouver se trouvent dans les aires d'alimentation au large des côtes américaines, au début de l'été; enfin, le hareng peut couvrir de grandes distances en peu de temps peu avant et après la fraie.

Mots-clés: hareng du Pacifique, identification des stocks, étiquetage, régimes de migration.

INTRODUCTION

In British Columbia the herring roe fishery is polarized in a few geographically separated areas characterized by the historic occurrence of spawnings of considerable magnitude. A food and bait fishery operates on assemblages of migrating or holding fish that may spawn near or far from the fishing areas. Biomass estimates are made hydroacoustically offshore and near the fishing grounds to provide information for the determination of catch quotas and the timing of fisheries. It is considered important by managers and biologists involved with stock assessment, catch forecasts, and the regulation of the fisheries to know the discreteness and migratory movements of herring stocks.

Herring populations were defined for the coast of British Columbia for the reduction fishery from tagging studies spanning 31 yr (1936-67). The general conclusions, summarized by Stevenson (1954) and Taylor (1964 and 1973), was that there existed 13 major migratory populations. The major populations were considered subject to various degrees of emigration and immigration with contiguous and further removed populations. Over the many years that this tagging data was collected, herring were tagged and recovered in all seasons, but were principally tagged at spawning time between February and April and the tags were recovered during the reduction fishery between November and January. By the nature of the reduction fishery, this tagging data cannot provide information on whether herring return to spawn on the same grounds, or the same general vicinity, year after year, yet the present management strategy for the roe fishery assumes this fidelity. The food and bait fishery in the inside waters is also a pulse fishery that harvests the fish from two or more of several aggregations over a short period of time and thus may operate on stocks that would normally also support a roe fishery.

To address the management need for stock definition and a knowledge of fishery interception, a tagging program was initiated in 1979. A report by Haegele (1981) summarizes tagging and tag recovery for the 1979-80 herring season (July 1, 1979 to June 30, 1980). This report deals with tagging during the 1980-81 herring season (July 1, 1980 to June 30, 1981) and with tag recoveries during both seasons.

METHODS

Herring were tagged with an external anchor tag, as described in Haegele (1981). Briefly, the tag was inserted with an applicator gun near the posterior margin of the dorsal fin. The fish were obtained by seine, except for three offshore taggings, when they were obtained by midwater trawl. The fish were dipnetted from the seine and transferred to a shallow plastic tub on the deck of the vessel, from which the fish were individually taken, tagged and placed in a floating holding pond secured to the side of the vessel. The tagged fish were released in synchrony with the remaining fish in the seine.

Sometimes, when the sea surface was too agitated to maintain a floating pond, tagged fish were replaced in the seine. For trawls, the codend was unlaced along part of its length, the floating codend was secured to the side of the vessel and fish were dipnetted from it for tagging. Tagged fish were placed in tanks supplied with running seawater and then released together.

Regional targets were set for the number of fish to be tagged at spawning, based mostly on forecasted stock size by Hourston (1980), and for the entire coast of British Columbia. Similarly, targets were set for tagging aggregations of herring subject to food and bait fisheries in Browning Entrance, Johnstone Strait and the lower Strait of Georgia and for aggregations offshore the west coast of Vancouver Island that were the subject of hydroacoustic biomass estimates.

Provisions for tag returns were made by advertising the tagging program with posters in fish processing plants and fisheries offices, making postage pre-paid tag return envelopes available at these same locations, and by the payment of a $2.00 reward for each tag returned.

RESULTS

TAGGING

A summary of herring tagging during the 1980-81 season is provided in Table 1 by section and locality and in Table 2 by tag numbers. Section and locality codes are from Hourston and Hamer (1979). Map reference (map ref.) numbers refer to tagging locations indicated in Fig. 2-11. Figure 1 provides a key to these maps.

Fall and winter tagging

During September and November, 1980, herring were tagged off the southwest coast of Vancouver Island from chartered seine and midwater trawl vessels, the latter test fishing for echointegration biomass studies. From 16 to 26 September, 13,726 herring were tagged from concentrations found on La Perouse and Swiftsure banks and south of the Nitinat Canyon (map ref. D1-13, D15, D16 in Fig. 5). Biological samples taken from seven of the nine sets on La Perouse Bank showed mainly 3- to 6-yr-old fish with some samples having a preponderance of 3- and 4-yr-olds, while in others 5 yr and older fish predominated. Two samples from Swiftsure Bank showed 65% 3-yr-old fish and the three samples from the Nitinat Canyon area were mainly (59-83%) 3- and 4-yr-olds. The November tagging effort was severely hampered by bad weather. Only one successful tagging set, at the southeast corner of La Perouse Bank (map ref. D14 in Fig. 5), was made between November 10 and 16, from which 623 herring were tagged. The sample from this set showed 52% 2-yr-old and 38% 3-yr-old fish, possibly indicating that the older, maturing herring had migrated inshore toward the spawning grounds. With the bad weather continuing

the tagging effort was shifted to the more sheltered waters of Juan de Fuca and Georgia Straits. No herring were tagged in Juan de Fuca Strait as fish taken in Victoria Harbour were almost entirely 2-yr-olds and too small to accept the tags. In Georgia Strait, three sets were made in Swanson Channel on November 17 and 18 with 1,472 herring tagged and three sets were made in Trincomali Channel near Porlier Pass on November 19, and 1,290 fish were tagged (map ref. C13, 14, 15 and C1, 2, 3, respectively in Fig. 4). Samples from both areas indicated a mixture of 3- to 6-yr-old fish.

Between November 11, 1980 and January 10, 1981 an additional 12,708 herring were tagged: 2,982 in three sets on December 6 in Browning Entrance on the north coast (map ref. A1-3 in Fig. 2); 3,888 in eight sets at Deepwater Bay between November 11 and December 9 (map ref. B1-8 in Fig. 3); and 5,838 in ten sets at various localities in the lower Strait of Georgia between November 26 and January 10 (map ref. C4-12, C16 in Fig. 4). Samples taken in Browning Entrance showed that most of the fish were 4-yr-old and older. Age compositions of the herring taken in Deepwater Bay varied; with three sets composed mainly of 2- and 3-yr-old fish; two sets with 2-, 3-, and 4-yr-olds; two sets with 3-, 4-, and 5-yr-olds, and one set with 14% 2-yr-olds, 61% 3-yr-olds, and the remainder 4-yr-old and older. The catches in the lower Strait of Georgia consisted mainly of 3- and 4-yr-old fish with percentages for the combined ages ranging from 53 to 82; between 3% and 24% of the catches were 2-yr-olds and the remainder were 5 yr or older fish. Detailed age distributions for all samples taken during the fall and winter tagging are shown in Table 3.

Spring tagging

Between March 1 and May 21, 1981, 81,094 herring were tagged throughout the British Columbia coast. Biological samples were taken and processed from all but one of the 138 seine sets and one sample was taken from a spawn-on-kelp pond on the central coast from which herring were tagged. Age distributions for each sample taken are shown in Table 4. These age compositions will approximately indicate the year-classes tagged from each set, although there was some selection for larger (older) fish during tagging. The gonads of all fish sampled were weighed and the gonosomatic index (G.I.) was calculated by dividing gonad weight by total body weight. The G.I. was used to determine the proportion of fish, by sex, which were either maturing or immature/spent. Hay and Outram (1981) found that the range of the G.I. of herring near spawning was 0.13-0.21 for males and 0.14-0.25 for females. A G.I. of 0.10 was used to indicate the lower limit for maturing fish. The average G.I. for herring with a G.I. greater than 0.10 was determined to give an indication of how close to spawning the tagged fish were (Table 4). Using this information and observations at the time of tagging samples were classified as follows:

Code	Description
IY	mostly immature, young (2-yr-old fish)
NY	large proportion of young (2- and 3-yr-old fish) nearly mature
MY	large proportion of young (2- and 3-yr-old fish) fully mature
NM	nearly mature fish that are two or more weeks from spawning
FM	fully mature fish that will spawn within 2 wk
SP	spawning fish
ST	spent fish

Herring in stage IY, NY, NM, and ST may or may not spawn or have spawned at the tagging location; herring in stages MY, FM, and SP will probably spawn or are spawning at or near the tagging location. Dates of observed spawnings (from Fishery Officers' reports) and the dates of the roe fisheries near each tagging location are also shown in Table 4.

Tagging is summarized below for the six coastal divisions.

Queen Charlotte Islands

On the west coast of the Queen Charlotte Islands the tagging effort was impeded by unsettled weather with strong winds. However, between 25 March and 2 April, 74% of the 4,000 tags targeted for the area were placed; 989 herring were tagged from two sets in Tasu Sound, mainly fully mature fish, 4-yr-old and older (map ref. E1, E2 in Fig. 6); 495 were tagged in Shields Bay (map ref. E3 in Fig. 6) of which 63% were mature 2-yr-old fish and 1,486 were tagged from two sets in Inskip Channel (map ref. E4, E5 in Fig. 6), the first consisting of 83% mature 2-yr-olds and the second, 4 days later, taking mainly mature fish 4-yr-old and older . At the southern end of Moresby Island, 1,489 herring were tagged in two sets, one in Louscoone Inlet, the other in Flamingo Inlet (map ref. E6, E7 in Fig. 6), each consisting mostly of 4-yr-old herring that were spawning or spent.

Although the tagging target of 8,000 herring set for the east coast of the Queen Charlotte Islands was exceeded by 24% with 9,885 being tagged,

only in Skidegate Inlet was the sectional tagging target met. In Cumshewa and Skincuttle inlets only 75% of targets were reached. An additional 3,440 herring were tagged in the Laskeek Bay area, an untargeted section, where herring were present in unexpected numbers. Few herring schools were found in Cumshewa Inlet, where 1,480 herring, predominantly fully mature 4-yr-old fish, were tagged from two sets in the first week of April (map ref. E12, E13 in Fig. 6). Five sets in Skincuttle Inlet between 24 March and 3 April resulted in 2,967 herring tagged, mainly spawning or close to spawning 4-yr-olds (map ref. E20-E24 in Fig. 6). Tagging in the Laskeek Bay section took place in Atli Inlet where 990 fish were tagged from two sets (26 March and 11 April) and in Selwyn Inlet, with 1,473 tagged from three sets made early in April (map ref. E14, E15, E17, E18, E19 in Fig. 6). An additional 977 herring were tagged on 28 March in a spawn-on-kelp pond in Takelley Cove at the head of Atli Inlet (map ref. E16 in Fig. 6). The majority (80-95%) of herring taken in Laskeek Bay were fully mature or nearly mature 4-yr-old fish. Few herring were found in Skidegate Inlet during late March and early April and these were mainly young immatures considered too small to tag. In May, when pre-spawning herring were reported in the Inlet, a seine vessel was chartered for three days and 1,998 fish were tagged from four sets (map ref. E8-E11, Fig. 6). Two of the catches consisted mainly of 3-yr and older, fully mature fish, the other two sets had more (17% and 26%) mature 2-yr-old fish. All four catches contained a good showing (28-42%) of 6-yr-old and older herring.

North coast

Tagging on the north coast was carried out between 24 March and 9 April, 1981. During this period 12,904 herring were tagged from 18 seine sets, exceeding the tagging target of 9,000 for this division. In late March, in the Chatham Sound area, 1,981 herring, preponderantly spawning or spent 3- and 4-yr-olds, were tagged from four sets in Stumaun Bay and 991 from one set in Pearl Harbour (map ref. F1-F5 in Fig. 7). Fully mature 4-yr-old fish predominated in catches in the north Porcher Island/Kitkatla Inlet areas in late March and early April when 3,466 herring were tagged from four sets in the vicinity of Malacca Passage (map ref. F6-F9 in Fig. 7) and 5,472 from eight sets in Kitkatla Inlet (map ref. F11-F18 in Fig. 7). A single set in Hevenor Inlet on 3 April produced 91% fully mature 4-yr-old herring of which 994 were tagged (map ref. F10 in Fig. 7).

Central coast

On the central coast, 18,298 herring were tagged between 18 March and 9 April, 1981, exceeding the tagging target of 14,000 for the division. Targets were met or exceeded for all sections except Rivers Inlet where few herring were present in late March when the tagging vessel was in the area. In Sandell Bay, at the head of Rivers Inlet, (map ref. G32 in Fig. 8) 496 herring were tagged from one set, no sample was taken but the herring were reported to be "small - either immature or spent". At the mouth of Rivers Inlet in Goose Bay (map ref. G31 in Fig. 8), 494 fully mature 3- and 4-yr-old fish were tagged from one set. As in Rivers Inlet, few herring were present in late March in the adjacent Takush Harbour section, and, as no fishable schools were found, 993 herring were tagged in a spawn-on-kelp pond.

In Kitasu Bay 4,455 herring were tagged from nine sets made between 22 March and 9 April, 1981 (map ref. G2-G10 in Fig. 8). With the exception of those in Meyers Passage, the fish were mainly (64-81%) 4-yr-olds and fully mature, spawning or spent. Although there is no record of spawning in the section after 31 March a sample from one set in Meyers Passage (map ref. G8 in Fig. 8) on 2 April showed a mixture of fish composed mainly of maturing young with 36% immature young and samples taken from two sets in Higgins Passage (map ref. G9, G10 in Fig. 8) on 9 April were composed almost entirely of fully mature 3-yr-old and older fish. In the Powell Anchorage-Thompson Bay sections in Milbanke Sound 4,939 herring were tagged from nine sets made between 20 and 24 March (map ref. G13-21 in Fig. 8). Samples taken from these sets consisted of fully mature, spawning or spent fish, mainly 3- and 4-yr-olds, with some older fish and a few immatures. Herring were scarce in Queens Sound in late March and early April when the tagging vessel was in the area and tagging in the McNaughton Group was limited to 500 spawning herring in a spawn-on-kelp pond in Cultus Sound (map ref. G22 in Fig. 8) and, in Kilditd Sound, to 2,484 fully mature fish mainly 4-yr and older from three sets (map ref. G23, 24, 25 in Fig. 8). In Kwakshua Channel and Fish Egg Inlet 2,448 herring were tagged from five sets (map ref. G26-30 in Fig. 8). Two of the sets in Kwakshua and the one set in Fish Egg Inlet consisted mainly of 3- and 4-yr-old fully mature fish, the other two Kwakshua sets included 60% spawning 3- and 4-yr-olds intermixed with 25% 2-yr-olds. Herring were also tagged at two untargeted localities on the central coast, Sue Channel in Kitimat Arm and Klemtu Passage. In Sue Channel (map ref. G1 in Fig. 7) 498 herring were tagged from one set on 6 April and, although a small sample (20 fish) taken from the catch indicates 90% were nearly mature 3-, 4-, and 5-yr-olds, there is no record of spawning in this section. These herring may have spawned in the adjacent Promise Island section on June 6. In Klemtu Passage 991 herring were tagged and released from two sets, one on 2 April, the other on 3 April (map ref. G11, 12 in Fig. 8). Samples taken from these catches contained mainly 3-yr-old and older maturing fish which, although there is no record of spawning in this section, could have spawned several weeks later in this or an adjacent section.

Johnstone Strait

Due to the historical absence of a roe fishery in Johnstone Strait only a limited effort was scheduled there with a tagging target of 7,000 herring. Even this modest target was not met as, after tagging 4,923 fish in nine sets made between 13 March and 17 March, it became necessary to dispatch the tagging vessel to the central coast following the opening of the fishery there. During the 5 days available, 992 nearly mature herring, mainly 3- and 4-yr-olds with some 2-yr-olds were tagged from two sets made in the Cracroft Island section (map ref. H1, 2 in Fig. 9) and 497 nearly mature 2- and 3-yr-olds were tagged from one set at the southwest corner of Gilford Island (map ref. H4 in Fig. 9). In Wakeman Sound 1,476 herring were tagged from two sets; the sample from the mouth of the Sound (map ref. H5 in Fig. 9) indicated over 90% were spawning 2- and 3-yr-old fish, while the sample from the head of the Sound (map ref. H5 in Fig. 9) showed 72% 2- and 3-yr-olds with 24% 4-yr-olds, all fully mature. In the adjacent Watson Island section, 490 herring were tagged from one set (map ref. H3 in Fig. 9), a sample from this set contained maturing young, mainly (69%) 3-yr-old fish with 17% 2-yr-olds and 14% 4-yr-olds. At Quadra Island, in southern Johnstone

Strait, 1,468 herring were tagged from three sets in the Kanish Bay section. The sample from Deepwater Bay, where 489 herring were tagged from one set (map ref. H7 in Fig. 9), yielded mostly nearly mature fish, 4-yr-old and older and 12% 2-yr-olds. In Kanish Bay/Granite Bay 979 herring, predominantly nearly mature young fish 2- and 3-yrs old were tagged from two sets (map ref. H8 and 9 in Fig. 9).

Strait of Georgia

In the Strait of Georgia 21,232 herring were tagged between 1 March and 15 March, exceeding the target of 20,000 for this division. Sectional tagging targets were met or exceeded in Baynes Sound, Qualicum, Nanoose Bay, and Ganges Harbour/Plumper Sound but were not reached in the French Creek, Lund/Powell River and Yellow Point sections mainly because the tagging vessels could find few herring. Herring were also tagged in the untargeted sections of Heriot Bay and Porlier Pass.

In Baynes Sound 3,927 herring were tagged from seven sets (map ref. J4-10 in Fig. 10) during a 4-day period immediately following the roe fishery which took place in the area between 4 and 7 March. Samples from these sets showed predominantly (75-95%) 3-yr-old and older herring which were either spawning or spent. Tagging in the Qualicum section resulted in the release of 2,468 herring from five sets (map ref. J11-15 in Fig. 10), these fish were also mainly (84-96%) spawning or spent 3-yr-olds and older. As mentioned above, few herring schools could be found in the French Creek and Lund sections between 6 and 12 March when the tagging vessels were in the areas and only three successful tagging sets were made in each section, 1,969 herring being released at French Creek (map ref. J16-18 in Fig. 10) and 1,987 released between Lund and Westview (map ref. J19-21 in Fig. 10). Herring in both sections were mostly spent 3-yr-old and older fish with some 2-yr-olds (12-31%) present at French Creek. In Nanoose Bay, where tagging operations coincided with spawning in the area, 3,492 herring were tagged from five sets (map ref. J25-29 in Fig. 10). Samples indicated a mixture of 3-yr-old and older spent fish with varying proportions (13-58%) of 2-yr-olds. In the Yellow Point section few herring were found during the first 2 wk of March, only three successful seine sets being made from which a total of 1,457 herring were tagged (map ref. J30-32 in Fig. 10). Samples showed these fish were composed mainly of 3-yr-old or older fully mature individuals with some (8-17%) 2-yr-olds. In Ganges/Plumper Sound herring were more numerous than in the northern section of the lower Strait of Georgia, permitting the tagging of 2,971 herring from six sets (map ref. J33-38 in Fig. 10). Samples from five of these sets indicated a large proportion (62-89%) of fully mature 2- and 3-yr-old fish while the sample from one set, in Captain Passage, showed mainly nearly mature fish at 3-yr-old or older. Three sets in each of two untargeted areas, Heriot Bay (map ref. J1-3 in Fig. 9) and Porlier Pass (map ref. J22-24 in Fig. 10) resulted in the tagging of 1,473 and 1,488 herring, respectively. The Heriot Bay samples showed a preponderance of 3- and 4-yr-old or older fish either fully mature or spawning, with a few (6% or less) 2-yr-olds. In the Porlier Pass area, samples from two sets indicated spawning herring 3- and 4-yr-old or older with a few (4-6%) 2-yr-old fish, while the other set, off Parker Island, included 89% of 2- and 3-yr-old fully mature young fish.

West Coast Vancouver Island

Tagging in this division fell far short of the target of 23,000 due to operational problems. Sectional targets were reached only in Sydney Inlet with 1,981 herring tagged and in West Nootka with 1,992 tagged. In Barkley Sound 2,964 herring were tagged, 40% short of the target and in the Meares Island section of South Clayoquot 50% of the target was achieved with 2,456 tagged. No tagging was done in Hesquiat Harbour, Nuchatlitz-Esperanza Inlets, Kyuquot or Quatsino sounds as no tagging vessels were available until after the herring had left these areas.

In Barkley Sound, tagging was confined to locations in Imperial Eagle Channel, Coaster Channel and Mayne Bay because of restrictions imposed by Fishery Officers. Hence, no herring were tagged on the west side of the Sound. Off Folger Island, at the entrance to Imperial Eagle Channel, 491 herring were tagged from a set on 2 March (map ref. K1 in Fig. 11). A sample indicated that these were 93% 3-yr-old and older nearly mature herring. The tagging vessel then had to be diverted to other areas. Tagging resumed in Barkley Sound on 12 March and continued until 17 March. During this period a total of 2,473 herring were tagged from five sets, two in Coaster Channel, one at Swale Rock and two in Mayne Bay (map ref. K2-6 in Fig. 11). In Coaster Channel and at Swale Rock, samples showed the herring were composed mainly (75-93%) of mature 2- and 3-yr-old fish. In Mayne Bay the composition was 90% or over 3-yr and older fish. In Sydney Inlet 1,981 herring were tagged from four sets made on 10 and 11 March (map ref. K7-10 in Fig. 11). Samples from these four sets consisted of fully mature or spawning fish, 90% being 3-yr-old or older (ages from one set, at Starling Point, were not available but were assumed to be similar to those in the other sets in the vicinity). Six sets were made in the Meares Island section of Clayoquot Sound between 5 and 10 March from which 2,456 herring were tagged (map ref. K11-16 in Fig. 11). These fish were predominantly (88-100%) fully mature 3-yr-olds and older. In West Nootka, 1,992 herring were tagged from three sets made on 15 and 16 March (map ref. K17-19 in Fig. 11). These were fully mature fish, 95% or more 3-yr-old and older.

TAG RECOVERY

There have been 236 tag recoveries to 30 June, 1981; 56 during the 1979-80 season and 180 in the 1980-81 season. Tag returns have been below expectations. For example, for the 1981 roe fishery, 1,721 returns were predicted from 1980 spring taggings on the basis of stock forecasts, anticipated exploitation rates, and the location of fisheries (Haegele 1981). Based on actual fisheries and stock assessment subsequent to the fishery (Hourston 1981), 699 returns could have been expected. In fact, there were only 13 returns (Table 5). Short-term returns have been higher and there were a total of 131 returns for the 1981 roe fishery. Tag returns are summarized by tagging period and fishery in Table 6 and by type of gear and fishery in Table 7. Below, tag returns are detailed for regions of the coast. (Hailed catches are from Chalmers 1982 and landed catches are from Hourston 1981.)

Queen Charlotte Islands

There has been one tagging (spring 1980) and two fisheries (1980 food and 1981 roe) during which recovery was possible in the Queen Charlotte Islands (Table 8 and 9).

The 1980 food fishery occurred between 17 and 24 November 1980 on the north coast of the Queen Charlottes and 536 t were hailed. There were no recoveries from this fishery and none were expected because there had been no taggings on the north coast of the Queen Charlottes.

The 1981 roe fishery on the west coast of the Queen Charlottes was confined to Inskip Channel and Rennell Sound. In Inskip Channel, 420 t were hailed and no tags were recovered, which was to be expected since there have been no taggings here. In Rennell Sound, 580 t were hailed and there were no returns although there had been one tagging of 969 fish in Seal Inlet in the spring of 1980. Since there has been just the one tagging on the west coast of the Charlottes and the estimated exploitation rate was only 14%, the lack of returns is not unexpected, especially since fish from that one tagging contributed to the 1980 Browning Entrance food fishery. There were three tags recovered during that fishery and one was from the Seal Inlet tagging.

On the east coast of the Queen Charlotte Islands, there were also two roe fisheries--in Skincuttle and Atli inlets. In Skincuttle Inlet, 5,411 t were hailed (5,011 t landed) between 17 and 20 March, 1981 for an estimated exploitation rate of 32%. Despite this substantial fishery, there were only two tag recoveries, for one of which the recovery information on the place of capture was uncertain. Both these tags were from the same tagging set made on 25 March, 1980 in Burnaby Strait (984 tags). There were no recoveries from the other two tagging sets made in Skincuttle Inlet in the spring of 1980 (1969 tags). In Atli Inlet, a 934 t roe catch was hailed (1,161 t landed). Although there had been no previous tagging here, two recoveries, both with uncertain place of recovery information, were made. There was one further recovery (in early May) from fish used for bait and these fish may have been caught in April for a spawn-on-kelp pond. All three tags were from fish released from the two tagging sets made in Cumshewa Inlet in the spring of 1980. There were two more reported recoveries from the Queen Charlottes, both of which were immediate recaptures.

There were no recoveries from the two spring of 1980 taggings made in Flamingo and Louscoone inlets, in which locations there was also no 1981 roe fishery.

North coast

There have been both spring and fall taggings in the north coast and two major fisheries. Tag recoveries by tagging period and by fishery are shown in Tables 10 and 11.

In the 1,991-t (hailed) food fishery of 18 November to 1 December, 1980 in Browning Entrance, three tags were recovered. Two of the tags originated from one of the two spring 1980 taggings at Mason Point on the north coast of Porcher Island. The other tag was from a spring tagging in

Seal Inlet on the west coast of the Queen Charlottes. Of fish tagged subsequent to this fishery in Browning Entrance, four tags were returned, two of which had uncertain recovery information. The other two were recovered during the 1981 roe fishery in Kitkatla Inlet and during spawn-on-kelp fishing on 1 April, 1981 in Atli Inlet on the east coast of the Queen Charlottes. Hence, east and west coast Queen Charlotte Island and North Coast spawners appear to contribute to the Browning Entrance food fishery.

Despite the 20% estimated exploitation rate of the Browning Entrance food fishery and the equally high exploitation rate of the Kitkatla Inlet roe fishery, none of the 1,977 tags released from four sets in Kitkatla Inlet in the spring of 1980 were recovered in either fishery. There were three tags recovered in the 1,610-t (hailed) roe fishery in Kitkatla Inlet in 1981. There was one return from a spring 1980 tagging at Village Island in Port Simpson and one return from the fall 1980 tagging in Browning Entrance. The third tag was a recapture from fish tagged 4 days earlier in Chismore Passage, approximately 60 km to the north.

One tag from the same tagging set was returned on the same day from a miscellaneous seine set near the place of tagging. There were a further six tag recoveries on the north coast of Porcher Island during spawn-on-kelp fishing. All were recaptures within 17-18 days after being released in the same general vicinity. Hence, most of these fish, fully mature at tagging, remained in the area for 3 wk before spawning.

There were several other recoveries that provide some information on the migratory movements of north coast stocks. There were two tags recovered from a tagging set made in Otter Anchorage in late March 1980. One was recovered from a salmon stomach in late June at Bonilla Island, 130 km to the south, and one was recovered, probably also from a salmon stomach, in Work Channel, 40 km to the north, in early July. The only tag return from fish tagged in Kitkatla Inlet in late March was a recovery from a salmon stomach on 1 July at Triple Islands, 80 km north of the place of release. A fish tagged in late March in Stumaun Bay was recovered after 50 days during bait fishing in Port Simpson, a distance of only 5 km from the place of release. These out of fishing season recoveries show no consistent pattern, fish may move north or south after spawning or remain in the area of tagging.

Central Coast

There have been only small fisheries in the central coast since tagging was begun. There was a 325-t (hailed) food fishery on the northern end of Aristazabal Island in early December 1980 from which no tags were recovered. The 1981 roe fishery produced a catch of 2,826 t out of a total estimated stock of 48,785 t, for a 6% exploitation rate. The 1,217-t (hailed) fishery on Weeteeam Bay, the 220-t (hailed) fishery in Kitasu Bay and the 307-t (hailed) fishery at Cape Mark yielded no tag returns. There was one recovery fom the 792-t (hailed) fishery in Powell Anchorage. It was from a fish released nearby the previous March. A fish tagged in Parsons Anchorage on 25 March, 1981 was recovered 16 days later in Higgins Passage by a charter seine vessel.

There were only two other recoveries in the central coast, both originating from the same tagging set near the Houghton Islands on 23 March 1980. One was recovered in a seine set in late May near Goose Island, 20 km to the south and the other was from the stomach of a salmon, which was caught in mid-June near Gosling Rocks, 40 km to the south. Tag recoveries for the central coast by tagging period and by fishery are shown in Tables 12 and 13.

Johnstone Strait

For the purpose of discussing tag returns, those sections of Statistical Area 13 that are normally included in the Strait of Georgia division are included in the Johnstone Strait division. There has been no roe fishery in Johnstone Strait since tagging began and there has been one 100-t food fishery. However, there have been several spawn-on-kelp ponds operating in Johnstone Strait and there have been permits issued for bait and other purposes. There have been fall taggings in 1979 and 1980 and spring taggings in 1980 and 1981 in Johnstone Strait. There have been 13,741 tags released and there have been 77 recoveries from these taggings, all but two of which were in Johnstone Strait, and there were two returns in Johnstone Strait from taggings in Lund (Tables 14 and 15).

The single 1979 fall tagging produced one return in the spring of 1980, near the place of release. The more frequent taggings in the fall of 1980 produced seven returns in the spring of 1981, six of which were in the area of tagging and one return on the mainland coast of Vancouver Island in a bait catch in late April.

There were nine returns from spring 1980 taggings, six of these were returned near the tagging location (Kanish Bay) during spawn-on-kelp fishing in the spring of 1980. A fish from the same tagging set was recovered further south at Cape Mudge in September, 1980. The single tagging in Knight Inlet yielded the other two returns; one tag was recovered in early May in Bones Bay and one in late May at Minstrel Island, both at the mouth of Knight Inlet, during bait fishing. In the same bait catch at Minstrel Island, a tag released in Lund Harbour on the mainland coast of the Strait of Georgia in the spring of 1980 was recovered.

There were 60 recoveries from spring 1981 taggings, 55 of which were recovered during the 1981 roe season spawn-on-kelp or permit fisheries in the general area of release around the shoreline of Quadra Island and within 18 to 28 days of release. There was one recovery in Lund spawn-on-kelp fishing after 26 days at large, the fish having travelled 70 km from Deepwater Bay. There was also one recovery on 1 May in Kanish Bay, 49 days after release in Deepwater Bay. Of fish tagged further up the coast, there was one recovery after 3 days of a fish tagged in Meade Bay, one recovery after 79 days during bait fishing in Parsons Bay of a fish tagged in nearby Bones Bay, and one recovery in bait fishing in Bones Bay of a fish approximately 50 days at large after being tagged in Wakeman Sound.

From these recoveries, which are substantial in comparison to the tagging effort and size of the fisheries in other parts of the coast, it would appear that of the fish found in Deepwater Bay and contiguous waters in the

winter, most remain to spawn on the shoreline of Quadra Island while some migrate to the mainland coast of the Strait of Georgia. Additionally, fish spawning on the mainland coast are found to inhabit the waters of Johnstone Strait in late spring and early summer. Fish found in or near the mainland inlets of Johnstone Strait are also found there later in the year and may, in the interval, migrate to spawn in the more southern portions of Johnstone Strait. The question whether fish migrate into Johnstone Strait and to the mainland coast of the Strait of Georgia through Queen Charlotte Strait from Queen Charlotte Sound will remain unanswered since there has been no tagging or fishery in either of the latter two locations. There has been no evidence, from the 2 yr of tagging, that fish migrating through or residing in Johnstone Strait spawn on the Vancouver Island side of the Strait of Georgia. There is good evidence that there exists a substantial non-migratory population in the waters of Johnstone Strait and adjacent mainland inlets.

The highest return, to date, from any tagging set was obtained in Johnstone Strait, where 40 tags of 496 released (8% recovery) were returned within 18-49 days at large in eight individual catches.

Strait of Georgia - mainland coast

The tagging effort along the mainland coast has been low and only 1,676 tags from two sets were released in the spring of 1980 and 1,987 tags from three sets were released in the spring of 1981. There have been no roe or food fisheries here but some spawn-on-kelp and bait permits were issued. There have been eight recoveries from these taggings, all but two of which were in the area of tagging, and there were two recoveries of fish tagged in Deepwater Bay (Tables 16 and 17).

From the spring 1980 tagging, one tag was recovered at the tagging location from a spawn-on-kelp pond in early April after 28 days at large. A further four tags were recoverd in late April and early May, after 41-58 days at large, from bait catches near the tagging location. One tag was recovered in a Minstrel Island bait catch in central Johnstone Strait after 70 days at large. One further recovery, after 104 days at large, was from the stomach of a cod, caught near the place of tagging.

During the 1981 roe fishing season, one tag was recovered in a spawn-on-kelp pond in Lund. The fish had been released in Deepwater Bay 70 km away, 26 days previous. A fish tagged in Lund at about the same time was recovered 79 days later during late May bait fishing in Quathiaski Cove. Furthermore, during late April bait fishing in St. Vincent Bay, at the entrance to Jervis Inlet, a fish tagged the previous November in Deepwater Bay was recovered.

From these few recoveries, it appears that there is a mixture of migratory and non-migratory fish spawning on the mainland coast of the Strait of Georgia. The migratory fish reside for most of the summer, fall and winter in Johnstone Strait, perhaps going further north during the summer and early fall. In early March these fish travel to the mainland coast of the Strait of Georgia, returning to Johnstone Strait in late April. The non-migratory stocks remain in the area of spawning throughout most of the year.

Strait of Georgia - Vancouver Island coast

There has been a substantial tagging effort along the Vancouver Island coast of the Strait of Georgia during both fall and both spring tagging seasons. There have been food fisheries of 1,534 t (landed) in 1979 and 4,750 t (hailed) in 1980 in the lower Strait of Georgia. There have been roe fisheries, confined to Lambert Channel, of 3,686 t (landed) in 1980 and 7,812 t (landed) in 1981. With stock estimates for the 1980 spawning run at 75,538 t and 131,481 t for 1981, the exploitation rates were 7% and 10%, respectively. At these exploitation rates, combined with the geographically restricted fisheries, the potential for tag returns was low.

A total of 74 tags have been recovered from taggings in the Vancouver Island coast of the Strait of Georgia and all but three of these have been recovered here also. In addition, there were two recoveries from offshore the west coast of Vancouver Island taggings. Tag recoveries by tagging period and by fishery are shown in Tables 18 and 19.

There were 31 tag returns from the fall of 1979 taggings, 22 of which were recovered from the 1979 food fishery in the area of tagging and within 0-23 days of release. There were three returns from permit fishing in December and January, again in the area of release and within 8 and 49 days of release. There were two sport fishery recoveries in April and June of 1980 in the area of release and after 157 and 198 days at large. There was one recovery in 1980 roe fishing at Cherry Point in USA waters in May and 157 days after release. A further three tags were recovered after 482 days at large during the 1981 roe fishery, one of which was definitely identified to have been captured in Lambert Channel. The other two tags came from this fishery with a high degree of certainty since it was the only roe fishery in the Strait of Georgia.

There were four tag recoveries from spring 1980 taggings. One tag was recovered in a Point Whitehorn, USA, roe fishery in May 1980, 70 days after being released at Beaver Point on the south end of Saltspring Island. These fish were not in spawning condition when tagged. There were two recoveries from the gut of salmon. One of these was recovered in Lambert Channel, having been released in nearby Baynes Sound 72 days previous. The other tag was recovered in Porlier Pass, having been released 54 days before in Northwest Bay, 60 km to the north. The fourth recovery was in the 1981 roe fishery in Lambert Channel, the fish having been tagged at spawning at Yellow Point during the previous season. There were no tags recovered from the 1980 roe fishery in Lambert Channel.

The fall of 1980 taggings have produced 37 returns and tags were returned from 14 of the 16 tagging sets. There were 16 returns in the 1980 food fishery, which was in the vicinity of the tagging, with tagged fish having been at large between 5 and 15 days. There was one additional return in the 1980 food fishery of a tag released 61 days previous on Swiftsure Bank. Six recoveries were obtained between December 12, 1980 and January 19, 1981 from miscellaneous fishing by commercial gear in the area of release. These fish were at large between 9 and 59 days. There was one sport fishery recovery on 21 February 1981 in Active Pass. This fish had been released in Trincomali Channel 94 days earlier and 25 km to the north. In the Lambert Channel roe fishery of 1981, eight tags originating from six separate tagging

sets were recovered during gillnet fishing. There were no seine roe fishery recoveries. The fish had been at large between 55 and 108 days. There were five returns with recovery information sufficiently incomplete that a place or time of capture could not be determined.

There were two recoveries from spring of 1981 taggings. One tag was recovered in a research trawl catch in Juan de Fuca Canyon, 16 days after release and 350 km from the place of release near Comox. The other tag was recovered in a miscellaneous seine catch in Porlier Pass, having been released 10 days earlier nearby. The 1981 roe fishery in Lambert Channel produced 11 returns, 8 of which had been released during fall 1980 tagging in the lower Strait of Georgia. One tag had been released 169 days earlier offshore the west coast of Vancouver Island, another was released the previous spring at spawning near Yellow Point and one tag originated from the first tagging made 482 days earlier in the lower Strait of Georgia.

The tag recoveries to date confirm that some of the fish that feed in the summer offshore the west coast of Vancouver Island migrate into the lower Strait of Georgia, beginning in November to become part of the large aggregations of herring found in that area from November to January. These fish remain in these waters for at least 2 mo, after which they disperse to spawn in early March in the Vancouver Island coastal waters of the Strait of Georgia. Since the roe fishery in the last 2 yr has been confined to Lambert Channel, it cannot be determined whether spawning stocks are separated in time or place while holding in the lower Strait of Georgia. However, fish spawning in Lambert Channel resided in the lower Strait of Georgia between 8 November and 9 January, at least, so such a separation appears unlikely. There has been no evidence that herring entering the Strait of Georgia through Johnstone Strait spawn in Lambert Channel.

In addition to the migratory stocks that spawn in the Vancouver Island coastline waters of the Strait of Georgia, there are some fish that remain in the Strait of Georgia throughout the year. Some of the fish found in the lower Strait of Georgia between November and March, spawn late in the lower mainland waters of Point Roberts to Point Whitehorn.

West coast of Vancouver Island - nearshore

There has been spring tagging on the west coast of Vancover Island in 1980 and 1981 and there have been roe fisheries in both years. There was no opportunity for recovery in the 1980 roe fishery because fishing preceded tagging in all areas. There have been 33 recoveries from tagging on the west coast, of which two were recovered in USA waters, the remainder having been recovered on the west coast (Table 20). There have also been five nearshore recoveries from offshore taggings (Table 21).

From each of the three tagging sets in Barkley Sound in the spring of 1980 there has been one recovery. The gut of a salmon caught off Grays Harbour on the Washington coast in July, 1980 yielded one tag. Another tag was recovered in January, 1981, but the capture location is not known. The third tag was recovered in the 1981 roe fishery in Barkley Sound. That fishery produced another tag that had been at large for 1 yr, but it originated in Clayoquot Sound, and one tag from offshore tagging in September

1980. One of the spring 1981 taggings in Barkley Sound preceded the roe fishery there by 9 days and yielded 12 returns from the 1981 roe fisheries on the west coast. Five of the returns were in Barkley Sound; one in Cook Channel, 150 km to the north; one in Port Langford, 180 km to the north; and five had poor recovery information. There was one other 1981 recovery on the day and in the area of tagging.

There were three 1981 roe fishery recoveries from one of the three tagging sets made in Clayoquot Sound in the spring of 1980. One tag was recovered in Barkley Sound, one in Clayoquot Sound, and one had incomplete recovery information. The ten spring 1981 tagging sets in Clayoquot Sound preceded the gillnet roe fishery of 15 March. In addition, there were permit seine catches on 7, 8, and 18 March. Ten tags from six tagging sets were recovered during these fisheries. Eight of these recoveries were near the place of and within 0-10 days of release. However, one recovery was made in Maurus Channel from fish tagged at Starling Point, the fish having moved south 40 km in 4 days, and one recovery was made in Shelter Arm from fish tagged in Cypress Bay, the fish having moved north 35 km in 11 days. There was one tag from offshore tagging in September recovered in the 1981 roe fishery in Clayoquot Sound.

There was one tagging set made in Hesquiat Harbour in the spring of 1980 and there have been no fisheries or taggings there subseqently. This one tagging produced two returns. One tag was recovered in the Nootka Sound roe fishery of 1981 and one tag was returned from a trawl catch off Cape Flattery Spit in June, the fish having been at liberty for 475 days.

Although no fish were tagged in Nootka Sound in the spring of 1980, there were five recoveries in the 1981 roe fishery there. One of the returns was from the spring 1980 tagging in Hesquiat Harbour, three tags came from September offshore taggings, and one recovered tag had been released 6 days earlier in Barkley Sound.

The 1980 spring tagging in Esperanza Inlet produced one return in the 1981 roe fishery and that fish was probably caught in Nootka Sound. The only recovery from the 1981 roe fishery in Esperanza Inlet was that of a tag released 7 days earlier in Barkley Sound.

The remaining tag return from spring 1980 tagging was a salmon stomach recovery near Clerke Point in June, the fish having been released in nearby Nicolaye Channel 124 days earlier.

The small Winter Harbour 1981 roe fishery produced no returns, although 1,473 tagged fish had been released here the previous spring.

As for other parts of the coast, tag returns have been too few on the west coast of Vancouver Island to arrive at any firm conclusions. It would appear that fish return to spawn in the same or immediately adjacent inlets in the following year and that fish that spawn on the west coast are found on offshore feeding grounds in the fall and further south, in American waters, in early summer. The 1981 pre-spawn taggings revealed that fish can travel considerable distances in a short time.

West coast of Vancouver Island - offshore

There has been one tagging season, the fall of 1980, and no commercial herring fishery offshore the west coast of Vancouver Island. There have been 12 returns from offshore taggings, three returns from two of the three trawl tows and nine returns from six of the 13 seine sets (Tables 22 and 23). One of the returns was a salmon stomach recovery within 5 days of tagging. Two returns were from November food fisheries in the lower Strait of Georgia. There were also two returns from other winter fisheries in the lower Strait of Georgia. Six returns came from the 1981 roe fishery, three in Nootka Sound, one in Clayoquot Sound, one in Barkley Sound and one in Lambert Channel. There was one return with no recovery information. There was one offshore recovery in Juan de Fuca Canyon in March 1981, the fish having been tagged 16 days previously, at spawning, in Lambert Channel.

USA waters

Four tags have been returned from American waters (Table 24). Two tags were recovered during roe fisheries in the Cherry Point/Point Whitehorn area in May, 1980. One tag originated from a tagging in Porlier Pass in November, 1979 and one tag originated from a tagging near Beaver Point in early March 1980. There was no 1981 roe fishery in Washington State. One tag was found in the gut of a salmon caught in June, 1980 near Grays Harbour, the fish having been released in Barkley Sound 10 days earlier. Another tag was recovered in a trawl catch off Cape Flattery Spit after 475 days at large since its release in Hesquiat Harbour in March of 1980.

SUMMARY AND DISCUSSION

The herring tagging program began in the fall of 1979 to provide information for stock definition and the determination of migratory routes of herring in British Columbia. The program has been successful in the placement of the number of tags with seasonal and regional targets being mostly met. The return of tags, however, has been drastically below expectations. There are several potential causes for this shortfall.

The tagging operation has relied heavily on vessel crews for the handling of the fish and the insertion of tags. The environment aboard the vessels has not always permitted the adherence to good fish handling and tagging procedures, and it is suspected that some of the tags were not properly placed, causing them to be shed. A tag retention study by Hay (1981) showed that with good procedures up to 25% of the tags may be lost through shedding. Additionally, mortality resulting from the handling of the fish and subsequent infection and disease may take an equally heavy toll, although immediate mortality and excessive injury appear not to have been a problem in most tagging sets.

The presence of the tag on the fish may lead to increased vulnerability to predation. There has been at least one study with tagged herring addressing this concern (Stickney 1967) and it showed avoidance by the predator of herring tagged with a similar, but yellow in colour, tag. The fluorescent orange coloured tag used to date in this program may not have the same effect and it is probably safe to assume that predation has been a significant factor in contributing to tag loss.

It has been shown in studies by Hay et al. (1979) and Hay and Mitchell (1979) that of tagged fish entering processing plants, 30% of the tags would be recovered during the processing for food and bait and 80% during the processing for roe. These estimates may be high since they were obtained in experimental situations where there was little transfer of the catch after tagged fish introduction and a relatively large number of tagged fish were encountered during processing in a short period of time, and with plant personnel aware of the trials and technical representatives present to accept recovered tags. The pumping of fish from net to hold and from hold to totes may cause tags to be dislodged and gillnet fishing may cause tags to be torn from fish, hence the number of tagged fish entering the processing plant may be lower than the number of tagged fish in the catch. The lower frequency of tag occurrence in catches, as compared to the experimental situation, may also reduce the keenness with which plant employees can discern tags. Once seen and recovered, tags may also not be reported if there is no direct contact with technical personnel seeking tag returns.

The smaller and more polarized, hence fewer, roe fisheries of the last 2 yr have also conspired against returns. In many of the areas where fish have been released there has been no roe fishery in the subsequent season. For example, in the central coast, herring were tagged in ten sections in 1980 while there were roe fisheries in only two sections in 1981. If herring return to the same section to spawn, then these limited fisheries have had a pronounced detrimental effect on tag returns.

Because of the small or polarized fisheries on many parts of the coast, the coastwide tagging will be suspended for the next season. There will be no tagging in the Queen Charlotte Islands, central coast, Johnstone Strait, or the Strait of Georgia at spawning. Tagging will be restricted to:

1. offshore the west coast of Vancouver Island, in conjunction with hydroacoustic biomass estimate cruises, to determine where these fish are intercepted in fisheries and where they spawn;

2. the lower Strait of Georgia in late fall to determine which spawning stocks are intercepted during the food and bait fishery there;

3. inshore the west coast of Vancouver in the late winter to examine fish movements immediately prior to spawning; and

4. the north coast to determine what spawning stocks are fished during the Browning Entrance food and bait fishery and to determine the discreteness of spawning stocks.

In all further tagging of herring with external anchor tags, particular attention will be paid to tagging procedures to ensure that all

tags are securely placed and that fish are handled carefully. Tags with other dimensions and of additional colours will also be used to determine if there is a more suitable anchor tag than the one that has been in use. Further examination of the effect of catch transfer on tag retention and of recovery rates during processing will also be undertaken. To provide a greater incentive for the return of recovered tags, the $2 reward per tag will be replaced by a prize draw and the contact between technical personnel and plant workers will be increased to further encourage tag returns.

Although an external anchor tag appears at present to be the most suitable for herring, alternatives, such as internal coded wire tags, will be evaluated. It is anticipated to continue tagging of herring at some level to develop and preserve the capability for this method of stock definition and the determination of migration patterns in time and place. The method and the level at which tagging will be carried out in the future will depend on the requirements for this kind of information, on a coastwide or regional basis, and on the feasibility of carrying it out under prevalent fisheries, fishing patterns, and methods of catch processing.

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Table 1. Herring tags inserted in British Columbia during the 1980-81 herring season - by geographical location and seine or trawl set.

(Code)	Section	(Code)	Locality	(Map ref.)	Date D/M/Y	Tag Series	No. of Tags	Tons in Set
			QUEEN CHARLOTTE ISLAND DIVISION					
(001)	Other Area 2W	(0064)	Newcombe Inlet	(E1)	28/03/81	H194501 - H195000	496	60
	(Tasu Sound)	(0064)	Newcombe Inlet	(E2)	29/03/81	H195001 - H195500	493	40
(003)	Rennell Sound	(0092)	Shields Bay	(E3)	30/03/81	H196001 - H196500	495	2
(005)	Englefield Bay	(0080)	Inskip Channel	(E4)	29/03/81	H195501 - H196000	497	5
		(0080)	Inskip Channel	(E5)	02/04/81	H242000 - H242999	989	150
(006)	Louscoone Inlet	(0076)	Louscoone Inlet	(E6)	25/03/81	H193001 - H193500	498	2
		(0077)	Flamingo Inlet	(E7)	27/03/81	H193501 - H194500	991	1
(022)	Skidegate Inlet	(0132)	Haida Point	(E8)	20/05/81	H224000 - H224499	500	5
		(0120)	Torrens Island	(E9)	20/05/81	H224500 - H224999	500	3
		(0120)	Torrens Island	(E10)	21/05/81	H225500 - H225999	500	2
		(0123)	Jewell Island	(E11)	21/05/81	H225000 - H225499	498	2
(023)	Cumshewa Inlet	(0161)	Kitson Point	(E12)	01/04/81	H196501 - H197000	494	5
		(0157)	Barge Point	(E13)	08/04/81	H222000 - H222999	986	5
(024)	Laskeek Bay	(0133)	Atli Inlet	(E14)	26/03/81	H241000 - H241499	494	65
		(0133)	Atli Inlet	(E15)	11/04/81	H223000 - H223499	496	50
		(1585)	Takelley Cove	(E16)	28/03/81	H244000 - H244999	977	Pond
		(0141)	Selwyn Inlet	(E17)	02/04/81	H197001 - H197500	490	80
		(0141)	Selwyn Inlet	(E18)	02/04/81	H199001 - H199500	487	25
		(0141)	Selwyn Inlet	(E19)	03/04/81	H199501 - H200000	496	15
(025)	Skincuttle Inlet	(1538)	Swan Bay	(E20)	24/03/81	H190501 - H191000	496	7
		(1538)	Swan Bay	(E21)	24/03/81	H191001 - H191500	492	2
		(1538)	Swan Bay	(E22)	25/03/81	H191501 - H192000	495	1
		(0170)	Bag Harbour	(E23)	25/03/81	H192001 - H193000	988	3
		(1553)	Alder Island	(E24)	03/04/81	H197501 - H198000	496	2
Total for Division			24 sets				14,344	

Table 1. (cont'd)

(Code)	Section	(Code)	Locality	(Map ref.)	Date D/M/Y	Tag Series	No. of Tags	Tons in Set
			NORTH COAST DIVISION					
(033)	Port Simpson	(0211)	Stumaun Bay	(F1)	24/03/81	H208001 - H208500	499	5
		(0211)	Stumaun Bay	(F2)	24/03/81	H208501 - H209000	494	4
		(0211)	Stumaun Bay	(F3)	25/03/81	H209001 - H209500	497	4
		(0211)	Stumaun Bay	(F4)	26/03/81	H210501 - H211000	491	4
(042)	Big Bay	(0266)	Pearl Harbour	(F5)	25/03/81	H209501 - H210500	991	1
(043)	Malacca Passage	(0286)	Chismore Passage	(F6)	28/03/81	H211001 - H212000	986	20
		(0286)	Chismore Passage	(F7)	29/03/81	H213001 - H213500	494	30
		(1454)	Elliot Island	(F8)	29/03/81	H212001 - H213000	993	15
		(0291)	Island Point	(F9)	09/04/81	H220000 - H220999	993	4
(051)	Other Area 5	(0298)	Browning Entrance	(A1)	06/12/80	H165501 - H166500	989	NK
		(0298)	Browning Entrance	(A2)	06/12/80	H166501 - H167500	995	NK
		(0298)	Browning Entrance	(A3)	06/12/80	H167501 - H168500	998	NK
		(0314)	Hevenor Inlet	(F10)	03/04/81	H213501 - H214500	994	50
(052)	Kitkatla Channel	(0354)	Gurd Island	(F11)	03/04/81	H214501 - H214999	495	1
		(0354)	Gurd Island	(F12)	06/04/81	H217000 - H217999	998	12
		(0353)	Robert Island	(F13)	05/04/81	H215000 - H215499	493	8
		(0353)	Robert Island	(F14)	06/04/81	H215500 - H215999	499	32
		(0348)	Clamshell Island	(F15)	06/04/81	H216000 - H216499	497	9
		(0348)	Clamshell Island	(F16)	06/04/81	H216500 - H216999	499	4
		(0358)	Kitkatla Creek	(F17)	06/04/81	H218000 - H218999	996	5
		(0342)	Willis Bay	(F18)	08/04/81	H219000 - H219999	995	5
Total for Division			21 sets				15,886	
			CENTRAL COAST DIVISION					
(063)	Kitimat Arm	(0407)	Sue Channel	(G1)	06/04/81	H256500 - H256999	498	20[a]
(067)	Kitasu Bay	(0426)	Kitasu Bay	(G2)	22/03/81	H190001 - H190500	499	2
		(0436)	Wingate Point	(G3)	25/03/81	H238000 - H238499	493	20
		(0425)	Parsons Anchorage	(G4)	25/03/81	H238500 - H238999	499	1
		(0433)	Wilby Point	(G5)	25/03/81	H250000 - H250499	494	50
		(0435)	Larkin Point	(G6)	26/03/81	H250500 - H250999	493	15

Table 1. (cont'd)

(Code)	Section	(Code)	Locality	(Map ref.)	Date D/M/Y	Tag Series	No. of Tags	Tons in Set
			CENTRAL COAST DIVISION (cont'd)					
		(0427)	Thistle Passage	(G7)	26/03/81	H251000 - H251499	492	3
		(0424)	Meyers Passage	(G8)	02/04/81	H253500 - H253999	492	2
		(0431)	Higgins Passage	(G9)	09/04/81	H255000 - H255499	495	100
		(0431)	Higgins Passage	(G10)	09/04/81	H255500 - H255999	498	50
(071)	Other Area 7	(0530)	Klemtu Passage	(G11)	02/04/81	H254000 - H254499	492	15
		(0530)	Klemtu Passage	(G12)	03/04/81	H254500 - H254999	499	3
(072)	Powell Anchorage	(0496)	Lambard Inlet	(G13)	21/03/81	H189501 - H190000	492	2
		(0471)	Berry Inlet	(G14)	22/03/81	H207501 - H208000	499	2
		(0480)	Powell Anchorage	(G15)	24/03/81	H237500 - H237999	498	2
(074)	Thompson Bay	(1395)	Thompson Bay (Head)	(G16)	20/03/81	H187501 - H188000	494	15
		(1395)	Thompson Bay (Head)	(G17)	20/03/81	H188001 - H188500	496	50
		(1395)	Thompson Bay (Head)	(G18)	21/03/81	H188501 - H189500	985	0.5
		(0483)	Idol Point	(G19)	23/03/81	H107501 - H108000	493	3
		(0498)	St. John Harbour	(G20)	24/03/81	H235500 - H235999	489	1
		(0498)	St. John Harbour	(G21)	24/03/81	H237000 - H237499	493	1
(075)	McNaughton Group	(0445)	Cultus Sound	(G22)	01/04/81	H256000 - H256499	500	Pond
(076)	Kilditdt Sound	(0555)	Manley Island	(G23)	29/03/81	H257000 - H257499		
						H258500 - H258999	995	5
		(0555)	Manley Island	(G24)	30/03/81	H257500 - H257999	498	55
		(0571)	Spitfire Island	(G25)	30/03/81	H252000 - H252999	991	NK
(085)	Kwakshua Channel	(0604)	Keith Anchorage	(G26)	18/03/81	H185501 - H186000	489	1
		(0604)	Keith Anchorage	(G27)	18/03/81	H186501 - H187000	495	15
		(0604)	Keith Anchorage	(G28)	18/03/81	H187001 - H187500	484	15
		(0603)	Pruth Bay	(G29)	18/03/81	H186001 - H186500	489	4
		(0577)	Fish Egg Inlet	(G30)	27/03/81	H258000 - H258499	491	100
(092)	Rivers Inlet (Mouth)	(0617)	Goose Bay	(G31)	28/03/81	H253000 - H253499	494	1
(093)	Rivers Inlet (Head)	(0626)	Sandell Bay	(G32)	27/03/81	H251500 - H251999	496	3
(102)	Takush Harbour	(0652)	Takush Harbour	(G33)	27/03/81	H259000 - H259999	993	Pond
Total for Division			33 sets				18,298	

Table 1. (cont'd)

(Code)	Section	(Code)	Locality	(Map ref.)	Date D/M/Y	Tag Series	No. of Tags	Tons in Set
			JOHNSTONE STRAIT DIVISION					
(123)	Cracroft Island	(0717)	Bend Island	(H1)	13/03/81	H182001 - H182500	496	5
		(0691)	Bones Bay	(H2)	14/03/81	H182501 - H183000	496	2
(124)	Watson Island	(0733)	Kenneth Passage	(H3)	17/03/81	H184001 - H184500	490	5
(125)	Eden Island	(0708)	Meade Bay	(H4)	14/03/81	H183001 - H183500	497	2
(126)	Kingcome Inlet	(0757)	Wakeman Sound	(H5)	15/03/81	H183501 - H184000	495	2
		(0757)	Wakeman Sound	(H6)	17/03/81	H184501 - H185500	981	1
(132)	Kanish Bay	(0766)	Deepwater Bay	(B1)	11/11/80	H119501 - H119900	394	5
		(0766)	Deepwater Bay	(B2)	13/11/80	H175001 - H175600 (commercial set for pond)	512	30
		(0766)	Deepwater Bay	(B3)	30/11/80	H163501 - H164000	498	NK
		(0766)	Deepwater Bay	(B4)	30/11/80	H164001 - H164500	500	NK
		(0766)	Deepwater Bay	(B5)	30/11/80	H164501 - H165000	499	NK
		(0766)	Deepwater Bay	(B6)	30/11/80	H165001 - H165500	497	NK
		(0766)	Deepwater Bay	(B7)	9/12/80	H168501 - H169000	495	NK
		(0766)	Deepwater Bay	(B8)	9/12/80	H169001 - H169500	493	NK
		(0766)	Deepwater Bay	(H7)	13/03/81	H181001 - H181500	489	4
		(0800)	Kanish Bay	(H8)	13/03/81	H180501 - H181000	496	10
		(0798)	Granite Bay	(H9)	13/03/81	H181501 - H182000	483	3
Total for Division			17 sets				8,811	
			STRAIT OF GEORGIA DIVISION					
(137)	Heriot Bay	(0805)	Heriot Bay	(J1)	11/03/81	H179001 - H179500	492	3[b]
		(0806)	Rebecca Spit	(J2)	11/03/81	H179501 - H180000	493	2[b]
		(0806)	Rebecca Spit	(J3)	12/03/81	H180001 - H180500	488	15[b]
(142)	Baynes Sound	(0837)	Komas Bluff	(J4)	07/03/81	H174001 - H175000	990	3
		(0837)	Komas Bluff	(J5)	10/03/81	H178001 - H178500	495	5
		(0811)	Lambert Channel	(J6)	08/03/81	H176001 - H176500	482	3
		(0830)	Comox Bar	(J7)	08/03/81	H176501 - H177000	486	2
		(0830)	Comox Bar	(J8)	10/03/81	H178501 - H179000	489	2
		(1519)	Chrome Island	(J9)	09/03/81	H177001 - H177500	489	2
		(1519)	Chrome Island	(J10)	09/03/81	H177501 - H178000	496	5

Table 1. (cont'd)

(Code)	Section	(Code)	Locality	(Map ref.)	Date D/M/Y	Tag Series	No. of Tags	Tons in Set
			STRAIT OF GEORGIA DIVISION (cont'd)					
(143)	Qualicum	(0810)	Qualicum Beach	(J11)	10/03/81	H231500 - H231999	495	5
		(0810)	Qualicum Beach	(J12)	10/03/81	H232000 - H232499	498	10
		(0810)	Qualicum Beach	(J13)	10/03/81	H232500 - H232999	485	5
		(1546)	Mistaken Island	(J14)	11/03/81	H234000 - H234499	497	65
		(1546)	Mistaken Island	(J15)	12/03/81	H234500 - H234999	493	3
(144)	French Creek	(1415)	Parksville	(J16)	09/03/81	H231000 - H231499	490	5
		(0823)	Northwest Bay	(J17)	11/03/81	H233000 - H233999	987	50
		(0823)	Northwest Bay	(J18)	12/03/81	H235000 - H235499	492	25
(152)	Lund	(0845)	Scuttle Bay	(J19)	06/03/81	H173001 - H174000	994	4
		(0856)	Lund	(J20)	11/03/81	H106001 - H106500	494	150
(162)	Stillwater	(0909)	Westview	(J21)	12/03/81	H106501 - H107000	499	50
(171)	Other Area 17	(0938)	Trincomali Channel	(C1)	19/11/80	H162201 - H162500	299	0.3
		(0938)	Trincomali Channel	(C2)	19/11/80	H162501 - H163000	493	5
		(0938)	Trincomali Channel	(C3)	19/11/80	H163001 - H163500	498	1
		(0942)	Porlier Pass	(C4)	09/01/81	H138001 - H139000	988	5
		(0942)	Porlier Pass	(J22)	11/03/81	H158501 - H159000	497	4
		(0990)	Parker Island	(J23)	02/03/81	H170501 - H171000	494	2
		(0948)	Galiano Island	(J24)	12/03/81	H230000 - H230499	497	4
(172)	Nanoose Bay	(1000)	Nanoose Bay Entrance	(J25)	13/03/81	H107001 - H107500	499	10
		(0995)	Nanoose Bay	(J26)	14/03/81	H142001 - H143000	995	2
		(1376)	Richard Point	(J27)	15/03/81	H239000 - H239999	999	2
		(1376)	Richard Point	(J28)	15/03/81	H240500 - H240999	500	2
		(0996)	Maude Island	(J29)	15/03/81	H240000 - H240499	499	1
(173)	Yellow Point	(0980)	Ruxton Island	(C5)	26/11/80	H175601 - H176000	397	0.3
		(0980)	Ruxton Island	(C6)	27/11/80	H157001 - H157500	500	3
		(0959)	DeCourcy Island	(C7)	01/12/80	H134001 - H134500	491	1
		(0959)	DeCourcy Island	(C8)	02/12/80	H134501 - H135000	498	0.3
		(0959)	DeCourcy Island	(C9)	08/01/81	H157501 - H158000	491	5
		(0959)	DeCourcy Island	(C10)	08/01/81	H169501 - H170000	495	NK
		(0963)	Boulder Point	(C11)	10/01/81	H139001 - H139500	494	10
		(0941)	Yellow Point	(C12)	10/01/81	H139501 - H140000	490	5

Table 1. (cont'd)

(Code)	Section	(Code)	Locality	(Map ref.)	Date D/M/Y	Tag Series	No. of Tags	Tons in Set
			STRAIT OF GEORGIA DIVISION (cont'd.)					
		(0943)	Pylades Channel	(J30)	01/03/81	H170001 - H170500	462	10
		(0943)	Pylades Channel	(J31)	10/03/81	H158001 - H158500	497	30
		(0953)	Coffin Point	(J32)	12/03/81	H230500 - H230999	498	10
(181)	Other Area 18	(1008)	Swanson Channel	(C13)	17/11/80	H160701 - H161200	488	40
		(1008)	Swanson Channel	(C14)	17/11/80	H161201 - H161700	493	40
		(1008)	Swanson Channel	(C15)	18/11/80	H161701 - H162200	491	30
		(1044)	Portlock Point	(J33)	04/03/81	H172001 - H172500	493	2
(182)	Ganges Harbour	(1052)	Captain Passage	(J34)	05/03/81	H172501 - H173000	493	3
		(1053)	Annette Point	(J35)	11/03/81	H159001 - H159500	499	15
(183)	Plumper Sound	(1042)	Navy Channel	(J36)	03/03/81	H171001 - H171500	494	10
		(1042)	Navy Channel	(J37)	03/03/81	H171501 - H172000	495	100
		(1042)	Navy Channel	(J38)	11/03/81	H159501 - H160000	497	7
(184)	Fulford Harbour	(1020)	Isabella Point	(C16)	02/12/80	H141001 - H142000	994	40
Total for Division			54 sets				29,832	
			WEST COAST VANCOUVER ISLAND DIVISION					
(218)	Offshore Area 21	(1651)	Nitinat Canyon	(D1)	17/09/80	H143001 - H143750	728	8[c]
		(1651)	Nitinat Canyon	(D2)	21/09/80	H143751 - H144650	879	7[c]
		(1651)	Nitinat Canyon	(D3)	23/09/80	H144651 - H146000	1,302	3[c]
		(1103)	Swiftsure Bank	(D4)	25/09/80	H154001 - H155000	991	NK
		(1103)	Swiftsure Bank	(D5)	26/09/80	H155001 - H156000	993	NK
		(1103)	Swiftsure Bank	(D6)	26/09/80	H156001 - H157000	984	NK
(231)	Other Area 23	(1544)	Folger Island	(K1)	02/03/81	H200001 - H200500	491	45
		(1147)	Coaster Channel	(K2)	12/03/81	H205001 - H205500	492	2
		(1147)	Coaster Channel	(K3)	13/03/81	H205501 - H206000	497	5
		(1157)	Swale Rock	(K4)	15/03/81	H206001 - H206500	492	50
(233)	Mayne Bay	(1141)	Mayne Bay	(K5)	16/03/81	H206501 - H207000	497	25
		(1141)	Mayne Bay	(K6)	17/03/81	H207001 - H207500	495	NK
(238)	Offshore Area 23	(1170)	South East Corner	(D7)	16/09/80	H146001 - H147000	987	NK
		(1170)	South East Corner	(D8)	16/09/80	H147001 - H148000	986	NK

Table 1. (cont'd)

(Code)	Section	(Code)	Locality	(Map ref.)	Date D/M/Y	Tag Series	No. of Tags	Tons in Set
			WEST COAST VANCOUVER ISLAND DIVISION (cont'd.)					
		(1170)	South East Corner	(D9)	17/09/80	H148001 - H148600	589	NK
		(1170)	South East Corner	(D10)	17/09/80	H148601 - H149000	342	NK
		(1170)	South East Corner	(D11)	17/09/80	H149001 - H150000	989	NK
		(1170)	South East Corner	(D12)	23/09/80	H152001 - H153000	993	NK
		(1170)	South East Corner	(D13)	23/09/80	H153001 - H154000	978	NK
		(1170)	South East Corner	(D14)	11/11/80	H160001 - H160700	623	4
		(1176)	South Bank	(D15)	18/09/80	H150001 - H150600	597	NK
		(1176)	South Bank	(D16)	21/09/80	H150601 - H152000	1,388	NK
(243)	Sydney Inlet	(1204)	Shelter Inlet	(K7)	10/03/81	H203001 - H203500	487	20
		(1207)	Hootla Kootla	(K8)	10/03/81	H203501 - H204000	500	0.5
		(1207)	Hootla Kootla	(K9)	11/03/81	H204501 - H205000	498	60
		(1394)	Starling Point	(K10)	11/03/81	H204001 - H204500	496	125
(245)	Meares Island	(1221)	Cypress Bay	(K11)	05/03/81	H200501 - H201000	488	1
		(1221)	Cypress Bay	(K12)	07/03/81	H201001 - H201500	498	0.5
		(1221)	Cypress Bay	(K13)	08/03/81	H201501 - H201686	182	NK
		(1221)	Cypress Bay	(K14)	08/03/81	H201687 - H202000	306	40
		(1219)	Hecate Bay	(K15)	08/03/81	H202001 - H202500	488	20
		(1219)	Hecate Bay	(K16)	09/03/81	H202501 - H203000	494	20
(252)	West Nootka	(1252)	Zuciarte Channel	(K17)	15/03/81	H140001 - H140500	500	50
		(1278)	Cook Channel	(K18)	15/03/81	H140501 - H141000	495	250
		(1245)	Narvaez Island	(K19)	16/03/81	H236000 - H236999	997	50
Total for Division			32 sets/3 tows				23,742	
Total for Coast			181 sets/3 tows				110,913	

[a]Plotted on Fig. 7.
[b]Plotted on Fig. 9.
[c]Trawl.

Table 2. Herring tags inserted in British Columbia during the 1980-81 herring season - by tag number series.

Tag series	No. of tags	(Code)	Division	(Code)	Section	(Code)	Locality	(Map Ref.)	Date D/M/Y
H106001 - H106500	494	(5)	Strait of Georgia	(152)	Lund	(0856)	Lund	(J20)	11/03/81
H106501 - H107000	499	(5)	Strait of Georgia	(162)	Stillwater	(0909)	Westview	(J21)	12/03/81
H107001 - H107500	499	(5)	Strait of Georgia	(172)	Nanoose Bay	(1000)	Nanoose Bay Entrance	(J25)	13/03/81
H107501 - H108000	493	(3)	Central Coast	(074)	Thompson Bay	(0483)	Idol Point	(G19)	23/03/81
H119501 - H119900	394	(4)	Johnstone Strait	(132)	Kanish Bay	(0766)	Deepwater Bay	(B1)	11/11/80
H134001 - H134500	491	(5)	Strait of Georgia	(173)	Yellow Point	(0959)	Decourcy Island	(C7)	01/12/80
H134501 - H135000	498	(5)	Strait of Georgia	(173)	Yellow Point	(0959)	Decourcy Island	(C8)	02/12/80
H138001 - H139000	988	(5)	Strait of Georgia	(171)	Other Area 17	(0942)	Porlier Pass	(C4)	09/01/81
H139001 - H139500	494	(5)	Strait of Georgia	(173)	Yellow Point	(0963)	Boulder Point	(C11)	10/01/81
H139501 - H140000	490	(5)	Strait of Georgia	(173)	Yellow Point	(0941)	Yellow Point	(C12)	10/01/81
H140001 - H140500	500	(6)	West Coast V.I.	(252)	West Nootka	(1252)	Zuciarte Channel	(K17)	15/03/81
H140501 - H141000	495	(6)	West Coast V.I.	(252)	West Nootka	(1278)	Cook Channel	(K18)	15/03/81
H141001 - H142000	994	(5)	Strait of Georgia	(184)	Fulford Harbour	(1020)	Isabella Point	(C16)	02/12/80
H142001 - H143000	995	(5)	Strait of Georgia	(172)	Nanoose Bay	(0995)	Nanoose Bay	(J26)	14/03/81
H143001 - H143750	728	(6)	West Coast V.I.	(218)	Offshore Area 21	(1651)	Nitinat Canyon	(D1)	17/09/80
H143751 - H144650	879	(6)	West Coast V.I.	(218)	Offshore Area 21	(1651)	Nitinat Canyon	(D2)	21/09/80
H144651 - H146000	1,302	(6)	West Coast V.I.	(218)	Offshore Area 21	(1651)	Nitinat Canyon	(D3)	23/09/80
H146001 - H147000	987	(6)	West Coast V.I.	(238)	Offshore Area 23	(1170)	South East Corner	(D7)	16/09/80
H147001 - H148000	986	(6)	West Coast V.I.	(238)	Offshore Area 23	(1170)	South East Corner	(D8)	16/09/80
H148001 - H148600	589	(6)	West Coast V.I.	(238)	Offshore Area 23	(1170)	South East Corner	(D9)	17/09/80
H148601 - H149000	342	(6)	West Coast V.I.	(238)	Offshore Area 23	(1170)	South East Corner	(D10)	17/09/80
H149001 - H150000	989	(6)	West Coast V.I.	(238)	Offshore Area 23	(1170)	South East Corner	(D11)	17/09/80
H150001 - H150601	597	(6)	West Coast V.I.	(238)	Offshore Area 23	(1176)	South Bank	(D15)	18/09/80
H150601 - H152000	1,388	(6)	West Coast V.I.	(238)	Offshore Area 23	(1176)	South Bank	(D16)	21/09/80
H152001 - H153000	993	(6)	West Coast V.I.	(238)	Offshore Area 23	(1170)	South East Corner	(D12)	23/09/80
H153001 - H154000	978	(6)	West Coast V.I.	(238)	Offshore Area 23	(1170)	South East Corner	(D13)	23/09/80

Table 2. (cont'd)

Tag series	No. of tags	(Code)	Division	(Code)	Section	(Code)	Locality	(Map Ref.)	Date D/M/Y
H154001 - H155000	991	(6)	West Coast V.I.	(218)	Offshore Area 21	(1103)	Swiftsure Bank	(D4)	25/09/80
H155001 - H156000	993	(6)	West Coast V.I.	(218)	Offshore Area 21	(1103)	Swiftsure Bank	(D5)	26/09/80
H156001 - H157000	984	(6)	West Coast V.I.	(218)	Offshore Area 21	(1103)	Swiftsure Bank	(D6)	26/09/80
H157001 - H157500	500	(5)	Strait of Georgia	(173)	Yellow Point	(0980)	Ruxton Island	(C6)	27/11/80
H157501 - H158000	491	(5)	Strait of Georgia	(173)	Yellow Point	(0959)	De Courcy Island	(C9)	08/01/81
H158001 - H158500	497	(5)	Strait of Georgia	(173)	Yellow Point	(0943)	Pylades Channel	(J31)	10/03/81
H158501 - H159000	497	(5)	Strait of Georgia	(171)	Other Area 17	(0942)	Porlier Pass	(J22)	11/03/81
H159001 - H159500	499	(5)	Strait of Georgia	(182)	Ganges Harbour	(1053)	Annette Point	(J35)	11/03/81
H159501 - H160000	497	(5)	Strait of Georgia	(183)	Plumper Sound	(1042)	Navy Channel	(J38)	11/03/81
H160001 - H160700	623	(6)	W. coast Vanc. Isl.	(238)	Offshore Area 23	(1170)	Southeast Corner	(D14)	11/11/80
H160701 - H161200	488	(5)	Strait of Georgia	(181)	Other Area 18	(1008)	Swanson Channel	(C13)	17/11/80
H161201 - H161700	493	(5)	Strait of Georgia	(181)	Other Area 18	(1008)	Swanson Channel	(C14)	17/11/80
H161701 - H162200	491	(5)	Strait of Georgia	(181)	Other Area 18	(1008)	Swanson Channel	(C15)	18/11/80
H162201 - H162500	299	(5)	Strait of Georgia	(171)	Other Area 17	(0938)	Trincomali Channel	(C1)	19/11/80
H162501 - H163000	493	(5)	Strait of Georgia	(171)	Other Area 17	(0938)	Trincomali Channel	(C2)	19/11/80
H163001 - H163500	498	(5)	Strait of Georgia	(171)	Other Area 17	(0938)	Trincomali Channel	(C3)	19/11/80
H163501 - H164000	498	(4)	Johnstone Strait	(132)	Kanish Bay	(0766)	Deepwater Bay	(B3)	30/11/80
H164001 - H164500	500	(4)	Johnstone Strait	(132)	Kanish Bay	(0766)	Deepwater Bay	(B4)	30/11/80
H164501 - H165000	499	(4)	Johnstone Strait	(132)	Kanish Bay	(0766)	Deepwater Bay	(B5)	30/11/80
H165001 - H165500	497	(4)	Johnstone Strait	(132)	Kanish Bay	(0766)	Deepwater Bay	(B6)	30/11/80
H165501 - H166500	989	(2)	North Coast	(051)	Other Area 5	(0298)	Browning Entrance	(A1)	06/12/80
H166501 - H167500	995	(2)	North Coast	(051)	Other Area 5	(0298)	Browning Entrance	(A2)	06/12/80
H167501 - H168500	998	(2)	North Coast	(051)	Other Area 5	(0298)	Browning Entrance	(A3)	06/12/80
H168501 - H169000	495	(4)	Johnstone Strait	(132)	Kanish Bay	(0766)	Deepwater Bay	(B7)	09/12/80
H169001 - H169500	493	(4)	Johnstone Strait	(132)	Kanish Bay	(0766)	Deepwater Bay	(B8)	09/12/80
H169501 - H170000	495	(5)	Strait of Georgia	(173)	Yellow Point	(0959)	De Courcy Island	(C10)	08/01/81
H170001 - H170500	462	(5)	Strait of Georgia	(173)	Yellow Point	(0943)	Pylades Channel	(J30)	01/03/81
H170501 - H171000	494	(5)	Strait of Georgia	(171)	Other Area 17	(0990)	Parker Island	(J23)	02/03/81
H171001 - H171500	494	(5)	Strait of Georgia	(183)	Plumper Sound	(1042)	Navy Channel	(J36)	03/03/81

Table 2. (cont'd)

Tag series	No. of tags	(Code)	Division	(Code)	Section	(Code)	Locality	(Map Ref.)	Date D/M/Y
H171501 - H172000	495	(5)	Strait of Georgia	(183)	Plumper Sound	(1042)	Navy Channel	(J37)	03/03/81
H172001 - H172500	493	(5)	Strait of Georgia	(181)	Other Area 18	(1044)	Portlock Point	(J33)	04/03/81
H172501 - H173000	493	(5)	Strait of Georgia	(182)	Ganges Harbour	(1052)	Captain Passage	(J34)	05/03/81
H173001 - H174000	994	(5)	Strait of Georgia	(152)	Lund	(0845)	Scuttle Bay	(J19)	06/03/81
H174001 - H175000	990	(5)	Strait of Georgia	(142)	Baynes Sound	(0837)	Komas Bluff	(J4)	07/03/81
H175001 - H175600	512	(4)	Johnstone Strait	(132)	Kanish Bay	(0761)	Deepwater Bay	(B2)	13/11/80
H175601 - H176000	397	(5)	Strait of Georgia	(173)	Yellow Point	(0980)	Ruxton Island	(C5)	26/11/80
H176001 - H176500	482	(5)	Strait of Georgia	(142)	Baynes Sound	(0811)	Lambert Channel	(J6)	08/03/81
H176501 - H177000	486	(5)	Strait of Georgia	(142)	Baynes Sound	(0830)	Comox Bar	(J7)	08/03/81
H177001 - H177500	489	(5)	Strait of Georgia	(142)	Baynes Sound	(1519)	Chrome Island	(J9)	09/03/81
H177501 - H178000	496	(5)	Strait of Georgia	(142)	Baynes Sound	(1519)	Chrome Island	(J10)	09/03/81
H178001 - H178500	495	(5)	Strait of Georgia	(142)	Baynes Sound	(0837)	Komas Bluff	(J5)	10/03/81
H178501 - H179000	489	(5)	Strait of Georgia	(142)	Baynes Sound	(0830)	Comox Bar	(J8)	10/03/81
H179001 - H179500	492	(5)	Strait of Georgia	(137)	Heriot Bay	(0850)	Heriot Bay	(J1)	11/03/81[a]
H179501 - H180000	493	(5)	Strait of Georgia	(137)	Heriot Bay	(0860)	Rebecca Spit	(J2)	11/03/81[a]
H180001 - H180500	488	(5)	Strait of Georgia	(137)	Heriot Bay	(0860)	Rebecca Spit	(J3)	12/03/81[a]
H180501 - H181000	496	(4)	Johnstone Strait	(132)	Kanish Bay	(0800)	Kanish Bay	(H8)	13/03/81
H181001 - H181500	489	(4)	Johnstone Strait	(132)	Kanish Bay	(0766)	Deepwater Bay	(H7)	13/03/81
H181501 - H182000	483	(4)	Johnstone Strait	(132)	Kanish Bay	(0798)	Granite Bay	(H9)	13/03/81
H182001 - H182500	496	(4)	Johnstone Strait	(123)	Cracroft Island	(0717)	Bend Island	(H1)	13/03/81
H182501 - H183000	496	(4)	Johnstone Strait	(123)	Cracroft Island	(0691)	Bones Bay	(H2)	14/03/81
H183001 - H183500	497	(4)	Johnstone Strait	(125)	Eden Island	(0708)	Meade Bay	(H4)	14/03/81
H183501 - H184000	495	(4)	Johnstone Strait	(126)	Kingcome Inlet	(0757)	Wakeman Sound	(H5)	15/03/81
H184001 - H184500	490	(4)	Johnstone Strait	(124)	Watson Island	(0733)	Kenneth Passage	(H3)	17/03/81
H184501 - H185500	981	(4)	Johnstone Strait	(126)	Kingcome Inlet	(0757)	Wakeman Sound	(H6)	17/03/81
H185501 - H186000	489	(3)	Central Coast	(085)	Kwakshua Channel	(0604)	Keith Anchorage	(G26)	18/03/81
H186001 - H186500	489	(3)	Central Coast	(085)	Kwakshua Channel	(0603)	Pruth Bay	(G29)	18/03/81
H186501 - H187000	495	(3)	Central Coast	(085)	Kwakshua Channel	(0604)	Keith Anchorage	(G27)	18/03/81
H187001 - H187500	484	(3)	Central Coast	(085)	Kwakshua Channel	(0604)	Keith Anchorage	(G28)	18/03/81

Table 2. (cont'd)

Tag series	No. of tags	(Code)	Division	(Code)	Section	(Code)	Locality	(Map Ref.)	Date D/M/Y
H187501 - H188000	494	(3)	Central Coast	(074)	Thompson Bay	(1395)	Thompson Bay (Head)	(G16)	20/03/81
H188001 - H188500	496	(3)	Central Coast	(074)	Thompson Bay	(1395)	Thompson Bay (Head)	(G17)	20/03/81
H188501 - H189500	985	(3)	Central Coast	(074)	Thompson Bay	(1395)	Thompson Bay (Head)	(G18)	21/03/81
H189501 - H190000	492	(3)	Central Coast	(072)	Powell Anchorage	(0496)	Lambard Inlet	(G13)	21/03/81
H190001 - H190500	499	(3)	Central Coast	(067)	Kitasu Bay	(0426)	Kitasu Bay	(G2)	22/03/81
H190501 - H191000	496	(1)	Queen Charlottes	(025)	Skincuttle Inlet	(1538)	Swan Bay	(E20)	24/03/81
H191001 - H191500	492	(1)	Queen Charlottes	(025)	Skincuttle Inlet	(1538)	Swan Bay	(E21)	24/03/81
H191501 - H192000	495	(1)	Queen Charlottes	(025)	Skincuttle Inlet	(1538)	Swan Bay	(E22)	25/03/81
H192001 - H193000	988	(1)	Queen Charlottes	(025)	Skincuttle Inlet	(0170)	Bag Harbour	(E23)	25/03/81
H193001 - H193500	498	(1)	Queen Charlottes	(006)	Louscoone Inlet	(0076)	Louscoone Inlet	(E6)	25/03/81
H193501 - H194500	991	(1)	Queen Charlottes	(006)	Louscoone Inlet	(0077)	Flamingo Inlet	(E7)	27/03/81
H194501 - H195000	496	(1)	Queen Charlottes	(001)	Other Area 2W	(0064)	Newcombe Inlet	(E1)	28/03/81
H195001 - H195500	493	(1)	Queen Charlottes	(001)	Other Area 2W	(0064)	Newcombe Inlet	(E2)	29/03/81
H195501 - H196000	497	(1)	Queen Charlottes	(005)	Englefield Bay	(0080)	Inskip Channel	(E4)	29/03/81
H196001 - H196500	495	(1)	Queen Charlottes	(003)	Rennel Sound	(0092)	Shields Bay	(E3)	30/03/81
H196501 - H197000	494	(1)	Queen Charlottes	(023)	Gumshewa Inlet	(0161)	Kitson Point	(E12)	01/04/81
H197001 - H197500	490	(1)	Queen Charlottes	(024)	Laskeek Bay	(0141)	Selwyn Inlet	(E17)	02/04/81
H197501 - H198000	496	(1)	Queen Charlottes	(025)	Skincuttle Inlet	(1553)	Alder Island	(E24)	03/04/81
H199001 - H199500	487	(1)	Queen Charlottes	(024)	Laskeek Bay	(0141)	Selwyn Inlet	(E18)	02/04/81
H199501 - H200000	496	(1)	Queen Charlottes	(024)	Laskeek Bay	(0141)	Selwyn Inlet	(E19)	03/04/81
H200001 - H200500	491	(6)	West Coast V.I.	(231)	Other Area 23	(1544)	Folger Island	(K1)	02/03/81
H200501 - H201000	488	(6)	West Coast V.I.	(245)	Meares Island	(1221)	Cypress Bay	(K11)	05/03/81
H201001 - H201500	498	(6)	West Coast V.I.	(245)	Meares Island	(1221)	Cyress Bay	(K12)	07/03/81
H201501 - H201686	182	(6)	West Coast V.I.	(245)	Meares Island	(1221)	Cypress Bay	(K13)	08/03/81
H201687 - H202000	306	(6)	West Coast V.I.	(245)	Meares Island	(1221)	Cypress Bay	(K14)	08/03/81
H202001 - H202500	488	(6)	West Coast V.I.	(245)	Meares Island	(1219)	Hecate Bay	(K15)	08/03/81
H202501 - H203000	494	(6)	West Coast V.I.	(245)	Meares Island	(1219)	Hecate Bay	(K16)	09/03/81
H203001 - H203500	487	(6)	West Coast V.I.	(243)	Sydney Inlet	(1204)	Shelter Inlet	(K7)	10/03/81

Table 2. (cont'd)

Tag series	No. of tags	(Code)	Division	(Code)	Section	(Code)	Locality	(Map Ref.)	Date D/M/Y
H203501 - H204000	500	(6)	West Coast V.I.	(243)	Sydney Inlet	(1207)	Hootla Kootla	(K8)	10/08/81
H204001 - H204500	496	(6)	West Coast V.I.	(243)	Sydney Inlet	(1394)	Starling Point	(K10)	11/03/81
H204501 - H205000	498	(6)	West Coast V.I.	(243)	Sydney Inlet	(1207)	Hootla Kootla	(K9)	11/03/81
H205001 - H205500	492	(6)	West Coast V.I.	(231)	Other Area 23	(1147)	Coaster Channel	(K2)	12/03/81
H205501 - H206000	497	(6)	West Coast V.I.	(231)	Other Area 23	(1147)	Coaster Channel	(K3)	13/03/81
H206001 - H206500	492	(6)	West Coast V.I.	(231)	Other Area 23	(1157)	Swale Rock	(K4)	15/03/81
H206501 - H207000	497	(6)	West Coast V.I.	(233)	Mayne Bay	(1141)	Mayne Bay	(K5)	16/03/81
H207001 - H207500	495	(6)	West Coast V.I.	(233)	Mayne Bay	(1141)	Mayne Bay	(K6)	17/03/81
H207501 - H208000	499	(3)	Central Coast	(072)	Powell Anchorage	(0471)	Berry Inlet	(G14)	22/03/81
H208001 - H208500	499	(2)	North Coast	(033)	Port Simpson	(0211)	Stumaun Bay	(F1)	24/03/81
H208501 - H209000	494	(2)	North Coast	(033)	Port Simpson	(0211)	Stumaun Bay	(F2)	24/03/81
H209001 - H209500	497	(2)	North Coast	(033)	Port Simpson	(0211)	Stumaun Bay	(F3)	25/03/81
H209501 - H210500	991	(2)	North Coast	(042)	Big Bay	(0266)	Pearl Harbour	(F5)	25/03/81
H210501 - H211000	491	(2)	North Coast	(033)	Port Simpson	(0211)	Stumaun Bay	(F4)	26/03/81
H211001 - H212000	986	(2)	North Coast	(043)	Malacca Passage	(0286)	Chismore Passage	(F6)	28/03/81
H212001 - H213000	993	(2)	North Coast	(043)	Malacca Passage	(1454)	Elliot Island	(F8)	29/03/81
H213001 - H213500	494	(2)	North Coast	(043)	Malacca Passage	(0286)	Chismore Passage	(F7)	29/03/81
H213501 - H214500	994	(2)	North Coast	(051)	Other Area 5	(0314)	Hevenor Inlet	(F10)	03/04/81
H214501 - H214999	495	(2)	North Coast	(052)	Kitkatla Channel	(0354)	Gurd Island	(F11)	03/04/81
H215000 - H215499	493	(2)	North Coast	(052)	Kitkatla Channel	(0353)	Robert Island	(F13)	05/04/81
H215500 - H215999	499	(2)	North Coast	(052)	Kitkatla Channel	(0353)	Robert Island	(F14)	06/04/81
H216000 - H216499	497	(2)	North Coast	(052)	Kitkatla Channel	(0348)	Clamshell Island	(F15)	06/04/81
H216500 - H216999	499	(2)	North Coast	(052)	Kitkatla Channel	(0348)	Clamshell Island	(F16)	06/04/81
H217000 - H217999	998	(2)	North Coast	(052)	Kitkatla Channel	(0354)	Gurd Island	(F12)	06/04/81
H218000 - H218999	996	(2)	North Coast	(052)	Kitkatla Channel	(0358)	Kitkatla Creek	(F17)	06/04/81
H219000 - H219999	995	(2)	North Coast	(052)	Kitkatla Channel	(0342)	Willis Bay	(F18)	08/04/81
H220000 - H220999	993	(2)	North Coast	(043)	Malacca Passage	(0291)	Island Point	(F9)	09/04/81
H222000 - H222999	986	(1)	Queen Charlottes	(023)	Cumshewa Inlet	(0157)	Barge Point	(E13)	08/04/81
H223000 - H223499	496	(1)	Queen Charlottes	(024)	Laskeek Bay	(0133)	Atli Inlet	(E15)	11/04/81

Table 2. (cont'd)

Tag series	No. of tags	(Code)	Division	(Code)	Section	(Code)	Locality	(Map Ref.)	Date D/M/Y
H224000 - H224499	500	(1)	Queen Charlottes	(022)	Skidegate Inelt	(0132)	Haida Point	(E8)	20/05/81
H224500 - H224999	500	(1)	Queen Charlottes	(022)	Skidegate Inlet	(0120)	Torrens Island	(E9)	20/05/81
H225000 - H225499	498	(1)	Queen Charlottes	(022)	Skidegate Inlet	(0123)	Jewell Island	(E11)	21/05/81
H225500 - H225999	500	(1)	Queen Charlottes	(022)	Skidegate Inlet	(0120)	Torrens Island	(E10)	21/05/81
H230000 - H230499	497	(5)	Strait of Georgia	(171)	Other Area 17	(0948)	Galiano Island	(J24)	12/03/81
H230500 - H230999	498	(5)	Strait of Georgia	(173)	Yellow Point	(0953)	Coffin Point	(J32)	12/03/81
H231000 - H231499	490	(5)	Strait of Georgia	(144)	French Creek	(1415)	Parksville	(J16)	09/03/81
H231500 - H231999	495	(5)	Strait of Georgia	(143)	Qualicum	(0810)	Qualicum Beach	(J11)	10/03/81
H232000 - H232499	498	(5)	Strait of Georgia	(143)	Qualicum	(0810)	Qualicum Beach	(J12)	10/03/81
H232500 - H232999	485	(5)	Strait of Georgia	(143)	Qualicum	(0810)	Qualicum Beach	(J13)	10/03/81
H233000 - H233999	987	(5)	Strait of Georgia	(144)	French Creek	(0823)	Northwest Bay	(J17)	11/03/81
H234000 - H234499	497	(5)	Strait of Georgia	(143)	Qualicum	(1546)	Mistaken Island	(J14)	11/03/81
H234500 - H234999	493	(5)	Strait of Georgia	(143)	Qualicum	(1546)	Mistaken Island	(J15)	12/03/81
H235000 - H235499	492	(5)	Strait of Georgia	(144)	French Creek	(0823)	Northwest Bay	(J18)	12/03/81
H235500 - H235999	489	(3)	Central Coast	(074)	Thompson Bay	(0498)	St. John Harbour	(G20)	24/03/81
H236000 - H236999	997	(6)	West Coast V.I.	(252)	West Nootka	(1245)	Narvaez Island	(K19)	16/03/81
H237000 - H237499	493	(3)	Central Coast	(074)	Thompson Bay	(0498)	St. John Harbour	(G21)	24/03/81
H237500 - H237999	498	(3)	Central Coast	(072)	Powell Achorage	(0480)	Powell Anchorage	(G15)	24/03/81
H238000 - H238499	493	(3)	Central Coast	(067)	Kitasu Bay	(0436)	Wingate Point	(G3)	25/03/81
H238500 - H238999	499	(3)	Central Coast	(067)	Kitasu Bay	(0425)	Parsons Anchorage	(G4)	25/03/81
H239000 - H239999	999	(5)	Strait of Georgia	(172)	Nanoose Bay	(1376)	Richard Point	(J27)	15/03/81
H240000 - H240499	499	(5)	Strait of Georgia	(172)	Nanoose Bay	(0996)	Maude Island	(J29)	15/03/81
H240500 - H240999	500	(5)	Strait of Georgia	(172)	Nanoose Bay	(1376)	Richard Point	(J28)	15/03/81
H241000 - H241499	494	(1)	Queen Charlottes	(024)	Laskeek Bay	(0133)	Atli Inlet	(E14)	26/03/81
H242000 - H242999	989	(1)	Queen Charlottes	(005)	Englefield Bay	(0080)	Inskip Channel	(E5)	02/04/81

Table 2. (cont'd)

Tag series	No. of tags	(Code)	Division	(Code)	Section	(Code)	Locality	(Map Ref.)	Date D/M/Y
H244000 - H244999	977	(1)	Queen Charlottes	(024)	Laskeek Bay	(1585)	Takelley Cove	(E16)	28/03/81
H250000 - H250499	494	(3)	Central Coast	(067)	Kitasu Bay	(0433)	Wilby Point	(G5)	25/03/81
H250500 - H250999	493	(3)	Central Coast	(067)	Kitasu Bay	(0435)	Larkin Point	(G6)	26/03/81
H251000 - H251499	492	(3)	Central Coast	(067)	Kitasu Bay	(0427)	Thistle Passage	(G7)	26/03/81
H251500 - H251999	496	(3)	Central Coast	(093)	Rivers Inlet (Head)	(0626)	Sandell Bay	(G32)	27/03/81
H252000 - H252999	991	(3)	Central Coast	(076)	Kilditt Sound	(0571)	Spitfire Island	(G25)	30/03/81
H253000 - H253499	494	(3)	Central Coast	(092)	Rivers Inlet (Mouth)	(0617)	Goose Bay	(G31)	28/03/81
H253500 - H253999	492	(3)	Central Coast	(067)	Kitasu Bay	(0424)	Meyers Passage	(G8)	02/04/81
H254000 - H254499	492	(3)	Central Coast	(071)	Other Area 7	(0530)	Klemtu Passage	(G11)	02/04/81
H254500 - H254999	499	(3)	Central Coast	(071)	Other Area 7	(0530)	Klemtu Passage	(G12)	03/04/81
H255000 - H255499	495	(3)	Central Coast	(067)	Kitasu Bay	(0431)	Higgins Passage	(G9)	09/04/81
H255500 - H255999	498	(3)	Central Coast	(067)	Kitasu Bay	(0431)	Higgins Passage	(G10)	09/04/81
H256000 - H256499	500	(3)	Central Coast	(075)	McNaughton Group	(0445)	Cultus Sound	(G22)	01/04/81
H256500 - H256999	498	(3)	Central Coast	(063)	Kitimat Arm	(0407)	Sue Channel	(G1)	06/04/81[b]
H257000 - H257499	496	(3)	Central Coast	(076)	Kilditt Sound	(0555)	Manley Island	(G23)	29/03/81
H257500 - H257999	498	(3)	Central Coast	(076)	Kilditt Sound	(0555)	Manley Island	(G24)	30/03/81
H258000 - H258499	491	(3)	Central Coast	(085)	Kwakshua Channel	(0577)	Fish Egg Inlet	(G30)	27/03/81
H258500 - H258999	499	(3)	Central Coast	(076)	Kilditt Sound	(0555)	Manley Island	(G23)	29/03/81
H259000 - H259999	993	(3)	Central Coast	(102)	Takush Harbour	(0652)	Takush Harbour	(G33)	27/03/81

[a]Plotted on Fig. 9.
[b]Plotted on Fig. 7.

Table 3. Age distribution of herring in tagging sets made during the fall and winter, 1980-81.

			% at age								
(Map ref.)	Location	n	2	3	4	5	6	7	8	9	10+
A1	Browning Entrance	94		4	45	7	6	10	14	7	6
A2	Browning Entrance	93		6	48	14	8	11	4	3	5
A3	Browning Entrance	85	7	6	24	15	20	7	8	4	9
B1	Deepwater Bay	90	69	26	6						
B2	Deepwater Bay	95	14	61	9	5	3	3	3	1	
B3	Deepwater Bay	94	68	22	7	1	1				
B4	Deepwater Bay	97	69	29	2						
B5	Deepwater Bay	84	25	36	31	5	1	2			
B6	Deepwater Bay	92	14	51	24	7	3			1	
B7	Deepwater Bay	83	1	36	40	12	6	1	2	1	
B8	Deepwater Bay	83		37	42	12	7		1		
C1	Trincomali Channel	N/S									
C2	Trincomali Channel	81	1	17	21	14	30	10	5	2	
C3	Trincomali Channel	83		33	17	12	22	10	5	1	1
C4	Porlier Pass	64	8	27	42	12	6	5			
C5	Ruxton Island	85	16	22	31	14	12	4	1		
C6	Ruxton Island	80	3	25	52	16	3	1			
C7	De Courcy Island	73	3	30	52	10	4			1	
C8	De Courcy Island	86	3	33	48	10	3	2			
C9	De Courcy Island	85	7	42	28	13	6	4			
C10	De Courcy Island	77	4	43	29	12	4	8	1		
C11	Boulder Point	87	24	43	24	2	2	3	1		
C12	Yellow Point	81	10	38	35	14	4				
C13	Swanson Channel	69	1	25	29	17	22	6			
C14	Swanson Channel	89		39	36	11	9	4			
C15	Swanson Channel	74	3	24	31	26	8	5	1	1	
C16	Isabella Point	86	15	48	20	9	1	6		1	
D1	Nitinat Canyon	88	11	40	27	14	6	2			
D2	Nitinat Canyon	90	10	53	30	3	3				
D3	Nitinat Canyon	87	1	23	36	22	9	7	2		
D4	Swiftsure Bank	88	9	65	10	3	9	3			
D5	Swiftsure Bank	84	4	65	11	4	11	5		1	
D6	Swiftsure Bank	N/S									
D7	South East Corner	82		23	34	17	20	5	1		
D8	South East Corner	81		28	44	11	11	2	2		
D9	South East Corner	N/S									
D10	South East Corner	N/S									
D11	South East Corner	68		12	29	21	22	10	6		
D12	South East Corner	89		3	12	29	33	15	6	1	1
D13	South East Corner	80	1	4	17	19	25	19	9	6	
D14	South East Corner	87	52	38	5	2	2		1		
D15	South Bank	69	3	36	13	1	17	13	10	3	3
D16	South Bank	97	13	76	8	1			1		

Table 4. Age distribution, percent maturity and average gonosomatic index (G.I.) of herring in seine sets for 1981 fishing-spawning grounds taggings.

Map ref.	Location	n	% at age					% Mature		Av. G.I.		Maturity[a] stage	Date of		
			2	3	4	5	6+	MM	FF	MM	FF		Tagging	Spawning	Fishery
QUEEN CHARLOTTE ISLANDS DIVISION															
(E1)	Newcombe Inlet	85	6	2	65	15	12	100	100	0.21	0.28	FM	M28	Ap 1-10	none
(E2)	Newcombe Inlet	88	6	1	68	17	8	100	100	0.19	0.28	FM	M29	Ap 1-10	none
(E3)	Shields Bay	78	63	6	27	3	1	100	100	0.19	0.26	MY	M30	Ap 3-5	M25
(E4)	Inskip Channel	93	83	6	6	2	2	87	100	0.14	0.21	MY	M29	Ap 1-10	M21
(E5)	Inskip Channel	77	3	4	52	13	29	100	100	0.17	0.29	FM	Ap2	Ap 1-10	M21
(E6)	Louscoone Inlet	83	0	7	77	0	16	9	8	0.21	0.25	ST	M25	M23-27	none
(E7)	Flamingo Inlet	89	0	6	79	10	6	24	62	0.17	0.28	SP	M27	M26	none
(E8)	Haida Point	162	6	43	15	7	30	87	96	0.18	0.26	FM	My20	My 29	none
(E9)	Torrens Island	151	17	36	11	4	31	71	93	0.18	0.26	FM	My20	My 29	none
(E10)	Torrens Island	149	26	28	11	6	28	78	95	0.18	0.22	FM	My21	My 29	none
(E11)	Jewell Island	155	5	27	21	5	42	89	98	0.20	0.25	FM	My21	My 29	none
(E12)	Kitson Point	81	1	6	80	4	9	92	100	0.20	0.30	FM	Ap1	Ap 1-14	none
(E13)	Barge Point	83	6	6	70	7	11	74	100	0.18	0.27	FM	Ap8	Ap 1-14	none
(E14)	Atli Inlet	176	6	5	82	4	3	85	82	0.18	0.24	NM	M26	Ap14-20	M24-30
(E15)	Atli Inlet	92	2	3	95	0	0	100	100	0.19	0.27	FM	Ap11	Ap14-20	M24-30
(E16)	Takelley Cove	N/S										-	M28	Ap14-20	M24-30
(E17)	Selwyn Inlet	86	0	5	80	3	12	100	100	0.21	0.29	FM	Ap2	Ap 7-18	M24-30
(E18)	Selwyn Inlet	183	1	4	84	4	8	99	100	0.22	0.29	FM	Ap2	Ap 7-18	M24-30
(E19)	Selwyn Inlet	165	2	4	82	5	7	99	100	0.19	0.28	FM	Ap3	Ap 7-18	M24-30
(E20)	Swan Bay	90	1	2	88	3	6	82	96	0.20	0.27	SP	M24	M24-29	M17-20
(E21)	Swan Bay	91	1	1	90	7	1	82	100	0.18	0.30	SP	M24	M24-29	M17-20
(E22)	Swan Bay	80	0	3	86	6	5	67	88	0.18	0.29	SP	M25	M24-29	M17-20
(E23)	Bag Harbour	92	0	2	90	3	4	75	92	0.19	0.28	SP	M25	M20-26	M17-20
(E24)	Alder Island	92	0	2	83	14	1	14	66	0.15	0.26	SP	Ap3	Ap 4-9	M17-20

Table 4. (cont'd)

Map ref.	Location	n	% at age					% Mature		Av. G.I.		Maturity[a] stage	Date of		
			2	3	4	5	6+	MM	FF	MM	FF		Tagging	Spawning	Fishery
NORTH COAST DIVISION															
(F1)	Stumaun Bay	89	0	4	76	8	11	69	95	0.18	0.26	SP	M24	M20-24	none
(F2)	Stumaun Bay	55	13	38	44	2	4	26	61	0.16	0.19	SP	M24	M20-24	none
(F3)	Stumaun Bay	88	7	34	57	2	0	20	58	0.16	0.21	SP	M25	M20-24	none
(F4)	Stumaun Bay	39	5	28	67	0	0	4	17	0.18	0.20	ST	M26	M20-24	none
(F5)	Pearl Harbour	93	0	4	81	9	6	35	79	0.17	0.27	SP	M25	M24-27	none
(F6)	Chismore Passage	88	1	8	88	1	2	94	100	0.16	0.25	FM	M28	Ap11-18	none
(F7)	Chismore Passage	84	0	2	86	6	6	97	100	0.17	0.27	FM	M29	Ap11-18	none
(F8)	Elliot Island	90	0	6	84	4	6	98	100	0.17	0.27	FM	M29	Ap11-18	none
(F9)	Island Point	86	0	2	88	5	5	97	100	0.17	0.28	FM	Ap9	Ap11-15	none
(F10)	Hevenor Inlet	89	0	3	91	6	0	100	100	0.18	0.27	FM	Ap3	N.R.[b]	none
(F11)	Gurd Island	85	0	1	86	6	7	97	100	0.19	0.30	FM	Ap3	M19-Ap29	M27-Ap3
(F12)	Gurd Island	81	0	5	86	2	6	84	100	0.16	0.29	FM	Ap6	M19-Ap29	M27-Ap3
(F13)	Robert Island	89	1	8	89	1	1	95	100	0.17	0.28	FM	Ap5	M19-Ap29	M27-Ap3
(F14)	Robert Island	87	1	7	84	5	3	91	100	0.16	0.28	FM	Ap6	M19-Ap29	M27-Ap3
(F15)	Clamshell Island	74	0	7	88	3	3	89	100	0.18	0.27	FM	Ap6	M19-Ap29	M27-Ap3
(F16)	Clamshell Island	78	0	3	92	4	1	82	100	0.17	0.28	FM	Ap6	M19-Ap29	M27-Ap3
(F17)	Kitkatla Creek	56	9	21	68	2	0	78	67	0.18	0.15	NM	Ap6	M19-Ap29	M27-Ap3
(F18)	Willis Bay	81	0	11	75	6	7	86	100	0.15	0.25	FM	Ap8	M19-Ap29	M27-Ap3

Table 4. (cont'd)

Map ref.	Location	n	% at age					% Mature		Av. G.I.		Maturity[a] stage	Date of		
			2	3	4	5	6+	MM	FF	MM	FF		Tagging	Spawning	Fishery
CENTRAL COAST DIVISION															
(G1)	Sue Channel	20[c]	5	30	45	15	5	79	85	0.16	0.14	NM	Ap6	N.R.[d]	none
(G2)	Kitasu Bay	73	1	5	71	5	16	26	34	0.15	0.24	ST	M22	M11-31	M17-20
(G3)	Wingate Point	45	11	22	64	0	2	35	10	0.16	0.17	ST	M25	M11-31	M17-20
(G4)	Parson Anchorage	80	0	9	78	5	9	72	95	0.18	0.27	SP	M25	M11-31	M17-20
(G5)	Wilby Point	79	0	5	81	8	6	85	97	0.18	0.28	SP	M25	M11-31	M17-20
(G6)	Larkin Point	89	1	7	79	4	9	86	98	0.19	0.27	SP	M26	M11-31	M17-20
(G7)	Thistle Passage	82	2	6	74	6	11	78	100	0.17	0.25	SP	M26	M11-31	M17-20
(G8)	Meyers Passage	58	36	47	17	0	0	83	58	0.17	0.16	MY[e]	Ap2	M11-31	M17-20
(G9)	Higgins Passage	83	0	14	67	10	8	85	100	0.17	0.28	FM[f]	Ap9	M20-23	M17-20
(G10)	Higgins Passage	81	1	17	69	6	6	90	100	0.17	0.29	FM[f]	Ap9	M20-23	M17-20
(G11)	Klemtu Passage	42	2	12	48	14	24	88	52	0.16	0.14	NM	Ap2	N.R.[g]	none
(G12)	Klemtu Passage	36	6	39	53	0	3	74	48	0.16	0.15	NM	Ap3	N.R.[g]	none
(G13)	Lambard Inlet	85	1	7	72	12	8	7	23	0.14	0.26	ST	M21	M12-Ap4	M14-16
(G14)	Berry Inlet	76	0	9	79	4	8	75	82	0.16	0.29	SP	M22	M12-Ap4	M14-16
(G15)	Powell Anchorage	68	10	22	38	21	9	15	40	0.18	0.16	ST	M24	M12-Ap4	M14-16
(G16)	Thompson Bay (Head)	86	0	13	74	7	6	97	98	0.20	0.31	FM	M20	M24-Ap10	M22-23
(G17)	Thompson Bay (Head)	86	0	3	76	7	14	95	100	0.20	0.30	FM	M20	M24-Ap10	M22-23
(G18)	Thompson Bay (Head)	86	3	17	69	7	3	79	100	0.20	0.29	SP	M21	M24-Ap10	M22-23
(G19)	Idol Point	92	0	27	66	4	2	37	47	0.18	0.28	SP	M23	M24-Ap10	M22-23
(G20)	St. John Harbour	76	7	37	47	8	1	4	40	0.15	0.27	ST	M24	M22-23	M22-23
(G21)	St. John Harbour	54	0	15	81	2	2	3	4	0.18	0.21	ST	M24	M22-23	M22-23
(G22)	Cultus Sound	83	4	20	51	14	11	47	76	0.19	0.24	SP	Ap1	M16-Ap11	none[h]
(G23)	Manley Island	70	0	6	51	20	23	77	89	0.19	0.27	FM	M29	M24-27	none
(G24)	Manley Island	78	0	10	50	9	31	100	96	0.22	0.30	FM	M30	M24-27	none
(G25)	Spitfire Island	78	0	13	50	17	21	85	98	0.19	0.29	FM	M30	M24-27	none
(G26)	Keith Anchorage	90	8	46	41	1	4	82	91	0.16	0.22	FM	M18	M18-21	none

Table 4. (cont'd)

Map ref.	Location	n	% at age					% Mature		Av. G.I.		Maturity[a] stage	Date of		
			2	3	4	5	6+	MM	FF	MM	FF		Tagging	Spawning	Fishery
CENTRAL COAST (cont'd)															
(G27)	Keith Anchorage	72	24	31	32	10	4	48	50	0.15	0.20	SP	M18	M18-21	none
(G28)	Keith Anchorage	71	27	24	39	1	8	43	51	0.17	0.20	SP	M18	M18-21	none
(G29)	Pruth Bay	83	5	16	70	4	6	94	89	0.18	0.27	FM	M18	M19-21	none
(G30)	Fish Egg Inlet	39	0	18	67	10	5	91	98	0.18	0.31	FM	M27	M27-Ap1	none
(G31)	Goose Bay	N/S[i]										-	M28	M29-Ap2	none
(G32)	Sandell Bay	45	4	33	62	0	0	62	94	0.15	0.26	FM	M27	M16-17	none
(G33)	Takush Harbour	N/S										-	M27	M21-27	none
JOHNSTONE STRAIT DIVISION															
(H1)	Bend Island	87	21	43	25	6	6	72	64	0.16	0.22	NM	M13	Ap8	none
(H2)	Bones Bay	80	8	48	33	4	9	87	66	0.18	0.20	NM	M14	Ap8	none
(H3)	Kenneth Passage	35	17	69	14	0	0	92	86	0.17	0.15	MY	M17	M12-14	none
(H4)	Meade Bay	63	22	68	10	0	0	80	10	0.15	0.13	NY	M14	M17-19	none
(H5)	Wakeman Sound	81	31	62	6	1	0	17	34	0.14	0.19	SP	M15	M16-Ap12	none
(H6)	Wakeman Sound	75	31	41	24	4	0	77	98	0.19	0.28	FM	M17	M16-Ap12	none
(H7)	Deepwater Bay	78	12	49	18	9	13	58	69	0.15	0.17	NM	M13	Ap11-18	none
(H8)	Kanish Bay	87	14	69	15	1	1	80	72	0.14	0.15	NY	M13	Ap11-18	none
(H9)	Granite Bay	97	51	48	1	0	0	29	32	0.12	0.15	NY	M13	Ap11-18	none

Table 4. (cont'd)

Map ref.	Location	n	% at age					% Mature		Av. G.I.		Maturity[a] stage	Date of		
			2	3	4	5	6+	MM	FF	MM	FF		Tagging	Spawning	Fishery
STRAIT OF GEORGIA DIVISION															
(J1)	Heriot Bay	82	6	46	39	6	2	91	97	0.15	0.22	FM	M11	M26-Ap13	none
(J2)	Rebecca Spit	80	3	35	43	10	10	38	34	0.19	0.22	SP	M11	M26-Ap13	none
(J3)	Rebecca Spit	81	6	64	26	2	1	70	84	0.14	0.19	SP	M12	M26-Ap13	none
(J4)	Komas Bluff	73	4	26	44	11	15	29	35	0.18	0.25	SP	M7	M2-10	M4-7
(J5)	Komas Bluff	73	10	29	36	14	12	8	33	0.14	0.21	ST	M10	M2-10	M4-7
(J6)	Lambert Channel	75	5	37	35	12	11	23	51	0.15	0.24	SP	M8	M2-10	M4-7
(J7)	Comox Bar	71	6	32	38	11	13	1	2	0.40	0.15	ST	M8	M2-10	M4-7
(J8)	Comox Bar	75	13	40	31	8	8	36	34	0.19	0.26	SP	M10	M2-10	M4-7
(J9)	Chrome Island	78	14	41	28	6	10	17	33	0.15	0.21	SP	M9	M2-10	M4-7
(J10)	Chrome Island	80	25	43	20	10	3	4	15	0.13	0.18	ST	M9	M2-10	M4-7
(J11)	Qualicum Beach	74	4	34	30	11	22	14	14	0.12	0.16	ST	M10	M12	none
(J12)	Qualicum Beach	46	4	33	37	15	11	7	2	0.16	0.31	ST	M10	M12	none
(J13)	Qualicum Beach	140	7	45	23	17	8	1	7	0.06	0.20	ST	M10	M12	none
(J14)	Mistaken Island	77	16	53	23	4	4	77	90	0.18	0.25	SP	M11	M10-13	none
(J15)	Mistaken Island	85	11	40	40	6	4	14	15	0.18	0.19	ST	M12	M10-13	none
(J16)	Parksville	76	12	47	24	11	7	6	1	0.13	0.31	ST	M9	M10-13	none
(J17)	Northwest Bay	75	31	44	20	3	3	4	21	0.13	0.19	ST	M11	M10-13	none
(J18)	Northwest Bay	77	23	51	23	1	1	6	10	0.15	0.19	ST	M12	M10-13	none
(J19)	Scuttle Bay	75	0	37	41	12	9	95	85	0.17	0.24	SP	M6	M3-6	none
(J20)	Lund	80	0	55	39	4	3	9	26	0.14	0.19	ST	M11	M3-6	none
(J21)	Westview	76	3	34	50	8	5	0	5	0.00	0.15	ST	M12	M3-6	none
(J22)	Porlier Pass	71	6	44	30	7	14	57	73	0.17	0.27	SP	M11	M20-26	none
(J23)	Parker Island	83	65	24	4	0	7	85	81	0.19	0.22	MY	M2	M20-26	none
(J24)	Galiano Island	70	4	30	27	10	29	76	81	0.18	0.29	SP	M12	M20-26	none
(J25)	Nanoose Bay Entr.	64	20	50	25	3	2	11	28	0.16	0.17	ST	M13	M15-19	none
(J26)	Nanoose Bay	82	57	33	4	5	1	4	0	0.14	0.00	ST	M14	M15-19	none

Table 4. (cont'd)

Map ref.	Location	n	% at age					% Mature		Av. G.I.		Maturity[a] stage	Date of		
			2	3	4	5	6+	MM	FF	MM	FF		Tagging	Spawning	Fishery
STRAIT OF GEORGIA (cont'd.).															
(J27)	Richard Point	72	50	42	8	0	0	8	26	0.15	0.18	ST	M15	M15-19	none
(J28)	Richard Point	81	58	32	9	0	1	5	20	0.16	0.20	ST	M15	M15-19	none
(J29)	Maude Island	82	13	34	21	12	20	17	32	0.20	0.27	ST	M15	M15-19	none
(J30)	Pylades Channel	60	8	50	25	2	15	100	100	0.16	0.23	FM	M1	M1-26	none
(J31)	Pylades Channel	52	13	44	23	8	12	90	98	0.18	0.24	FM	M10	M1-26	none
(J32)	Coffin Point	60	17	43	32	7	2	81	88	0.17	0.25	SP	M12	M1-26	none
(J33)	Portlock Point	60	37	52	3	3	5	82	77	0.16	0.19	MY	M4	M5-26	none
(J34)	Captain Passage	229	11	40	16	4	29	85	78	0.16	0.19	NM	M5	M5-26	none
(J35)	Annette Point	72	22	40	21	6	11	93	100	0.16	0.24	MY	M11	F23-M15	none
(J36)	Navy Channel	66	36	52	12	0	0	86	95	0.14	0.21	MY	M3	M17	none
(J37)	Navy Channel	61	36	41	18	3	2	90	89	0.15	0.19	MY	M3	M17	none
(J38)	Navy Channel	77	38	44	10	4	4	76	83	0.15	0.20	MY	M11	M17	none
WEST COAST OF VANCOUVER ISLAND DIVISION															
(K1)	Folger Island	76	7	49	20	7	18	97	98	0.17	0.25	NM	M2	M17-21	M11,15-16
(K2)	Coaster Channel	125	50	43	5	2	0	98	55	0.15	0.20	MY	M12	M17-21	M11,15-16
(K3)	Coaster Channel	73	23	60	14	1	1	79	96	0.16	0.22	MY	M13	M17-21	M11,15-16
(K4)	Swale Rock	65	20	55	11	8	6	96	98	0.17	0.25	MY	M15	M17-21	M11,15-16
(K5)	Mayne Bay	84	10	36	21	7	26	97	100	0.20	0.27	FM	M16	M19	M11,15-16
(K6)	Mayne Bay	72	7	53	28	6	7	100	100	0.18	0.28	FM	M17	M19	M11,15-16
(K7)	Shelter Inlet	81	1	40	40	5	15	86	96	0.18	0.26	FM	M10	M9-21	none
(K8)	Hootla Kootla	60	7	77	17	0	0	50	75	0.15	0.22	SP	M10	M9-21	none
(K9)	Hootla Kootla	74	3	23	31	14	30	90	96	0.19	0.27	FM	M11	M9-21	none
(K10)	Starling Point	0	-	-	-	-	-	87	100	0.17	0.27	FM	M11	M9-21	none
(K11)	Cypress Bay	63	3	44	29	8	16	92	95	0.17	0.26	FM	M5	M12-19	M15-16

Table 4. (cont'd)

Map ref.	Location	n	% at age					% Mature		Av. G.I.		Maturity[a] stage	Date of		
			2	3	4	5	6+	MM	FF	MM	FF		Tagging	Spawning	Fishery
WEST COAST OF VANCOUVER ISLAND (cont'd.).															
(K12)	Cypress Bay	73	5	37	30	11	16	100	100	0.20	0.29	FM	M7	M12-19	M15-16
(K13)	Cypress Bay	65	2	26	22	17	34	98	93	0.19	0.27	FM	M8	M12-19	M15-16
(K14)	Cypress Bay	65	0	20	23	8	49	100	100	0.22	0.31	FM	M8	M12-19	M15-16
(K15)	Hecate Bay	67	4	55	22	4	13	100	100	0.18	0.26	FM	M8	M12-19	M15-16
(K16)	Hecate Bay	59	12	53	9	7	10	100	100	0.20	0.29	FM	M9	M12-19	M15-16
(K17)	Zuciarte Channel	66	5	33	42	8	12	85	98	0.18	0.27	FM	M15	M9-22	M8-9
(K18)	Cook Channel	71	3	27	46	11	13	92	100	0.20	0.31	FM	M15	M9-22	M8-9
(K19)	Narvaez Island	75	1	37	43	11	8	94	100	0.20	0.28	FM	M16	M9-22	M8-9

[a]See text for definition of maturity stage codes.
[b]No spawn record in section - probably spawned nearby but not recorded.
[c]Unaged fish 73% of total (55 of 75).
[d]No spawn record in section - probably spawned in adjacent sec. 062 - Promise Island on June 6.
[e]Mainly maturing young with some immature young - no record of April spawn in section.
[f]No record of April spawn in this or adjacent sections although fish close to spawning.
[g]No spawn record in section - fish some weeks from maturing and could have spawned later in this or any of the adjacent sections.
[h]Spawn-on-kelp fishery (all others - roe fishery).
[i]Small fish, either immature or spent.

Table 5. Summary of the 1980-81 herring fisheries and stock abundance; and predicted, expected, and actual tag returns for the 1981 roe fishery from 1980 spring taggings.

Division and Management Unit	Stock[a] (t)	Catch (t)[a]		Tags released spring	1981-RO tag returns		
		1980-FO	1981-RO	1980	Predicted[b]	Expected	Actual
QUEEN CHARLOTTE IS.							
North coast Q.C.I.	2,119	50	-	-	-	-	-
West coast Q.C.I.	6,336	-	873	969	17	24	-
Louscoone Inlet	1,475	-	-	1,889	99	-	-
Skincuttle Inlet	15,480	-	5,011	2,953	155	165	2
Other east coast Q.C.I.	8,512	-	1,161	1,908	33	45	2
All	33,922	50	7,045	7,719	304[c]	234[c] (280)[d]	4
NORTH COAST							
Chatham Sound	8,554	500	-	2,432	85	-	1
Porcher Island	9,498	2,000	1,544	4,846	170	109	-
Other North Coast	1,512	-	-	-	-	-	-
All	19,564	2,500	1,544	7,278	255[c]	109[c] (88)[d]	1
CENTRAL COAST							
Kitasu Bay	13,778	350	1,361	2,470	130	42	-
Milbanke Sound	22,228	-	1,465	2,941	154	34	-
Queens Sound	3,388	-	-	676	24	-	1
Kwakshua Channel	7,484	-	-	1,949	34	-	-
Burke Channel	649	-	-	-	-	-	-
Rivers Inlet	97	-	-	987	-	-	-
Smith Inlet	535	-	-	982	-	-	-
Other Central Coast	626	-	-	-	-	-	-
All	48,785	350	2,826	10,005	342[c]	76[c] (101)[d]	1

Table 5. (cont'd)

Division and Management Unit	Stock[a] (t)	Catch (t)[a]		Tags released spring	1981-RO tag returns		
		1980-FO	1981-RO	1980	Predicted[b]	Expected	Actual
JOHNSTONE STRAIT							
Upper Johnstone Strait	4,481	-	-	950	-	-	-
Knight Inlet	1,256	-	-	929	-	-	-
Other Johnstone Strait	11,449	-	35	1,037	-	-	-
All	17,186	-	35	2,916	-	-[c] (-)[d]	-
STRAIT OF GEORGIA							
Powell River	14,537	100	-	1,676	168	-	-
Nanaimo-Comox	107,257	5,900	7,809	3,971	139	48	-
Yellow Point	21,517	-	3	1,913	67	-	1
Ganges-Plumper	2,247	-	-	782	-	-	-
Other mainland	13	-	-	-	-	-	-
Other Vancouver Island	460	-	-	-	-	-	-
All	146,031	6,000	7,812	8,342	374[c]	48[c] (75)[d]	1
WEST COAST VANCOUVER IS.							
Barkley Sound	15,415	-	3,558	2,913	153	118	1
South Clayoquot	28,405	-	1,594	2,364	83	23	3
Other Area 24	1,971	-	277	969	34	24	1
Nootka Sound	5,516	-	2,288	-	-	-	-
Nuchatlitz Inlet	11,675	-	1,472	1,537	91	34	1

Table 5. (cont'd)

Division and Management Unit	Stock[a] (t)	Catch (t)[a]		Tags released spring 1980	1981-RO tag returns		
		1980-FO	1981-RO		Predicted[b]	Expected	Actual
Quatsino Sound	8,157	-	775	1,956	68	33	-
Other Upper W.C.V.I.	-	-	-	948	17	-	-
All	71,139	-	9,964	10,687	446[c]	232[c] (262)[d]	6
COAST	336,627	8,900	29,226	46,947	1,721[c]	699[c] (713)[d]	13

[a]From Hourston 1982.
[b]From Haegele 1981.
[c]Sum of management units.
[d]Calculated by treating division and coast as one unit.

Table 6. Summary of herring tagging and tag recovery to June 30, 1981.

Period and region of release	Fishery										Sets and tows			Tags		
	1979 food	1979-80 oth. win.	1980 roe	1980 oth. sp.	1980 oth. s&f	1980 food	1980-81 oth. win.	1981 roe	1981 oth. sp.	UK	Rel.	Rec.	% rec.	Rel.	Rec.	% rec.
1979 FALL																
Johnstone Strait	-	-	1	-	-	-	-	-	-	-	1	1	100	541	1	0.18
S. of Georgia - V.I. shore	22	3	1	2	-	-	-	3	-	-	9	5	56	4438	31	0.70
COAST total	22	3	2	2	-	-	-	3	-	-	10	6	60	4979	32	0.64
1980 SPRING																
Queen Charlotte Is.	-	-	1	-	-	1	-	4	1	-	8	4	50	7719	7	0.09
North Coast	-	-	1	3	-	2	-	1	-	-	10	5	50	7278	7	0.10
Central Coast	-	-	-	2	-	-	-	1	-	-	13	2	15	10009	3	0.03
Johnstone Strait	-	-	6	2	1	-	-	-	-	-	5	2	40	2916	9	0.31
S. of Georgia - mainland	-	-	-	7	-	-	-	-	-	-	2	2	100	1676	7	0.42
S. of Georgia - V.I. shore	-	-	1	2	-	-	-	1	-	-	10	4	40	6666	4	0.06
West Coast V.I. - nearshore	-	-	-	2	-	-	1	6	1	-	13	7	54	10687	10	0.09
COAST total	-	-	9	18	1	3	1	13	2	-	61	26	43	46951	47	0.10
1980 FALL																
North Coast	-	-	-	-	-	-	-	3	-	1	3	1	33	2982	4	0.13
Johnstone Strait	-	-	-	-	-	-	-	6	1	-	8	4	50	3888	7	0.18
S. of Georgia - V.I. shore	-	-	-	-	-	16	8	9	2	2	16	14	88	8600	37	0.43
West Coast V.I. - offshore	-	-	-	-	1	2	2	6	-	1	16	8	50	14349	12	0.08
COAST total	-	-	-	-	1	18	10	24	3	4	43	27	63	29819	60	0.20
1981 SPRING																
Queen Charlotte Is.	-	-	-	-	-	-	-	1	-	-	24	1	4	14344	1	0.01
North Coast	-	-	-	-	-	-	-	8	1	-	18	4	22	12904	9	0.07
Central Coast	-	-	-	-	-	-	-	1	-	-	33	1	3	18,298	1	0.01
Johnstone Strait	-	-	-	-	-	-	-	57	3	-	12	9	75	6,396	60	0.94
S. of Georgia - mainland	-	-	-	-	-	-	-	-	1	-	3	1	33	1987	1	0.05
S. of Georgia - V.I. shore	-	-	-	-	-	-	-	1	1	-	32	2	6	17772	2	0.01
West Coast V.I. - nearshore	-	-	-	-	-	-	-	23	-	-	19	8	42	9393	23	0.24
COAST total	-	-	-	-	-	-	-	91	6	-	141	26	18	81094	97	0.12

Table 7. Tag recoveries to June 30, 1981 by type of gear and fishery.

Code[a]	Description	No. of tags
Sn-Fo	Seine for food	36
Tr-Fo	Trawl for food	4
UK-Fo	Unknown for food	3
Sn-Ro	Seine for roe	25
Gn-Ro	Gillnet for roe	16
UK-Ro	Unknown for roe	15
Sn-Bt	Seine for bait	13
Sn-Pt	Seine by permit	26
UK-Pt	Unknown by permit	1
Sn-M	Seine-Miscellaneous	12
Tr-M	Trawl-Miscellaneous	5
UK-M	Unknown-Miscellaneous	1
SonK	Spawn-on-kelp (by seine)	53
S-gut	Salmon gut	8
C-gut	Cod gut	1
Sport	Sport fishery	4
UK	Unknown	13
Total		236

[a]As used in Tables 8 to 24.

Table 8. Tag recoveries for the Queen Charlotte Islands - by tagging period, section of release, and tagging set. (Recoveries with incomplete recovery information are included.)

Release						Recovery					
Map ref.	(Code)	Locality	Date (D/M/Y)	Maturity[c] stage	No. of tags	(Code)	Locality	Type[a]	No. of tags	Date (D/M/Y)	Days at large
SPRING 1980 TAGGING											
A1[b]	(003-0097)	Seal Inlet	02/04/80	FM	969	(052-0338)	Freeman Passage	Tr-Fo	1	19/11/80	231
A4[b]	(023-1371)	Nedden Island	07/04/80	ST	460	(024-0133)	Atli Inlet or	UK-Ro	1	24/03/81 or	351 or
						(052-0341)	Kitkatla Inlet			27/03/81	354
						(024-0133)	Atli Inlet	Sn-Bt	1	05/05/81	393
									2		
A5[b]	(023-1371)	Nedden Island	08/04/80	SP	1448	(024-0133)	Atli Inlet or	UK-Ro	1	24/03/81 or	350 or
						(052-0341)	Kitkatla Inlet			27/03/81	353
A6[b]	(025-0166)	Burnaby Strait	25/03/80	FM	984	(025-0170)	Bag Harbour	Gn-Ro	1	26/03/80	1
						(025-0169)	Skincuttle Inlet	Sn-Ro	1	19/03/81	359
						(024-0133)	Atli Inlet or	UK-Ro	1	24/03/81 or	364 or
						(052-0341)	Kitkatla Inlet			27/03/81	367
									3		
SPRING 1981 TAGGING											
E14	(024-0133)	Atli Inlet	26/03/81	NM	494	(UK)	UK	UK	1	31/03/81	5

[a]See Table 7 for gear/fishery code.
[b]Figure in 1979-80 report (Haegele 1981).
[c]See text for definition of maturity stage codes.

Table 9. Tag recoveries for the Queen Charlotte Islands - by fishery and section of capture.

Recovery						Release			
(Code)	Locality	Type[a]	No. of tags	Date (D/M/Y)	Days at large	Map ref.	(Code)	Locality	Date (D/M/Y)
1980 ROE FISHERY									
(025-0170)	Bag Harbour	Gn-Ro	1	26/03/80	1	A6[b]	(025-0166)	Burnaby Strait	25/03/80
1981 ROE FISHERY									
(024-0133)	Atli Inlet	SonK	1	01/04/81	116	A2	(051-0298)	Browning Entrance	06/12/80
(025-0169)	Skincuttle Inlet	Sn-Ro	1	19/03/81	359	A6[b]	(025-0166)	Burnaby Strait	25/03/80
1981 OTHER SPRING FISHERIES									
(024-0133)	Atli Inlet	Sn-Bt	1	05/05/81	393	A4[b]	(023-1371)	Nedden Island	07/04/80

[a]See Table 7 for gear/fishery code.
[b]Figure in 1979-80 report (Haegele 1981).

Table 10. Tag recoveries for the North Coast - by tagging period, section of release, and tagging set. (Recoveries with incomplete recovery information are included.)

Release						Recovery					
Map ref.	(Code)	Locality	Date (D/M/Y)	Maturity[c] stage	No. of tags	(Code)	Locality	Type[a]	No. of tags	Date (D/M/Y)	Days at large
SPRING 1980 TAGGING											
B2[b]	(033-0216)	Village Island	27/03/80	FM	481	(052-0341)	Kitkatla Inlet	Sn-Ro	1	27/03/81	365
B3[b]	(042-1598)	Otter Anchorage	29/03/80	FM	979	(051-0305)	Bonilla Island	S-gut	1	22/06/80	85
						(032-0198)	Work Channel	UK	1	03/07/80	96
									2		
B4[b]	(042-0266)	Pearl Harbour[d]	29/03/80	UK	489	(042-0266)	Pearl Harbour	SonK	1	05/05/80	37
B5[b]	(043-1451)	Mason Point	12/04/80	UK	1421	(051-0302)	White Rocks	Tr-Fo	1	19/11/80	221
						(052-0338)	Freeman Passage	Sn-Fo	1	23/11/80	225
									2		
B8[b]	(052-0354)	Gurd Island	02/04/80	FM	497	(041-0238)	Triple Islands	S-gut	1	01/07/80	90
FALL 1980 TAGGING											
A2	(051-0298)	Browning Entrance	06/12/80	-	995	(052-0341)	Kitkatla Inlet	Sn-Ro	1	27/03/81	111
						(UK)	UK	UK	1	UK	UK
						(024-0133)	Atli Inlet or	UK-Ro	1	24/03/81 or	108 or
						(052-0341)	Kitkatla Inlet			27/03/81	111
						(024-0133)	Atli Inlet	SonK	1	01/04/81	116
									4		

Table 10. (cont'd)

Release						Recovery					
Map ref.	(Code)	Locality	Date (D/M/Y)	Maturity[c] stage	No. of tags	(Code)	Locality	Type[a]	No. of tags	Date (D/M/Y)	Days at large
SPRING 1981 TAGGING											
F2	(033-0211)	Stumaun Bay	24/03/81	SP	494	(033-1488)	Flewin Point	Sn-Bt	1	14/05/81	51
F6	(043-0286)	Chismore Passage	28/03/81	FM	986	(043-0286)	Chismore Passage	Sn-M	1	01/04/81	4
						(052-0341)	Kitkatla Inlet	Gn-Ro	1	01/04/81	4
						(043-0291)	Island Point	SonK	2	15/04/81	18
									4		
F7	(043-0286)	Chismore Passage	29/03/81	FM	494	(043-0291)	Island Point	SonK	2	15/04/81	17
F8	(043-1454)	Elliot Island	29/03/81	FM	993	(043-0291)	Island Point	SonK	2	15/04/81	17

[a]See Table 7 for gear/fishery code.
[b]Figure in 1979-80 report (Haegele 1981).
[c]See text for definition of maturity stage codes.
[d]Fish were tagged into pond on date of release.

Table 11. Tag recoveries for the North Coast - by fishery and section of capture.

Recovery						Release			
(Code)	Locality	Type[a]	No. of tags	Date (D/M/Y)	Days at large	Map ref.	(Code)	Locality	Date (D/M/Y)
1980 ROE FISHERY									
(042-0266)	Pearl Harbour	SonK	1	05/05/80	37	B4[b]	(025-0266)	Pearl Harbour[c]	29/03/80
1980 OTHER SPRING FISHERIES									
(032-0198)	Work Channel	UK	1	03/07/80	96	B3[b]	(042-1598)	Otter Anchorage	29/03/80
(041-0238)	Triple Islands	S-gut	1	01/07/80	90	B8[b]	(052-0354)	Gurd Island	02/04/80
(051-0305)	Bonilla Island	S-gut	1	22/06/80	85	B3[b]	(042-1598)	Otter Anchorage	29/03/80
1980 FOOD FISHERY									
(051-0302)	White Rocks	Tr-Fo	1	19/11/80	221	B5[b]	(043-1451)	Mason Point	12/04/80
(052-0338)	Freeman Passage	Tr-Fo	1	19/11/80	231	A1[b]	(003-0097)	Seal Inlet	02/04/80
(052-0338)	Freeman Passage	Sn-Fo	1	23/11/80	225	B5[b]	(043-1451)	Mason Point	12/04/80
1981 ROE FISHERY									
(043-0286)	Chismore Passage	Sn-M	1	01/04/81	4	F6	(043-0286)	Chismore Passage	28/03/81
(043-0291)	Island Point	SonK	2	15/04/81	18	F6	(043-0286)	Chismore Passage	28/03/81
(043-0291)	Island Point	SonK	2	15/04/81	17	F7	(043-0286)	Chismore Passage	29/03/81
(043-0291)	Island Point	SonK	2	15/04/81	17	F8	(043-1454)	Elliott Island	29/03/81
(052-0341)	Kitkatla Inlet	Sn-Ro	1	27/03/81	365	B2[b]	(033-0216)	Village Island	27/03/80
(052-0341)	Kitkatla Inlet	Sn-Ro	1	27/03/81	111	A2	(051-0298)	Browning Entrance	06/12/80
(052-0341)	Kitkatla Inlet	Gn-Ro	1	01/04/81	4	F6	(043-0286)	Chismore Passage	28/03/81

Table 11. (cont'd)

Recovery						Release			
(Code)	Locality	Type[a]	No. of tags	Date (D/M/Y)	Days at large	Map ref.	(Code)	Locality	Date (D/M/Y)
1981 OTHER SPRING FISHERIES									
(033-1488)	Flewin Point	Sn-Bt	1	14/05/81	51	F2	(033-0211)	Stumaun Bay	24/03/81

[a]See Table 7 for gear/fishery code.
[b]Figure in 1979-80 report (Haegele 1981).
[c]Fish were tagged into pond at date of release.

Table 12. Tag recoveries for the Central Coast - by tagging period, section of release, and tagging set.

Release						Recovery					
Map ref.	(Code)	Locality	Date (D/M/Y)	Maturity[c] stage	No. of tags	(Code)	Locality	Type[a]	No. of tags	Date (D/M/Y)	Days at large
SPRING 1980 TAGGING											
C7[b]	(074-0546)	Houghton Islands	23/03/80	FM	980	(071-0443)	Goose Island	Sn-M	1	27/05/80	65
						(076-1650)	Gosling Rocks	S-gut	1	17/06/80	86
									2		
C8[b]	(075-1424)	Hoffman Bay	22/03/80	FM	676	(074-0546)	Houghton Islands	Sn-Ro	1	17/03/81	360
SPRING 1981 TAGGING											
G4	(067-0425)	Parsons Anchorage	25/03/81	SP	499	(067-0431)	Higgins Passage	Sn-M	1	09/04/81	16

[a]See Table 7 for gear/fishery code.
[b]Figure in 1979-80 report (Haegele 1981).
[c]See text for definition of maturity stage codes.

Table 13. Tag recoveries for the Central Coast - by fishery and section of capture.

Recovery						Release			
(Code)	Locality	Type[a]	No. of tags	Date (D/M/Y)	Days at large	Map ref.	(Code)	Locality	Date (D/M/Y)
1980 OTHER SPRING FISHERIES									
(071-0443)	Goose Island	Sn-M	1	27/05/80	65	C7[b]	(074-0546)	Houghton Islands	23/03/80
(076-1650)	Gosling Rocks	S-gut	1	17/06/80	86	C7[b]	(074-0546)	Houghton Islands	23/03/80
1981 ROE FISHERY									
(067-0431)	Higgins Passage	Sn-M	1	09/04/81	16	G4	(067-0425)	Parsons Anchorage	25/03/81
(074-0546)	Houghton Islands	Sn-Ro	1	17/03/81	360	C8[b]	(075-1424)	Hoffman Bay	22/03/80

[a]See Table 7 for gear/fishery code.
[b]Figure in 1979-80 report (Haegele 1981).

Table 14. Tag recoveries for Johnstone Strait and upper Strait of Georgia - by tagging period, section of release, and tagging set. (Recoveries with incomplete information are included.)

Release						Recovery					
Map ref.	(Code)	Locality	Date (D/M/Y)	Maturity[c] stage	No. of tags	(Code)	Locality	Type[a]	No. of tags	Date (D/M/Y)	Days at large
FALL 1979 TAGGING											
Da[b]	(132-0766)	Deepwater Bay	17/01/80	-	541	(132-0800)	Kanish Bay	SonK	1	14/04/80	88
SPRING 1980 TAGGING											
D3[b]	(127-1611)	Axe Point	20/03/80	MY	929	(123-0691)	Bones Bay	Sn-Bt	1	05/05/80	46
						(123-0693)	Minstrel Island	Sn-Bt	1	21/05/80	62
									2		
D5[b]	(132-0800)	Kanish Bay	18/03/80	MY	462	(132-0800)	Kanish Bay	SonK	4	14/04/80	27
						(132-0798)	Granite Bay	SonK	2	28/04/80	41
						(137-0791)	Cape Mudge	Sn-M	1	02/09/80	168
									7		
FALL 1980 TAGGING											
B2	(132-0766)	Deepwater Bay	13/11/80	-	512	(132-0766)	Deepwater Bay	Sn-M	1	13/03/81	120
						(132-0764)	Bells Bay	SonK	1	06/04/81	144
						(132-0764)	Bells Bay	SonK	1	08/04/81	146
									3		
B4	(132-0766)	Deepwater Bay	30/11/80	-	500	(132-0764)	Bells Bay	SonK	1	08/04/81	129

Table 14. (cont'd)

Release						Recovery					
Map ref.	(Code)	Locality	Date (D/M/Y)	Maturity[c] stage	No. of tags	(Code)	Locality	Type[a]	No. of tags	Date (D/M/Y)	Days at large
FALL 1980 TAGGING - (cont'd)											
B6	(132-0766)	Deepwater Bay	30/11/80	-	497	(132-0764)	Bells Bay	SonK	1	10/04/81	131
						(162-0886)	St. Vincent Bay	Sn-Bt	1	28/04/81	149
									2		
B8	(132-0766)	Deepwater Bay	09/12/80	-	493	(132-0798)	Granite Bay	Sn-Pt	1	31/03/81	112
SPRING 1981 TAGGING											
H2	(123-0691)	Bones Bay	14/03/81	NM	496	(123-0692)	Parson Bay	Sn-Bt	1	01/06/81	79
H4	(125-0708)	Meade Bay	14/03/81	NY	497	(UK)	UK	UK-Ro	1	17/03/81	3
H6	(126-0757)	Wakeman Sound	17/03/81	FM	981	(123-0692)	Parson Bay	Sn-Bt	1	UK/05/81	(50)
H7	(132-0766)	Deepwater Bay	13/03/81	NM	489	(132-0800)	Kanish Bay	Sn-Pt	1	31/03/81	18
						(132-0798)	Granite Bay	Sn-Pt	3	31/03/81	18
						(132-0764)	Bells Bay	SonK	1	08/04/81	26
						(152-0856)	Lund	SonK	1	08/04/81	26
						(132-0764)	Bells Bay	SonK	2	10/04/81	28
									8		
H8	(132-0800)	Kanish Bay	13/03/81	NY	496	(132-0800)	Kanish Bay	Sn-Pt	1	31/03/81	18
						(132-0798)	Granite Bay	Sn-Pt	10	31/03/81	18
						(137-0800)	Rebecca Spit	Sn-Pt	1	03/04/81	21
						(137-0805)	Heriot Bay	Sn-Pt	1	03/04/81	21

Table 14. (cont'd)

Release						Recovery					
Map ref.	(Code)	Locality	Date (D/M/Y)	Maturity[c] stage	No. of tags	(Code)	Locality	Type[a]	No. of tags	Date (D/M/Y)	Days at large
SPRING 1981 TAGGING - (cont'd)											
						(132-0764)	Bells Bay	SonK	16	06/04/81	24
						(132-0764)	Bells Bay	SonK	1	08/04/81	26
						(132-0764)	Bells Bay	SonK	9	10/04/81	28
						(132-0766)	Deepwater Bay	Sport	1	01/05/81	49
									40		
H9	(132-0798)	Granite Bay	13/03/81	NY	483	(132-0798)	Granite Bay	Sn-Pt	4	31/03/81	18
						(137-0805)	Heriot Bay	Sn-Pt	1	03/04/81	21
									5		
J1	(137-0805)	Heriot Bay	11/03/81	FM	492	(132-0764)	Bells Bay	SonK	2	06/04/81	26
J2	(137-0806)	Rebecca Spit	11/03/81	SP	493	(132-0764)	Bells Bay	SonK	1	06/04/81	26
J3	(137-0806)	Rebecca Spit	12/03/81	SP	488	(132-0798)	Granite Bay	Sn-Pt	1	31/03/81	19

[a]See Table 7 for gear/fishery code.
[b]Figure in 1979-80 report (Haegele 1981).
[c]See text for definition of maturity stage codes.

Table 15. Tag recoveries for Johnstone Strait and upper Strait of Georgia - by fishery and section of capture.

Recovery						Release			
(Code)	Locality	Type[a]	No. of tags	Date (D/M/Y)	Days at large	Map ref.	(Code)	Locality	Date (D/M/Y)
1980 ROE FISHERY									
(132-0800)	Kanish Bay	SonK	1	14/04/80	88	Da[b]	(132-0766)	Deepwater Bay	17/01/80
(132-0800)	Kanish Bay	SonK	4	14/04/80	27	D5[b]	(132-0800)	Kanish Bay	18/03/80
(132-0798)	Granite Bay	SonK	2	28/04/80	41	D5[b]	(132-0800)	Kanish Bay	18/03/80
1980 OTHER SPRING FISHERIES									
(123-0691)	Bones Bay	Sn-Bt	1	05/05/80	46	D3[b]	(127-1611)	Axe Point	20/03/80
(123-0693)	Minstrel Island	Sn-Bt	1	21/05/80	70	E7[b]	(152-0856)	Lund Harbour	12/03/80
(123-0693)	Minstrel Island	Sn-Bt	1	21/05/80	62	D3[b]	(127-1611)	Axe Point	20/03/80
1980 OTHER SUMMER AND FALL FISHERIES									
(137-0791)	Cape Mudge	Sn-M	1	02/09/80	168	D5[b]	(132-0800)	Kanish Bay	18/03/80
1981 ROE FISHERY									
(132-0766)	Deepwater Bay	Sn-M	1	13/03/81	120	B2	(132-0766)	Deepwater Bay	13/11/80
(132-0798)	Granite Bay	Sn-Pt	1	31/03/81	112	B8	(132-0766)	Deepwater Bay	09/12/80
(132-0798)	Granite Bay	Sn-Pt	1	31/03/81	19	J3	(132-0806)	Rebecca Spit	12/03/81
(132-0798)	Granite Bay	Sn-Pt	3	31/03/81	18	H7	(132-0766)	Deepwater Bay	13/03/81
(132-0798)	Granite Bay	Sn-Pt	10	31/03/81	18	H8	(132-0800)	Kanish Bay	13/03/81
(132-0798)	Granite Bay	Sn-Pt	4	31/03/81	18	H9	(132-0798)	Granite Bay	13/03/81
(132-0800)	Kanish Bay	Sn-Pt	1	31/03/81	18	H7	(132-0766)	Deepwater Bay	13/03/81
(132-0800)	Kanish Bay	Sn-Pt	1	31/03/81	18	H8	(132-0800)	Kanish Bay	13/03/81
(132-0764)	Bells Bay	SonK	1	06/04/81	144	B2	(132-0766)	Deepwater Bay	13/11/80

Table 15. (cont'd)

Recovery						Release		
(Code)	Locality	Type[a]	No. of tags	Date (D/M/Y)	Days at large	Map ref.	(Code)	Locality	Date (D/M/Y)
(132-0764)	Bells Bay	SonK	2	06/04/81	26	J1	(137-0805)	Heriot Bay	11/03/81
(132-0764)	Bells Bay	SonK	1	06/04/81	26	J2	(137-0806)	Rebecca Spit	11/03/81
(132-0764)	Bells Bay	SonK	16	06/04/81	24	H8	(132-0800)	Kanish Bay	13/03/81
(132-0764)	Bells Bay	SonK	1	08/04/81	146	B2	(132-0766)	Deepwater Bay	13/11/80
(132-0764)	Bells Bay	SonK	1	08/04/81	129	B4	(132-0766)	Deepwater Bay	30/11/80
(132-0764)	Bells Bay	SonK	1	08/04/81	26	H7	(132-0766)	Deepwater Bay	13/03/81
(132-0764)	Bells Bay	SonK	1	08/04/81	26	H8	(132-0800)	Kanish Bay	13/03/81
(132-0764)	Bells Bay	SonK	1	10/04/81	131	B6	(132-0766)	Deepwater Bay	30/11/80
(132-0764)	Bells Bay	SonK	2	10/04/81	28	H7	(132-0766)	Deepwater Bay	13/03/81
(132-0764)	Bells Bay	SonK	9	10/04/81	28	H8	(132-0800)	Kanish Bay	13/03/81
(137-0806)	Rebecca Spit	Sn-Pt	1	03/04/81	21	H8	(132-0800)	Kanish Bay	13/03/81
(137-0805)	Heriot Bay	Sn-Pt	1	03/04/81	21	H9	(132-0798)	Granite Bay	13/03/81
(137-0805)	Heriot Bay	Sn-Pt	1	03/04/81	21	H8	(132-0800)	Kanish Bay	13/03/81
1981 OTHER SPRING FISHERIES									
(123-0692)	Parson Bay	Sn-Bt	1	01/06/81	79	H2	(123-0691)	Bones Bay	14/03/81
(132-0766)	Deepwater Bay	Sport	1	01/05/81	49	H8	(132-0800)	Kanish Bay	13/03/81
(137-0789)	Quathiaski Cove	Sn-Bt	1	29/05/81	79	J20	(152-0856)	Lund Harbour	11/03/81

[a]See Table 7 for gear/fishery code.
[b]Figure in 1979-80 report (Haegele 1981).

Table 16. Tag recoveries for the mainland coast of the Strait of Georgia - by tagging period, section of release, and tagging set.

Release						Recovery					
Map ref.	(Code)	Locality	Date (D/M/Y)	Maturity[c] stage	No. of tags	(Code)	Locality	Type[a]	No. of tags	Date (D/M/Y)	Days at large
SPRING 1980 TAGGING											
E6[b]	(152-0861)	Dinner Rock	09/03/82	FM	753	(152-0856)	Lund Harbour	SonK	1	06/04/80	28
						(152-0856)	Lund Harbour	Sn-Bt	1	05/05/80	57
									2		
E7[b]	(152-0856)	Lund Harbour	12/03/80	SP	923	(152-0856)	Lund Harbour	Sn-Bt	1	22/04/80	41
						(152-0856)	Lund Harbour	Sn-Bt	1	24/04/80	43
						(152-0866)	Copeland Islands	Sn-Bt	1	09/05/80	58
						(123-0693)	Minstrel Island	Sn-Bt	1	21/05/80	70
						(152-0866)	Copeland Islands	C-gut	1	24/06/80	104
									5		
SPRING 1981 TAGGING											
J20	(152-0856)	Lund Harbour	11/03/81	ST	494	(137-0789)	Quathiaski Cove	Sn-Bt	1	29/05/81	79

[a]See Table 7 for gear/fishery code.
[b]Figure in 1979-80 report (Haegele 1981).
[c]See text for definition of maturity stage code.

Table 17. Tag recoveries for the mainland coast of the Strait of Georgia - by fishery and section of capture.

Recovery						Release		
(Code)	Locality	Type[a]	No. of tags	Date (D/M/Y)	Days at large	Map ref.	(Code)	Locality	Date (D/M/Y)
1980 ROE FISHERY									
(152-0856)	Lund Harbour	SonK	1	06/04/80	28	E6[b]	(152-0861)	Dinner Rock	09/03/80
1980 OTHER SPRING FISHERIES									
(152-0856)	Lund Harbour	Sn-Bt	1	22/04/80	41	E7[b]	(152-0856)	Lund Harbour	12/03/80
(152-0856)	Lund Harbour	Sn-Bt	1	24/04/80	43	E7[b]	(152-0856)	Lund Harbour	12/03/80
(152-0856)	Lund Harbour	Sn-Bt	1	05/05/80	57	E6[b]	(152-0861)	Dinner Rock	09/03/80
(152-0866)	Copeland Islands	Sn-Bt	1	09/05/80	58	E7[b]	(152-0856)	Lund Harbour	12/03/80
(152-0806)	Copeland Islands	C-gut	1	24/06/80	104	E7[b]	(152-0856)	Lund Harbour	12/03/80
1981 ROE FISHERY									
(152-0856)	Lund Harbour	SonK	1	08/04/81	26	H7	(132-0766)	Deepwater Bay	13/03/81
1981 OTHER SPRING FISHERIES									
(162-0886)	St. Vincent Bay	Sn-Bt	1	28/04/81	149	B6	(132-0766)	Deepwater Bay	30/11/80

[a]See Table 7 for gear/fishery code.
[b]Figure in 1979-80 report (Haegele 1981).

Table 18. Tag recoveries for the Vancouver Island coast of the Strait of Georgia - by tagging period, section of release, and tagging set. (Recoveries with incomplete recovery information are included.)

Release						Recovery					
Map ref.	(Code)	Locality	Date (D/M/Y)	Maturity[c] stage	No. of tags	(Code)	Locality	Type[a]	No. of tags	Date (D/M/Y)	Days at large
FALL 1979 TAGGING											
G1[b]	(171-0990)	Parker Island	08/11/79	-	575	(171-0942)	Porlier Pass	Sm-Fo	3	21/11/79	13
						(171-0938)	Trincomali Channel	Sm-Fo	1	21/11/79	13
						(181-1008)	Swanson Channel	Sm-Fo	1	01/12/79	23
						(142-0811)	Lambert Channel	Sm-Ro	1	04/03/81	482
						(UK)	UK	UK-Ro	2	UK/03/81	(482)
									8		
G2[b]	(171-0991)	Secretary Islands	20/11/79	-	689	(171-0942)	Porlier Pass	Sm-Fo	7	20/11/79	0
						(171-0942)	Porlier Pass	Sm-Fo	7	21/11/79	1
						(171-0938)	Trincomali Channel	Sm-Fo	1	25/11/79	5
						(171-0938)	Trincomali Channel	Sm-Fo	2	26/11/79	6
						(171-0938)	Trincomali Channel	UK-Pt	1	08/01/80	49
									18		
G4[b]	(171-0946)	Hall Island	28/11/79	-	591	(171-0942)	Porlier Pass	Sport	1	13/06/80	198
G6[b]	(171-0946)	Hall Island	29/11/79	-	586	(171-0942)	Porlier Pass	Sport	1	28/04/80	151
G7[b]	(171-0942)	Porlier Pass	30/11/79	-	987	(171-2171)	Unknown Area 17	Sm-Pt	2	08/12/79	8
						(USA)	Cherry Point	Sm-Ro	1	05/05/80	157
									3		

Table 18. (cont'd)

Release						Recovery					
Map ref.	(Code)	Locality	Date (D/M/Y)	Maturity[c] stage	No. of tags	(Code)	Locality	Type[a]	No. of tags	Date (D/M/Y)	Days at large
SPRING 1980 TAGGING											
E2[b]	(142-1499)	Buckley Bay	12/03/80	ST	547	(142-0837)	Komas Bluff	S-gut	1	23/05/80	72
E3[b]	(144-0823)	Northwest Bay	13/03/80	SP	976	(171-0942)	Porlier Pass	S-gut	1	06/05/80	54
E10[b]	(173-0941)	Yellow Point	14/03/80	SP	481	(142-0811)	Lambert Channel	Sn-Ro	1	04/03/81	355
E12[b]	(184-1015)	Beaver Point	03/03/80	NM	455	(USA)	Point Whitehorn	Sn-Ro	1	12/05/80	70
FALL 1980 TAGGING											
C1	(171-0938)	Trincomali Channel	19/11/80	-	299	(171-0942)	Porlier Pass	Sn-Fo	2	02/12/80	13
C2	(171-0938)	Trincomali Channel	19/11/80	-	493	(173-0978)	Stuart Channel	Sn-Fo	1	25/11/80	6
						(171-0942)	Porlier Pass	Sn-Fo	1	02/12/80	13
						(UK)	UK	UK	1	UK	UK
						(UK)	UK	UK	1	07/12/80	18
									4		
C3	(171-0938)	Trincomali Channel	19/11/80	-	498	(173-0978)	Stuart Channel	Sn-Fo	1	25/11/80	6
						(171-0942)	Porlier Pass	Sn-Fo	1	02/12/80	13
						(181-1013)	Active Pass	Sport	1	21/02/81	94
									3		
C4	(171-0942)	Porlier Pass	09/01/81	-	988	(142-0811)	Lambert Channel	Gn-Ro	1	05/03/81	55

Table 18. (cont'd)

Release						Recovery					
Map ref.	(Code)	Locality	Date (D/M/Y)	Maturity[c] stage	No. of tags	(Code)	Locality	Type[a]	No. of tags	Date (D/M/Y)	Days at large
FALL 1980 TAGGING - (cont'd)											
C5	(173-0980)	Ruxton Island	26/11/80	-	397	(171-0942)	Porlier Pass	Sn-Fo	1	02/12/80	6
						(171-0942)	Porlier Pass	Tr-Fo	1	02/12/80	6
						(UK)	UK	UK-Fo	1	UK/12/80	(6)
									3		
C6	(173-0980)	Ruxton Island	27/11/80	-	500	(171-0942)	Porlier Pass	Sn-Fo	5	02/12/80	5
						(171-0942)	Porlier Pass	Tr-Fo	1	02/12/80	5
						(142-0811)	Lambert Channel	Gn-Ro	1	05/03/81	98
						(UK)	UK	UK	1	UK/04/81	UK
									8		
C7	(173-0959)	De Courcy Island	01/12/80	-	491	(UK)	UK	UK	1	UK/04/81	UK
C8	(173-0959)	De Courcy Island	02/12/80	-	498	(142-0811)	Lambert Channel	Gn-Ro	2	05/03/81	93
						(UK)	UK	UK	1	UK	UK
									3		
C9	(173-0959)	De Courcy Island	08/01/81	-	491	(142-0811)	Lambert Channel	Gn-Ro	2	05/03/81	56
C12	(173-0941)	Yellow Point	10/01/81	-	490	(173-0979)	Ruxton Passage	Sn-M	1	19/01/81	9
C13	(181-1008)	Swanson Channel	17/11/80	-	488	(UK)	UK	UK-Fo	1	UK/12/80	(15)
						(181-1005)	Satellite Channel	Tr-M	1	15/01/81	59
						(142-0811)	Lambert Channel	Gn-Ro	1	05/03/81	108
									3		

Table 18. (cont'd)

Release						Recovery					
Map ref.	(Code)	Locality	Date (D/M/Y)	Maturity[c] stage	No. of tags	(Code)	Locality	Type[a]	No. of tags	Date (D/M/Y)	Days at large
FALL 1980 TAGGING - (cont'd)											
C14	(181-1008)	Swanson Channel	17/11/80	-	493	(181-1005)	Satellite Channel	Tr-M	1	14/12/80	27
						(142-0811)	Lambert Channel	Gn-Ro	1	05/03/81	108
									2		
C15	(181-1008)	Swanson Channel	18/11/80	-	491	(181-1005)	Satellite Channel	UK-M	1	05/01/81	48
						(UK)	UK	UK-Ro	1	UK/03/81	(107)
									2		
C16	(181-1020)	Isabella Point	02/12/80	-	994	(181-1005)	Satellite Channel	Tr-M	1	15/01/81	44
						(UK)	UK	UK	1	15/01/81	44
									2		
SPRING 1981 TAGGING											
J8	(142-0830)	Comox Bar	10/03/81	SP	489	(218-1108)	Juan de Fuca Canyon	Tr-M	1	26/03/81	16
J30	(173-0943)	Pylades Channel	01/03/81	FM	462	(171-0942)	Porlier Pass	Sn-M	1	11/03/81	10

[a]See Table 7 for gear/fishery code.
[b]Figure in 1979-80 report (Haegele 1981).
[c]See text for definition of maturity stage code.

Table 19. Tag recoveries for the Vancouver Island coast of the Strait of Georgia - by fishery and section of capture.

Recovery						Release		
(Code)	Locality	Type[a]	No. of tags	Date (D/M/Y)	Days at large	Map ref.	(Code)	Locality	Date (D/M/Y)
1979 FOOD FISHERY									
(171-0942)	Porlier Pass	Sn-Fo	7	20/11/79	0	G2[b]	(171-0991)	Secretary Islands	20/11/79
(171-0942)	Porlier Pass	Sn-Fo	3	21/11/79	13	G1[b]	(171-0990)	Parker Island	08/11/79
(171-0938)	Trincomali Channel	Sn-Fo	1	21/11/79	13	G1[b]	(171-0990)	Parker Island	08/11/79
(171-0938)	Trincomali Channel	Sn-Fo	1	25/11/79	5	G2[b]	(171-0991)	Secretary Islands	20/11/79
(171-0938)	Trincomali Channel	Sn-Fo	2	26/11/79	6	G2[b]	(171-0991)	Secretary Islands	20/11/79
(181-1008)	Swanson Channel	Sn-Fo	1	01/12/79	23	G1[b]	(171-0990)	Parker Island	08/11/79
1979-80 OTHER WINTER FISHERIES									
(171-2171)	Unknown Area 17	Sn-Pt	2	08/12/79	8	G7[b]	(171-0942)	Porlier Pass	30/11/79
(171-0938)	Trincomali Channel	UK-Pt	1	08/01/80	49	G2[b]	(171-0991)	Secretary Islands	20/11/79
1980 OTHER SPRING FISHERIES									
(142-0837)	Komass Bluff	S-gut	1	23/05/80	72	E2[b]	(142-1499)	Buckley Bay	12/03/80
(171-0942)	Porlier Pass	Sport	1	28/04/80	151	G6[b]	(171-0946)	Hall Island	29/11/79
(171-0942)	Porlier Pass	S-gut	1	06/05/80	54	E3[b]	(144-0823)	Northwest Bay	13/03/80
(171-0942)	Porlier Pass	Sport	1	13/06/80	198	G4[b]	(171-0946)	Hall Island	28/11/79
1980 FOOD FISHERY									
(171-0942)	Porlier Pass	Sn-Fo	2	02/12/80	13	C1	(171-0938)	Trincomali Channel	19/11/80
(171-0942)	Porlier Pass	Sn-Fo	1	02/12/80	13	C2	(171-0938)	Trincomali Channel	19/11/80
(171-0942)	Porlier Pass	Sn-Fo	1	02/12/80	13	C3	(171-0938)	Trincomali Channel	19/11/80

Table 19. (cont'd)

Recovery						Release			
(Code)	Locality	Type[a]	No. of tags	Date (D/M/Y)	Days at large	Map ref.	(Code)	Locality	Date (D/M/Y)
1980 FOOD FISHERY (cont'd)									
(171-0942)	Porlier Pass	Tr-Fo	1	02/12/80	6	C5	(173-0980)	Ruxton Island	26/11/80
(171-0942)	Porlier Pass	Sn-Fo	1	02/12/80	6	C5	(173-0980)	Ruxton Island	26/11/80
(171-0942)	Porlier Pass	Sn-Fo	5	02/12/80	5	C6	(173-0980)	Ruxton Island	27/11/80
(171-0942)	Porlier Pass	Tr-Fo	1	02/12/80	5	C6	(173-0980)	Ruxton Island	27/11/80
(173-0978)	Stuart Channel	Sn-Fo	1	25/11/80	61	D4	(218-1103)	Swiftsure Bank	25/09/80
(173-0978)	Stuart Channel	Sn-Fo	1	25/11/80	6	C2	(171-0938)	Trincomali Channel	19/11/80
(173-0978)	Stuart Channel	Sn-Fo	1	25/11/80	6	C3	(171-0938)	Trincomali Channel	19/11/80
1980-81 OTHER WINTER FISHERIES									
(173-0979)	Ruxton Passage	Sn-M	1	19/01/81	9	C12	(173-0941)	Yellow Point	10/01/81
(181-1005)	Satellite Channel	Tr-M	1	14/12/80	27	C14	(181-1008)	Swanson Channel	17/11/80
(181-1005)	Satellite Channel	UK-M	1	05/01/81	48	C15	(181-1008)	Swanson Channel	18/11/80
(181-1005)	Satellite Channel	Tr-M	1	15/01/81	59	C13	(181-1008)	Swanson Channel	17/11/80
(181-1005)	Satellite Channel	Tr-M	1	15/01/81	44	C16	(184-1020)	Isabella Point	02/12/80
(181-1013)	Active Pass	Sport	1	21/02/81	94	C3	(71-0938)	Trincomali Channel	19/11/80
1981 ROE FISHERY									
(142-0811)	Lambert Channel	Sn-Ro	1	04/03/81	482	G1[b]	(171-0990)	Parker Island	08/11/79
(142-0811)	Lambert Channel	Sn-Ro	1	04/03/81	355	E10[b]	(173-0941)	Yellow Point	14/03/80
(142-0811)	Lambert Channel	Sn-Ro	1	04/03/81	169	D8	(238-1170)	Southeast Corner	16/09/80
(142-0811)	Lambert Channel	Gn-Ro	1	05/03/81	108	C13	(181-1008)	Swanson Channel	17/11/80
(142-0811)	Lambert Channel	Gn-Ro	1	05/03/81	108	C14	(181-1008)	Swanson Channel	17/11/80
(142-0811)	Lambert Channel	Gn-Ro	1	05/03/81	98	C6	(173-0980)	Ruxton Island	27/11/80

Table 19. (cont'd)

Recovery						Release			
(Code)	Locality	Type[a]	No. of tags	Date (D/M/Y)	Days at large	Map ref.	(Code)	Locality	Date (D/M/Y)
1980 ROE FISHERY (cont'd)									
(142-0811)	Lambert Channel	Gn-Ro	2	05/03/81	93	C8	(173-0959)	DeCourcy Island	02/12/80
(142-0811)	Lambert Channel	Gn-Ro	2	05/03/81	56	C9	(173-0959)	DeCourcy Island	08/01/81
(142-0811)	Lambert Channel	Gn-Ro	1	05/03/81	55	C4	(171-0942)	Porlier Pass	09/01/81
(171-0942)	Porlier Pass	Sn-M	1	11/03/81	10	J30	(173-0943)	Pylades Channel	01/03/81

[a]See Table 7 for gear/fishery code.
[b]Figure in 1979-80 report (Haegele 1981).

Table 20. Tag recoveries for nearshore the west coast of Vancouver Island - by tagging period, section of release, and tagging set. (Recoveries with incomplete recovery information are included.)

Release						Recovery					
Map ref.	(Code)	Locality	Date (D/M/Y)	Maturity[c] stage	No. of tags	(Code)	Locality	Type[a]	No. of tags	Date (D/M/Y)	Days at large
SPRING 1980 TAGGING											
F1[b]	(232-1143)	Toquart Bay	15/03/80	FM	953	(USA)	Gray's Harbour	S-gut	1	UK/07/80	(110)
F2[b]	(233-1158)	Lyall Point	17/03/80	FM	974	(232-1549)	Chrow Islands	Sn-Ro	1	11/03/80	359
F3[b]	(233-1141)	Mayne Bay	17/03/80	FM	986	(UK)	UK	UK	1	UK/01/81	(295)
F4[b]	(242-1605)	Leclaire Point	11/03/80	SP	969	(252-1278)	Cook Channel	Sn-Ro	1	08/03/81	362
						(USA)	Cape Flattery Spit	Tr-M	1	29/06/81	475
									2		
F7[b]	(245-1228)	Robert Point	13/03/80	SP	951	(232-1549)	Chrow Islands	Sn-Ro	1	11/03/81	363
						(245-1226)	Maurus Channel	Gn-Ro	1	15/03/81	367
						(UK)	UK	UK-Ro	1	UK/03/81	(365)
									3		
F8[b]	(253-1268)	Outer Nuchatlitz	06/03/80	SP	1049	(252-1278) or (232-1549)	Cook Channel or Chrow Islands	UK-Ro	1	08/03/81 or 11/03/81	367 or 370
F10[b]	(262-1292)	Nicolaye Channel	07/03/80	SP	948	(261-1652)	Clerke Point	S-gut	1	09/07/80	124

Table 20. (cont'd)

Release						Recovery					
Map ref.	(Code)	Locality	Date (D/M/Y)	Maturity[c] stage	No. of tags	(Code)	Locality	Type[a]	No. of tags	Date (D/M/Y)	Days at large
SPRING 1981 TAGGING											
K1	(231-1544)	Folger Island	02/03/81	NM	491	(252-1278)	Cook Channel	Sn-Ro	1	08/03/81	6
						(253-1262)	Port Langford	Gn-Ro	1	09/03/81	7
						(232-1549)	Chrow Islands	Sn-Ro	5	11/03/81	9
						(232-1228)	Cook Channel or	UK-Ro	2	08/03/81 or	6 or
						(232-1545)	Chrow Islands			11/03/81	9
						(UK)	UK	UK-Ro	3	UK/03/81	UK
									12		
K4	(231-1157)	Swale Rock	15/03/81	MY	492	(232-1144)	Macoah Passage	Gn-Ro	1	15/03/81	0
K8	(243-1207)	Hootla Kootla	10/03/81	SP	500	(243-1204)	Shelter Arm	Sn-M	3	18/03/81	8
K9	(243-1207)	Hootla Kootla	11/03/81	FM	498	(243-1204)	Shelter Arm	Sn-M	1	18/03/81	7
K10	(243-1394)	Starling Point	11/03/81	FM	496	(245-1226)	Maurus Channel	Gn-Ro	1	15/03/81	4
K11	(245-1221)	Cypress Bay	05/03/81	FM	488	(245-1226)	Maurus Channel	Gn-Ro	1	15/03/81	10
K12	(245-1221)	Cypress Bay	07/03/81	FM	498	(245-1219)	Hecate Bay	Sn-Ro	2	07/03/81	0
						(243-1204)	Shelter Arm	Sn-M	1	18/03/81	11
									3		
K14	(245-1221)	Cypress Bay	08/03/81	FM	306	(245-1219)	Hecate Bay	Sn-Ro	1	08/03/81	0

[a]See Table 7 for gear/fishery code.
[b]Figure in 1979-80 report (Haegele 1981).
[c]See text for definition of maturity stage code.

Table 21. Tag recoveries for nearshore the west coast of Vancouver Island - by fishery and section of capture.

Recovery						Release			
(Code)	Locality	Type[a]	No. of tags	Date (D/M/Y)	Days at large	Map ref.	(Code)	Locality	Date (D/M/Y)
1980 OTHER SPRING FISHERIES									
(261-1652)	Clerke Point	S-gut	1	09/07/80	124	F10[b]	(262-1292)	Nicolaye Channel	07/03/80
1981 ROE FISHERY									
(232-1549)	Chrow Islands	Sn-Ro	1	11/03/81	363	F7[b]	(245-1228)	Robert Point	13/03/80
(232-1549)	Chrow Islands	Sn-Ro	1	11/03/81	359	F2[b]	(233-1158)	Lyall Point	17/03/80
(232-1549)	Chrow Islands	Sn-Ro	1	11/03/81	169	D12	(238-1170)	Southeast Corner	23/09/80
(232-1549)	Chrow Islands	Sn-Ro	5	11/03/81	9	K1	(231-1544)	Folger Island	02/03/81
(232-1144)	Macoah Passage	Gn-Ro	1	15/03/81	0	K4	(231-1157)	Swale Rock	15/03/81
(243-1204)	Shelter Arm	Sn-M	1	18/03/81	11	K12	(245-1221)	Cypress Bay	07/03/81
(243-1204)	Shelter Arm	Sn-M	3	18/03/81	8	K8	(243-1207)	Hootla Kootla	10/03/81
(243-1204)	Shelter Arm	Sn-M	1	18/03/81	7	K9	(243-1207)	Hootla Kootla	11/03/81
(245-1219)	Hecate Bay	Sn-Ro	2	07/03/81	0	K12	(245-1221)	Cypress Bay	07/03/81
(245-1219)	Hecate Bay	Sn-Ro	1	08/03/81	0	K14	(245-1221)	Cypress Bay	08/03/81
(245-1226)	Maurus Channel	Gn-Ro	1	15/03/81	367	F7[b]	(245-1228)	Robert Point	13/03/80
(245-1226)	Maurus Channel	Gn-Ro	1	15/03/81	173	D3	(218-1651)	Nitinat Canyon	23/09/80
(245-1226)	Maurus Channel	Gn-Ro	1	15/03/81	10	K11	(245-1221)	Cypress Bay	05/03/81
(245-1226)	Maurus Channel	Gn-Ro	1	15/03/81	4	K10	(243-1394)	Starling Point	11/03/81
(252-1278)	Cook Channel	Sn-Ro	1	08/03/81	362	F4[b]	(242-1605)	Leclaire Point	11/03/80
(252-1278)	Cook Channel	Sn-Ro	1	08/03/81	172	D1	(228-1651)	Nitinat Canyon	17/09/80
(252-1278)	Cook Channel	Sn-Ro	1	08/03/81	172	D9	(238-1170)	Southeast Corner	17/09/80
(252-1278)	Cook Channel	Sn-Ro	1	08/03/81	166	D12	(238-1170)	Southeast Corner	23/09/80
(252-1278)	Cook Channel	Sn-Ro	1	08/03/81	6	K1	(231-1544)	Folger Island	02/03/81
(253-1262)	Port Langford	Gn-Ro	1	09/03/81	7	K1	(231-1544)	Folger Island	02/03/81

[a]See Table 7 for gear/fishery code.
[b]Figure in 1979-80 report (Haegele 1981).

Table 22. Tag recoveries for offshore the west coast of Vancouver Island - by tagging period, section of release, and tagging set or haul. (Recoveries with incomplete recovery information are included.)

Release						Recovery					
Map ref.	(Code)	Locality	Date (D/M/Y)	Maturity[c] stage	No. of tags	(Code)	Locality	Type[a]	No. of tags	Date (D/M/Y)	Days at large
FALL 1980 TAGGING											
D1	(218-1651)	Nitinat Canyon	17/09/80	-	728	(252-1278)	Cook Channel	Sn-Ro	1	08/03/81	172
						(UK)	UK	UK	1	UK	UK
									2		
D3	(218-1651)	Nitinat Canyon	23/09/80	-	1302	(245-1226)	Maurus Channel	Gn-Ro	1	15/03/81	173
D4	(218-1103)	Swiftsure Bank	25/09/80	-	991	(173-0978)	Stuart Channel	Sn-Fo	1	25/11/80	61
D5	(218-1103)	Swiftsure Bank	26/09/80	-	993	(UK)	UK	UK	2	UK/01/81	UK
D8	(238-1170)	South East Corner	16/09/80	-	986	(142-0811)	Lambert Channel	Sn-Ro	1	04/03/81	169
D9	(238-1170)	South East Corner	17/09/80	-	589	(252-1278)	Cook Channel	Sn-Ro	1	08/03/81	172
D12	(238-1170)	South East Corner	23/09/80	-	993	(UK)	UK	UK-Fo	1	25/11/80	63
						(252-1278)	Cook Channel	Sn-Ro	1	08/03/81	166
						(232-1549)	Chrow Islands	Sn-Ro	1	11/03/81	169
									3		
D15	(238-1176)	South Bank	18/09/80	-	597	(238-1167)	La Perouse Bank	S-gut	1	23/09/80	5

[a]See Table 7 for gear/fishery code.

Table 23. Tag recoveries for offshore the west coast of Vancouver Island - by fishery and section of capture.

Recovery						Release			
(Code)	Locality	Type[a]	No. of tags	Date (D/M/Y)	Days at large	Map ref.	(Code)	Locality	Date (D/M/Y)
1980 OTHER SUMMER AND FALL FISHERIES									
(238-1167)	La Perouse Bank	S-gut	1	23/09/80	5	D15	(238-1176)	South Bank	18/09/80
1981 OTHER SPRING FISHERIES									
(218-1108)	Juan de Fuca Canyon	Tr-M	1	26/03/81	16	J8	(142-0830)	Comox Bar	10/03/81

[a]See Table 7 for gear/fishery code.

Table 24. Tag recoveries for U.S.A. waters - by fishery and location of capture.

Recovery						Release			
(Code)	Locality	Type[a]	No. of tags	Date (D/M/Y)	Days at large	Map ref.	(Code)	Locality	Date (D/M/Y)
1980 ROE FISHERY									
(USA)	Cherry Point	Sn-Ro	1	05/05/80	157	G7[b]	(171-0942)	Porlier Pass	30/11/79
(USA)	Point Whitehorn	Sn-Ro	1	12/05/80	70	E12[b]	(184-1015)	Beaver Point	03/03/80
1980 OTHER SPRING FISHERIES									
(USA)	Grays Harbour	S-gut	1	UK/07/80	(110)	F1[b]	(232-1143)	Toquart Bay	15/03/80
1981 OTHER SPRING FISHERIES									
(USA)	Cape Flattery Spit	Tr-M	1	29/06/81	475	F4[b]	(242-1605)	Leclaire Point	11/03/80

[a]See Table 7 for gear/fishery code.
[b]Figure in 1979-80 report (Haegele 1981).

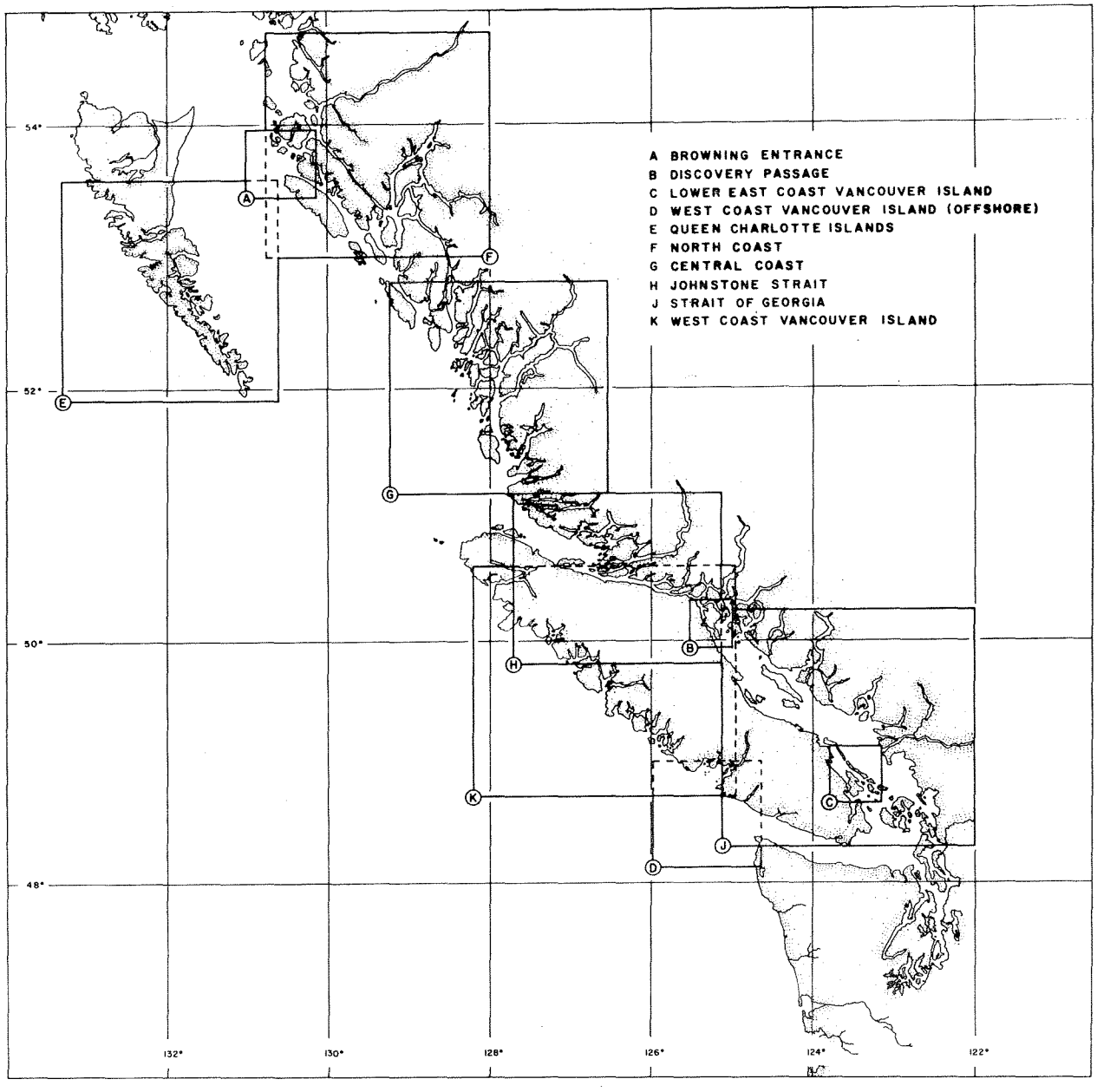

Fig. 1. Key to large scale maps showing tagging locations (Figs. 2 to 11).

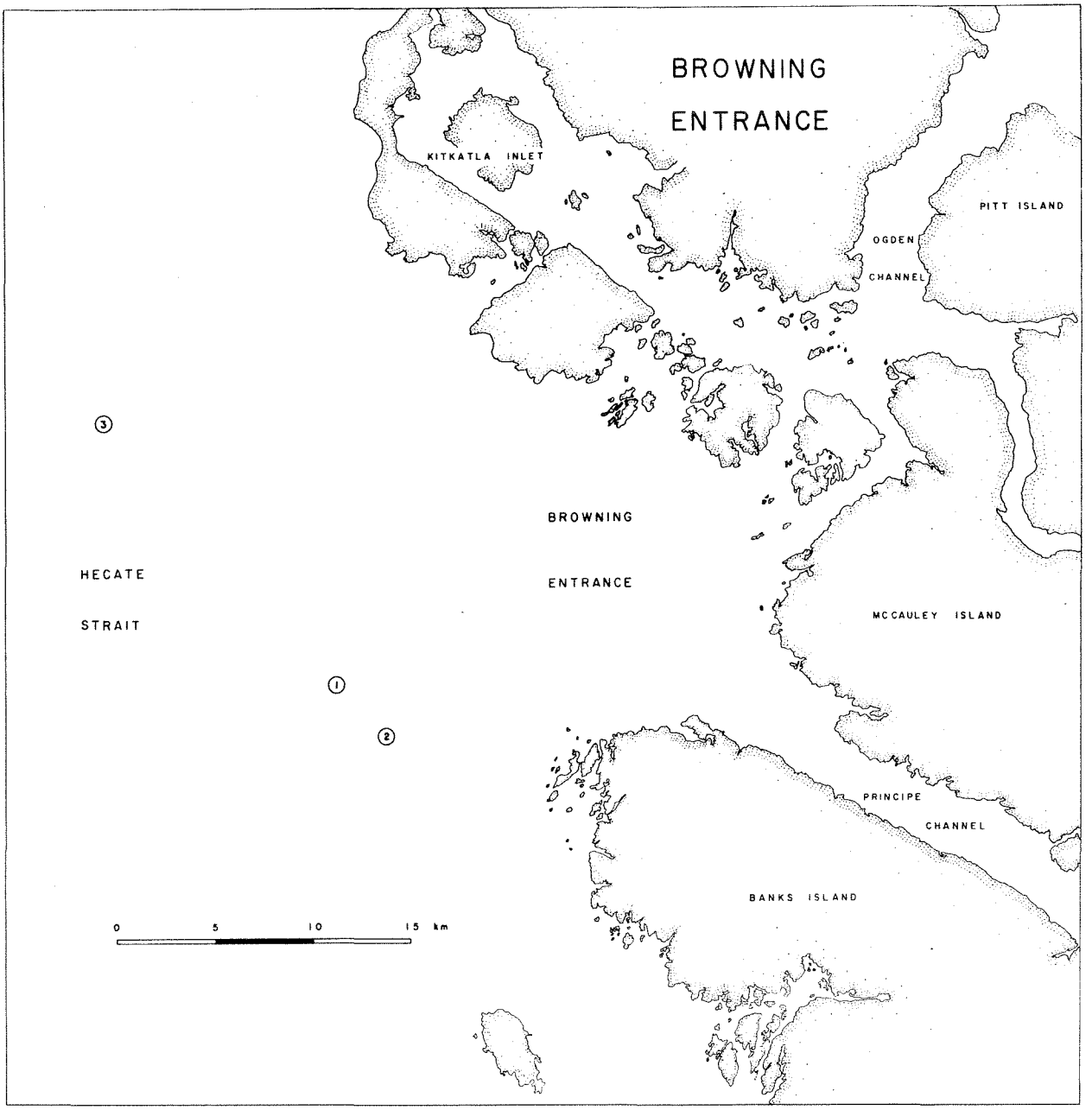

Fig. 2. Map of Browning Entrance (A) showing fall 1980 tagging locations.

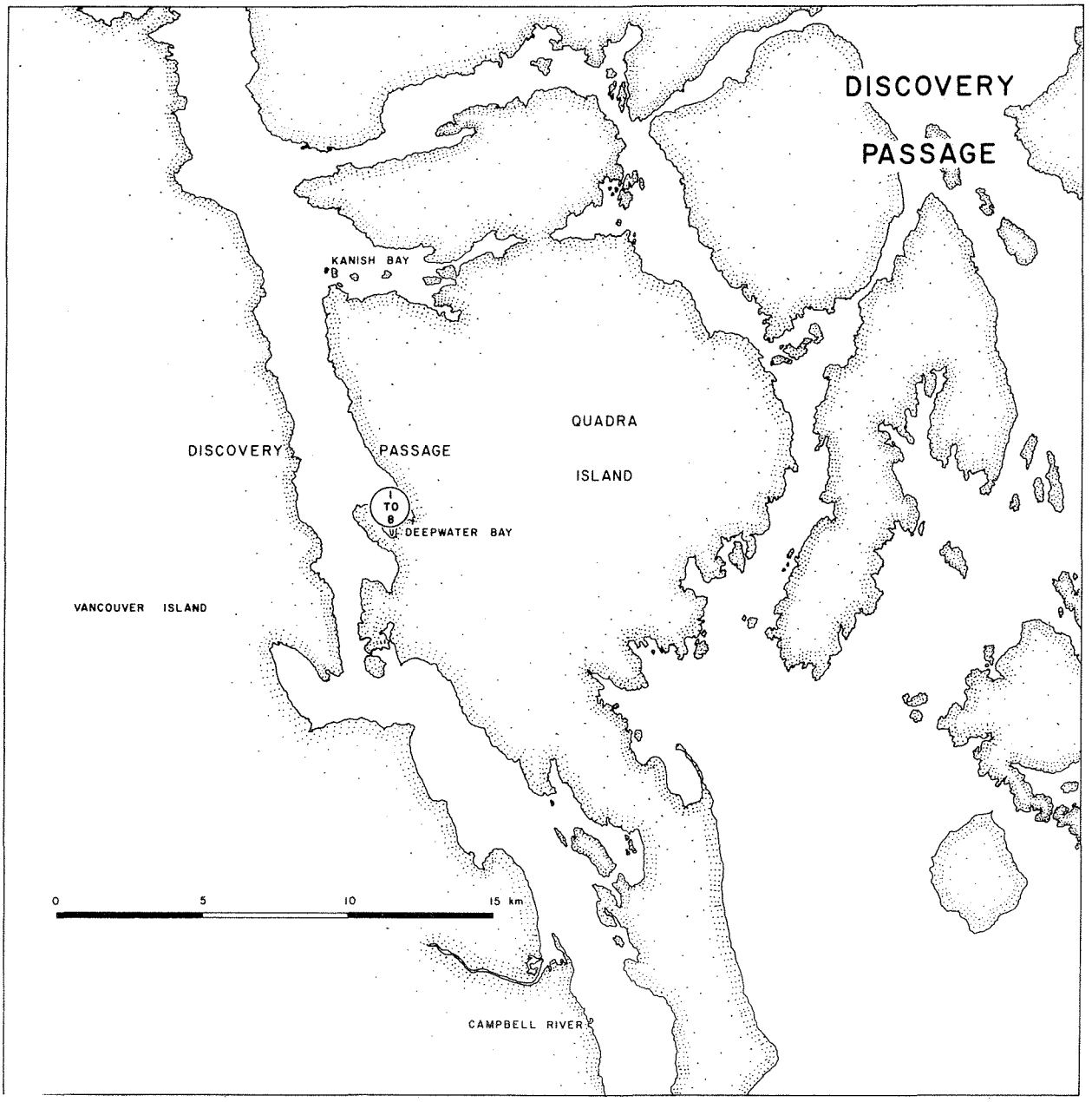

Fig. 3. Map of Discovery Passage (B) showing fall 1980 tagging locations.

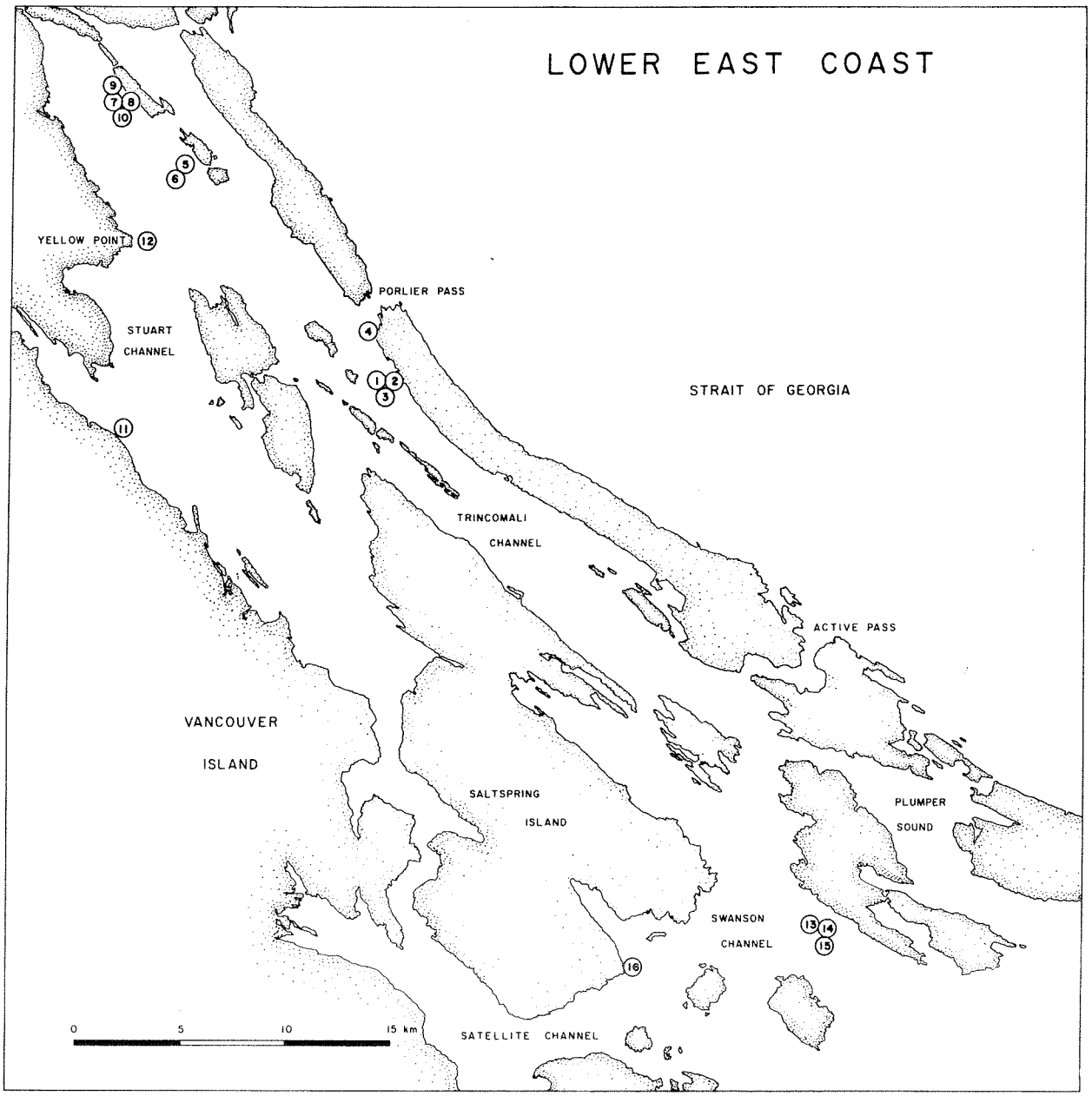

Fig. 4. Map of lower east coast of Vancouver Island (C) showing fall and winter 1980-81 tagging locations.

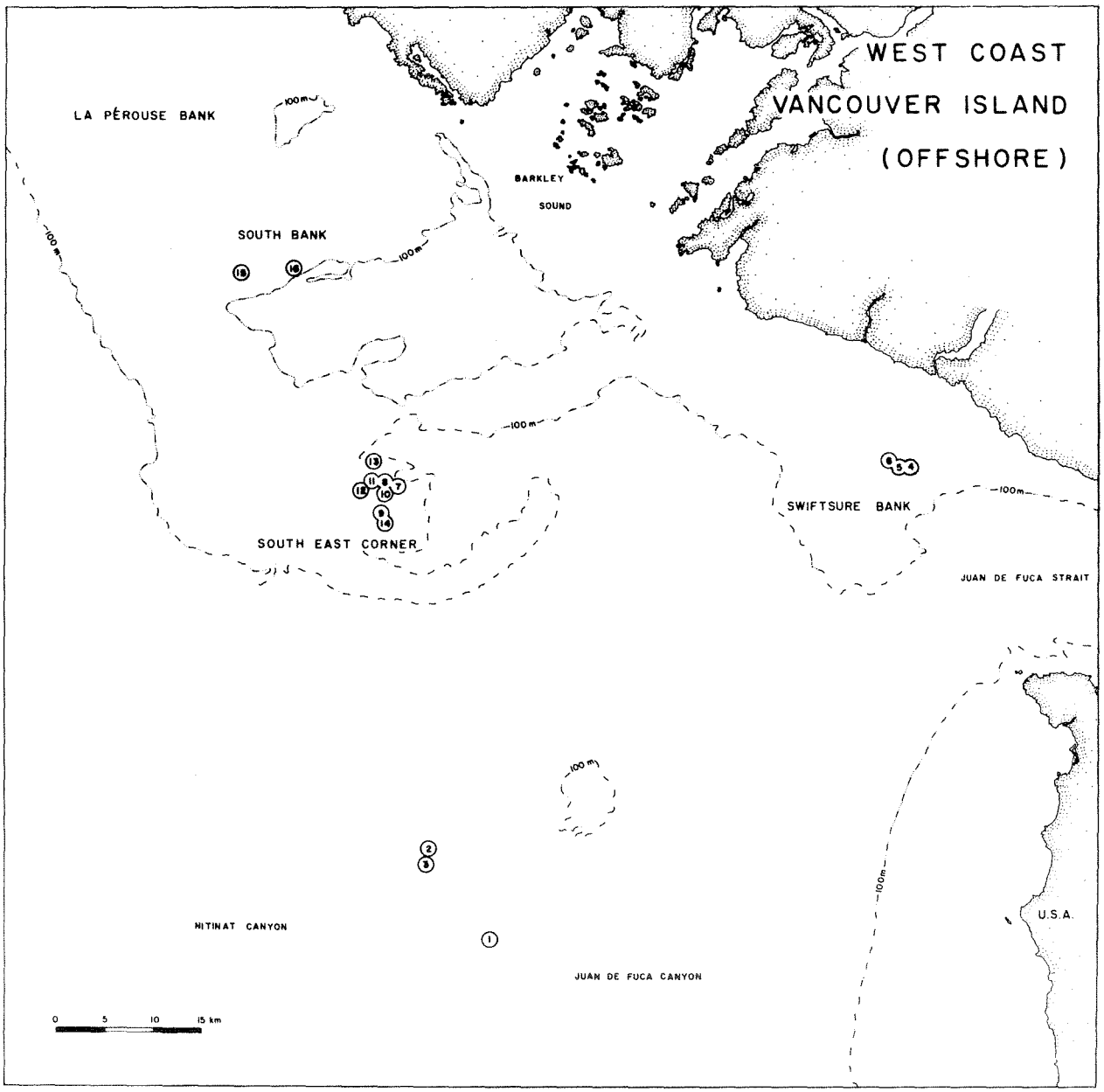

Fig. 5. Map of offshore the west coast of Vancouver Island (D) showing fall 1980 tagging locations.

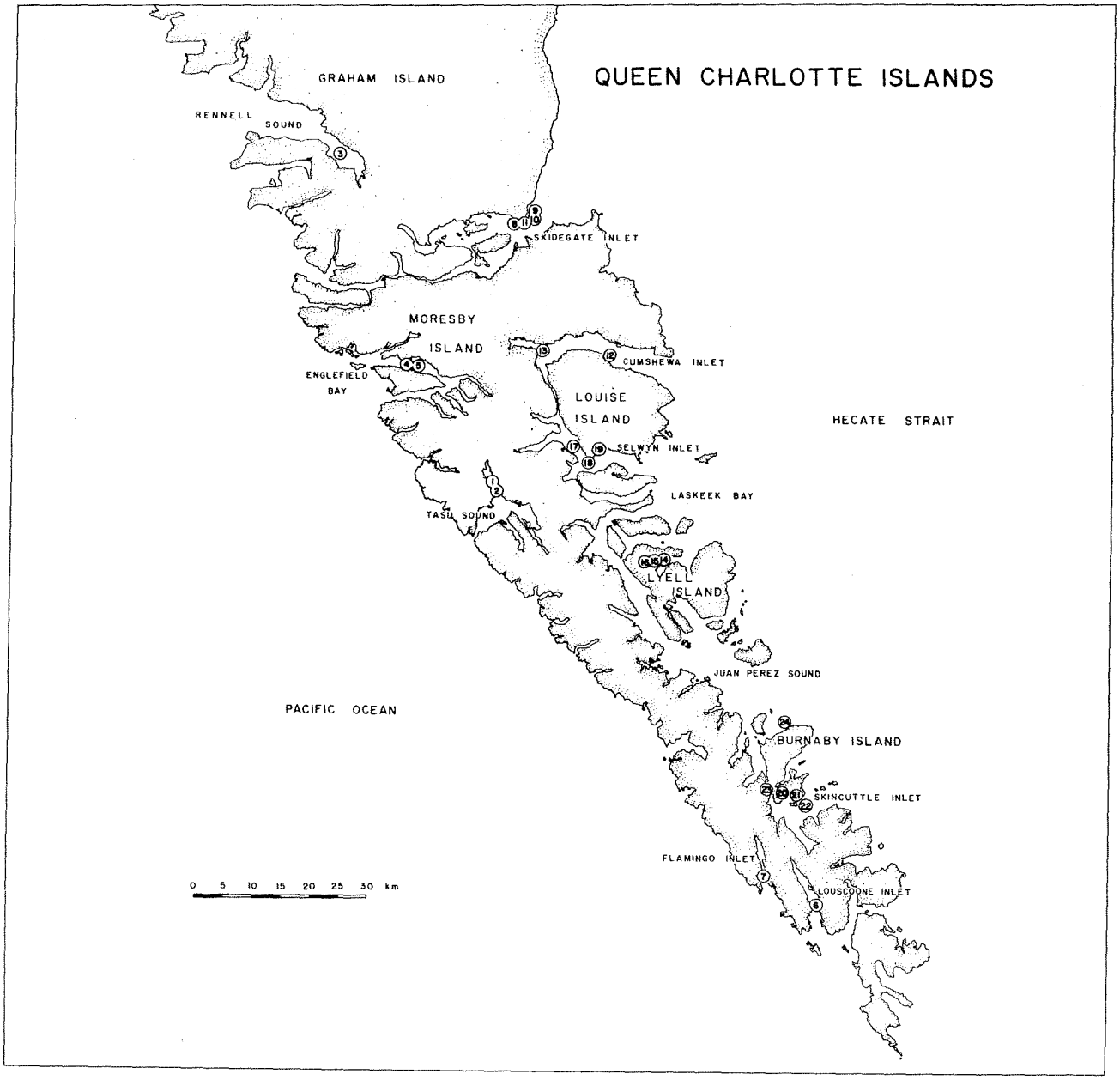

Fig. 6. Map of the Queen Charlotte Islands (E) showing spring 1981 tagging locations.

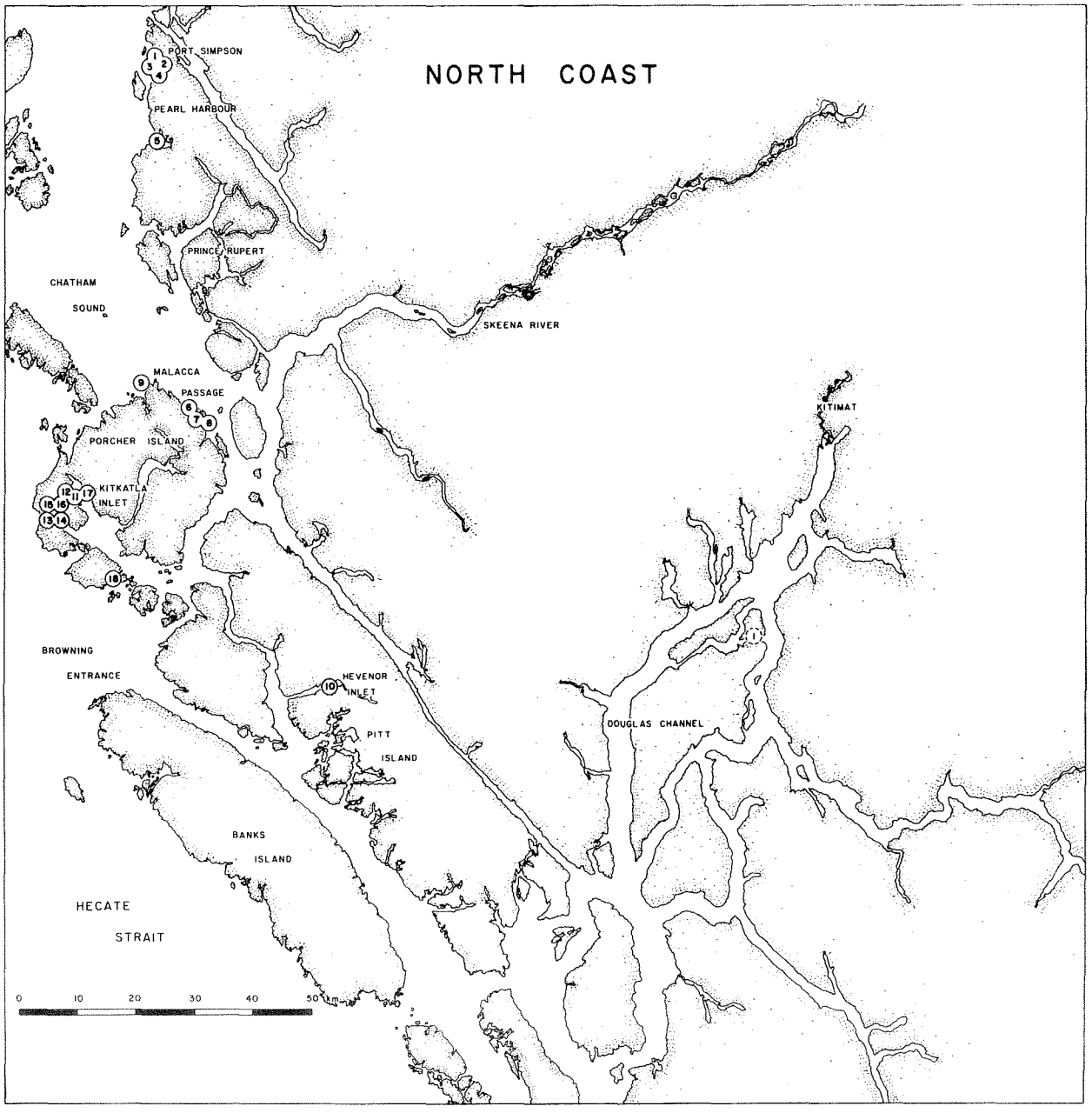

Fig. 7. Map of the north coast of British Columbia (F) showing spring 1981 tagging locations.

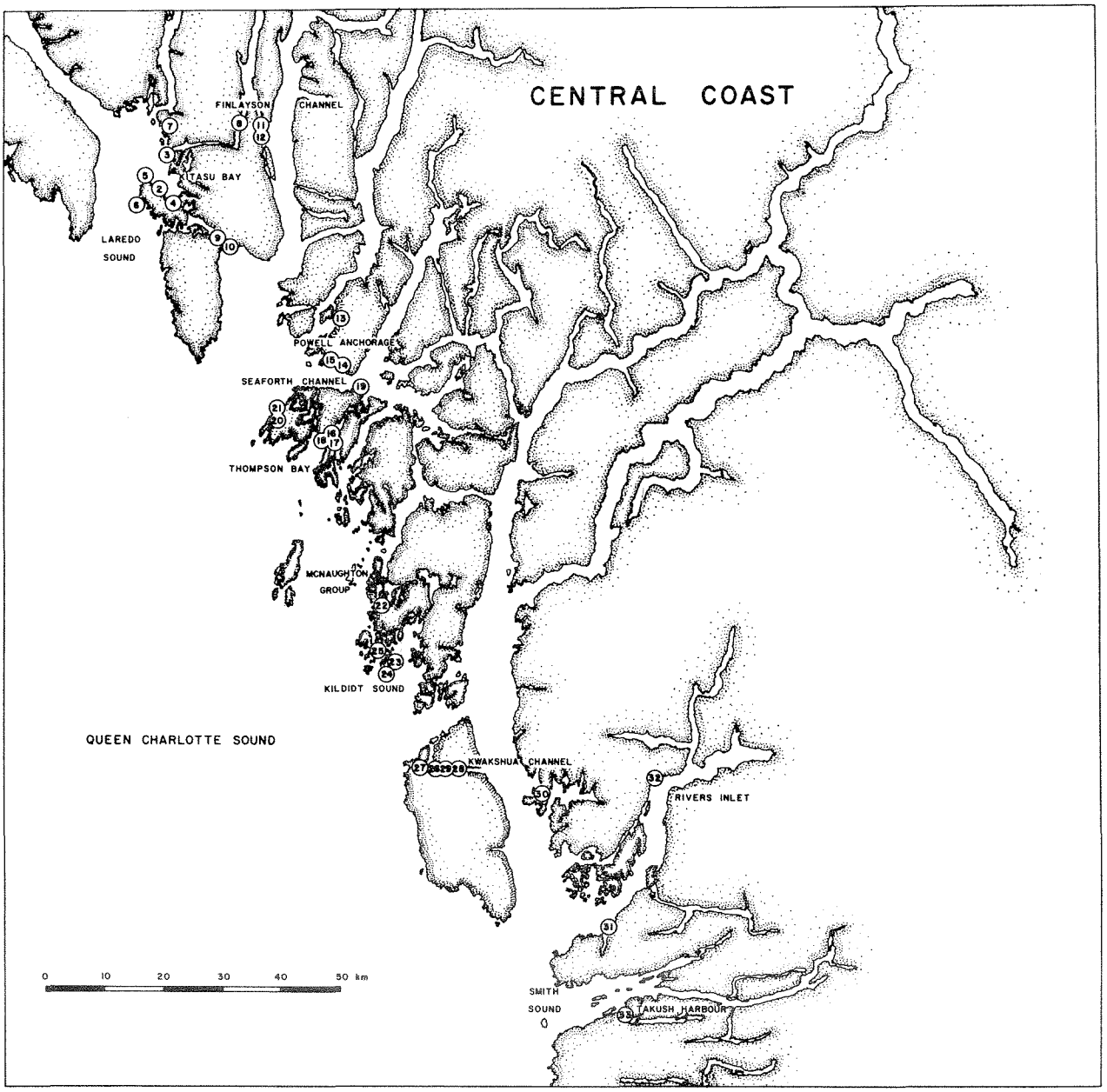

Fig. 8. Map of the central coast of British Columbia (G) showing spring 1981 tagging locations.

Fig. 9. Map of Johnstone Strait (H) showing spring 1981 tagging locations.

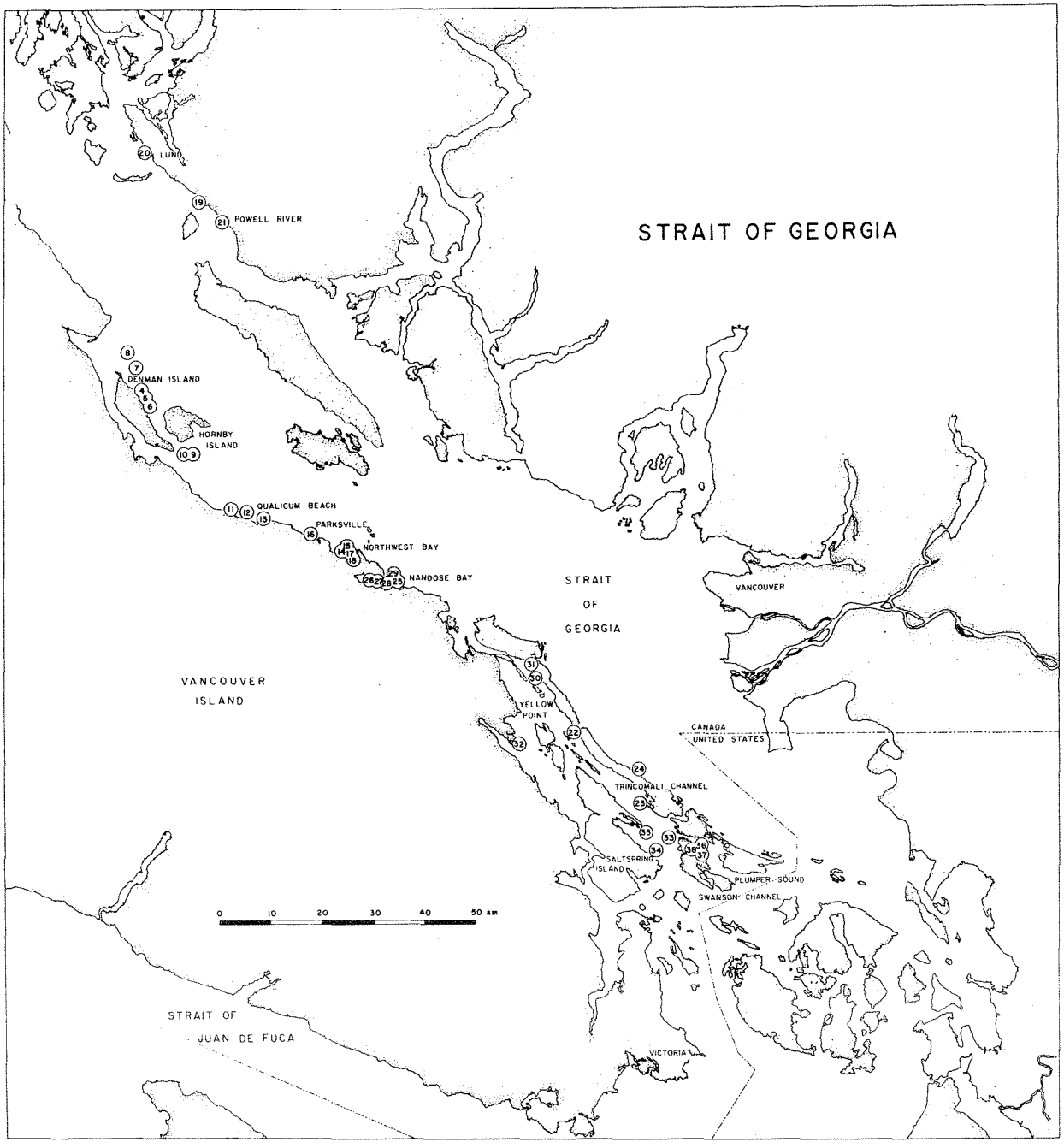

Fig. 10. Map of the Strait of Georgia (J) showing spring 1981 tagging locations.

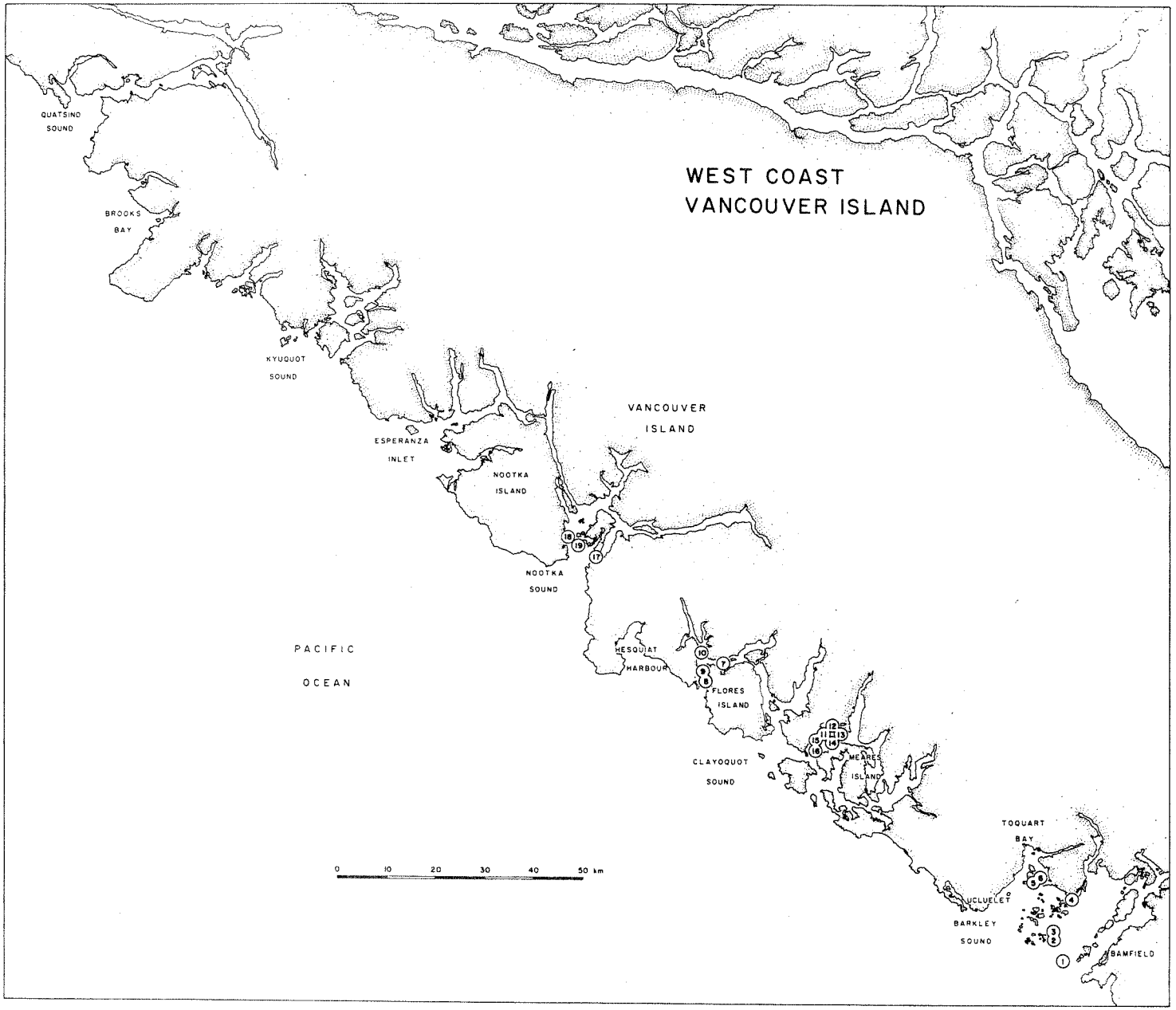

Fig. 11. Map of nearshore the west coast of Vancouver Island (K) showing spring 1981 tagging locations.