Results of Spiny Dogfish *(Squalus Acanthias)* Tagging in the Strait of Georgia, Queen Charlotte Sound, Hecate Strait and Dixon Entrance, During 1980

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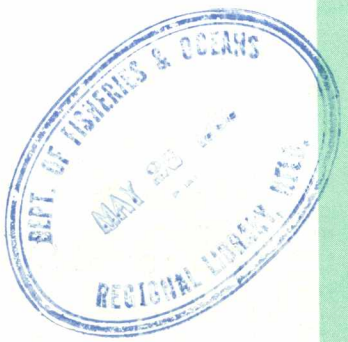

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RESULTS OF SPINY DOGFISH (SQUALUS ACANTHIAS) TAGGING IN THE STRAIT OF GEORGIA, QUEEN CHARLOTTE SOUND, HECATE STRAIT, AND DIXON ENTRANCE, DURING 1980

by

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ABSTRACT

McFarlane, G. A., R. J. Beamish, M. S. Smith, V. Egan, and D. Brown. 1982. Results of Spiny dogfish (Squalus acanthias) tagging in the Strait of Georgia, Queen Charlotte Sound, Hecate Strait, and Dixon Entrance during 1980. Can. MS Rep. Fish. Aquat. Sci. 1646: iv + 123 p.

During 1980, 7,482 dogfish were tagged in the Strait of Georgia and 1,062 in Queen Charlotte Sound, Hecate Strait and Dixon Entrance. A total of 15,013 dogfish have been tagged and released in Canadian waters from May 1978 to July 1980. As of December 31, 1980, 203 tagged fish have been recovered from all releases. Of these, 141 fish were recovered in 1980. Preliminary examination of dogfish movements indicated that 75-80% of tagged dogfish undertook complex movements within the Strait of Georgia and that a small percentage (15%) moved between the Strait of Georgia and the Juan de Fuca and Puget Sound. Between 3 and 8% migrated north of the Strait of Georgia. Two fish (1.6%) were recovered off the west coast of Vancouver Island.

Key words: spiny dogfish, tagging, migration, age determination, growth, Strait of Georgia, Queen Charlotte Sound, Hecate Strait, Dixon Entrance.

RÉSUMÉ

McFarlane, G. A., R. J. Beamish, M. S. Smith, V. Egan, and D. Brown. 1982. Results of Spiny dogfish (Squalus acanthias) tagging in the Strait of Georgia, Queen Charlotte Sound, Hecate Strait, and Dixon Entrance during 1980. Can. MS Rep. Fish. Aquat. Sci. 1646: iv + 123 p.

En 1980, 7 482 aiguillats communs ont été étiquetés dans le détroit de Géorgie et 1 064 dans le bassin Reine-Charlotte, le détroit d'Hécate et l'entrée Dixon. Au total, 15 013 aiguillat communs ont été étiquetés et relâchés dans les eaux canadiennes de mai 1978 à juillet 1980. Au 31 décembre 1980, 203 poissons étiquetés avaient été repris, dont 141 en 1980. Les études préliminaires des déplacements de l'aiguillat commun ont révélé que 75 à 80% des poissons étiquetés ont entrepris des déplacements complexes dans le détroit de Géorgie; un petit pourcentage (15%) s'est déplacé entre le détroit de Géorgie et les détroits Juan de Fuca et Puget. De 3 à 8 % ont émigré au nord de détroit de Géorgie. Deux poissons (1,6%) ont été repris au large de la cote ouest de l'île Vancouver.

Mots clés: aiguillat commun, étiquetage, migration, détermination de l'âge, croissance, détroit de Géorgie, bassin Reine-Charlotte, détroit d'Hécate, entrée Dixon.

INTRODUCTION

This is the third report describing the results of the spiny dogfish (Squalus acanthias) tagging program. The first two reports summarized the results of tagging studies conducted in the Strait of Georgia during 1978 and 1979 (Brown et al. 1979; Beamish et al. 1981). As in the two previous years the part of the program carried out in the northern part of the Strait of Georgia was a cooperative effort between students and staff of Campbell River Senior Secondary School, Southgate Secondary School, and staff of the Groundfish Program at the Pacific Biological Station. This report describes the number and location of dogfish tagged and summarizes recovery information to December 31, 1980.

The report also contains preliminary results of studies designed to validate the method of age determination, growth studies based on tagging, and some observations on growth of dogfish that were kept in a large tank as part of a study to develop a long-term tag for dogfish.

The primary objective in 1980 remained the same, namely, to examine growth and movements of dogfish in the Strait of Georgia. During 1980 it was possible to tag 1,064 dogfish in Queen Charlotte Sound, Hecate Strait and Dixon Entrance in an attempt to identify dogfish migrations from these areas.

MATERIALS AND METHODS

Dogfish were tagged in the Strait of Georgia in February, March and April-May, and in Queen Charlotte Sound, Hecate Strait and Dixon Entrance in June-July. Tagging was concentrated in three main areas in the Strait of Georgia: the Campbell River area, the central Strait area off Gabriola Island, and the Gulf Islands area, north of Active Pass. Tagging was also carried out in Queen Charlotte Sound, Hecate Strait and Dixon Entrance in cooperation with the International Pacific Halibut Commission (IPHC).

Tagging in the Campbell River area was carried out by staff and students from Campbell River School District and staff of the Pacific Biological Station, while tagging in the other areas was carried out by staff of the Biological Station alone.

Dogfish were caught on a longline anchored to the bottom in depths that varied from 20 m to 177 m in the Campbell River area, 57 m to 220 m in the Central Strait-Gulf Islands area, and 17 m to 439 m in the Queen Charlotte Sound, Hecate Strait and Dixon Entrance areas. The "soak" time varied between sets, soak time being defined as the time between the first hook going overboard as the longline goes out and the first hook coming aboard on the retrieve. The range of soak times was 50-106 min in the Campbell River area sets, 50-260 min in the Central Strait-Gulf Islands area, and 300-722 min in Queen Charlotte Sound, Hecate Strait and Dixon Entrance area. The long soak

times in the latter area is a reflection of the survey design of IPHC. Retrieval always began at the end of the line that was set first.

As in 1979 (Beamish et al. 1981) a "Mustad" No. 2 halibut hook quality 9401 was used on all cruises. In the Strait of Georgia cruises all hooks were fastened on gangions approximately 55 cm long which were snapped on the longline about 2 m apart as the line was set. Thawed herring chunks were used as bait in all sets. During the June-July cooperative cruise with IPHC, eight "skates" were set at each station. Each skate was 550 m long. Hooks were fastened on gangions 46 cm long and attached to the longline at 8-m intervals. Thawed salmon, Pacific cod and herring chunks were used as bait and alternated consecutively by hook in all sets.

Tagging in the Campbell River area was again carried out by student teams under the guidance of a teacher. The tagging procedure was the same as in 1979 (Beamish et al. 1981). Two teams of three students measured, sexed, and tagged dogfish and recorded data; one student handled fish, taking them from the commercial fisherman and putting them into a fiberglass tank containing approximately 150 L of water to which had been added 25 g of the anaesthetic tricaine methane sulfonate (MS222). One student recorded hook data at the stern as the longline came in. Measurements were made by placing the dogfish in a wooden measuring trough equipped with a meter stick in the bottom. Each fish was measured from the tip of the snout to the tip of the upper lobe of the caudal fin when depressed in a line horizontal with the body. Measurements were made to the nearest centimetre.

In other areas fish were transferred directly into a 3,000-L holding tank. A constant flow of seawater was maintained in the holding tank. Fish were then transferred into the fiberglass tank containing the anaesthetic tricaine methane sulfonate (MS222). The dogfish were kept in the anaesthetic until they showed signs of lethargy and then were measured and tagged. Remeasurements were made on 62 fish selected randomly from eight sets to establish the acuracy of measurements taken. During the Queen Charlotte Sound, Hecate Strait, Dixon Entrance cruise, fish were held in recovery tanks prior to release if they had not recovered from the anaesthetic by the end of the tagging operation.

The primary tag used was a pair of modified Petersen discs. The tags used were identical to those used in 1979 (Beamish et al. 1981), except that titanium pins were used to fasten the tags on dogfish captured in all sets. The titanium pins were made specifically for this tagging study from Grade 4 commercially pure (Ti70A) titanium wire. The pins were 7.6 cm long and 0.99 mm in diameter. In addition, during 1980, two modifications were made to the tags. Laboratory studies indicated that filing the inside edge of each disc smooth and bending the titanium pin up and away from the body of the fish reduced wounding caused by abrasion of the disc. These modifications were initiated during the March cruise off Gabriola Island.

Data recorded for each fish included tag number, length, sex, area of capture and release. Records were kept on the general condition of the fish, noticeable injuries and any problems with the tag (Beamish et al. 1981).

Fish from selected sets in the Campbell River area were given an intramuscular injection of oxytetracycline at a rate of approximately 25 mg/kg of body weight. This dosage rate was similar to that used in a previous study on bluefin tuna (Lanzing and Hynd 1966) designed to place a "time mark" in bone. Oxytetracycline was purchased under the brand name liquamycin. Liquamycin is oxytetracycline hydrochloride dissolved in a stabilizing agent and supplied in 250-mL bottles at a concentration of 100 mg/mL. In laboratory studies, 11 fish were given an intraperitoneal injection and two fish an intramuscular injection of oxytetracycline to verify that a "time mark" was laid down in the spine.

Injections in the field were given using the liquamycin solutions and a 5-mL disposable syringe equipped with a 20-g, 3.8-cm needle. A tagging board was calibrated with injection rates based on a weight-length conversion so that the rate of injection could be determined to the nearest 0.1 mL.

Forty-one fish which were tagged and transported to the Pacific Biological Station in May 1979, for a study of tag performance and fish mortality, were weighed and measured at 3-month intervals from the date of capture as part of a study on growth of tagged dogfish. All fish were assessed for tag wounds at every measurement period. During December 1979 all tags were replaced by modified Petersen discs which had the edges filed and the pins turned up as previously described.

As part of the recovery procedure, "Tagged Dogfish" posters, identical to those used in previous years of the study, were given wide distribution. Posters were maintained in marinas, government docks, major fishing companies. A reward of $2.00 was paid for each tag returned with information on date and location of recovery. An effort was made to have fishermen return the whole fish to determine growth and examine spines for the oxytetracycline mark. Unfortunately part of the caption, i.e. "FREEZE FISH" carried on the modified Petersen discs, was left out.

RESULTS AND DISCUSSION

A total of 8,546 dogfish were tagged in 1980. All fish were tagged with the "modified Petersen disc design" (Beamish et al. 1981) except for 511 of the fish from the June-July cruise to Queen Charlotte Sound, Hecate Strait, and Dixon Entrance which were tagged with a pair of Petersen discs (Beamish et al. 1981). Locations of tagging sites are indicated by the triangles in Fig. 1 and 2. Of the fish tagged in the Gulf Islands area in February 1980, 154 were tagged at Porlier Pass, 243 at Swanson and Prevost Channel, 927 north of Active Pass and during the same cruise 227 north of Gabriola. During the March 1980 cruise in the Central Strait area, 2,594 dogfish were tagged off Gabriola Island and 616 in Northumberland Channel. In the Campbell River area in April-May 1980, 1,050 were tagged at Marina Island/Smelt Bay and 1,671 at Cape Mudge. Of the 1,064 fish tagged during the June-July IPHC cruise, 214 were tagged in Queen Charlotte Sound, 685 in Hecate Strait and 165 in Dixon Entrance. The location of the sets, and information regarding tags and catch

data are included in Tables 1-8. Species caught incidentally during the study are presented in Table 9.

In the Strait of Georgia, dogfish ranged in length from 44-124 cm (Tables 10-18; Fig. 5 and 6). Males ranged in length from 45-104 cm with a mean length of 81 cm and females ranged from 44-124 cm with a mean length of 80 cm. A total of 5,395 males (72%) and 2,085 females (28%) were tagged during the three cruises in the Strait (two unknowns). Males predominated (Tables 12 and 15) in the Central Strait and Gulf Islands areas (71-94%), except for sets made in Swanson and Prevost channels where females formed 78% of the catch. Females predominated (Table 18) in the Marina Island/Smelt Bay area (76%) which is consistent with observations in the same area in 1978 (79%) and 1979 (63%). In the Cape Mudge Reef sets (Table 18) predominantly males were captured (90%); which was similar to 1979 (80%).

Nine percent of the males and 38% of the females captured in all areas of the Strait of Georgia were equal to or larger than the minimum commercial length of 71 cm in 1980.

Dogfish captured during the June-July cruise in Queen Charlotte Sound, Hecate Strait and Dixon Entrance ranged in length from 56-122 cm (Tables 19, 20, 21; Fig. 7). Males ranged from 61-98 cm with a mean length of 82 cm. Females ranged from 56-122 cm with a mean length of 92 cm. Females predominated in all three areas; 51% in Queen Charlotte Sound, 81% in Hecate Strait and 79% in Dixon Entrance. Ninety-five percent of the males and 96% of the females captured in these areas were equal to or larger than the minimum commercial length of 71 cm in 1980.

Catch per unit effort (CPUE) varied considerably for areas fished, 50-310 dogfish per 1,000 hooks (Table 22). The CPUE for dogfish larger than the commercial size limit (71 cm) also varied with the majority of smaller fish being captured in the Campbell River area (Table 22).

A total of 3,644 hooks (6.0%) caught species other than dogfish (Table 9). In the Strait of Georgia, ratfish was the incidental species most often captured. In Queen Charlotte Sound, Hecate Strait and Dixon Entrance, blackcod was the incidental species most often caught.

RECAPTURES

A total of 15,013 dogfish have been tagged and released in Canadian waters from May 1978 to July 1980. Of these 13,949 were tagged in the Strait of Georgia. As of December 31, 1980, 203 fish or 1.5% have been recovered.

Recaptures from tagging in 1980

A total of 62 dogfish tagged during 1980 were recaptured prior to December 31, 1980 (Tables 23-26; Fig. 1 and 2). Of these, 14 were recovered from the February Gulf Islands tagging area (Table 23); 37 from the March Central Strait tagging area (Table 24); 10 from the Campbell River area

(Table 25;) and one from the June-July Queen Charlotte Sound-Hecate Strait-Dixon Entrance tagging area (Table 26).

Thirty-nine fish were recaptured in the Strait of Georgia, five in the Strait of Juan de Fuca, four in Puget Sound, three in Bellingham Bay, two in Johnstone Strait, one off the west coast of Vancouver Island, and five were recovered just north of the Campbell River tagging area. One fish which was tagged in Queen Charlotte Sound was recaptured near the release area. Two fish were recovered in the processing plant and recovery location is not known (Fig. 1). Four other recaptures were reported but no corroborating information (tags not returned to Biological Station) was received. Of the 60 recaptures for which recovery information was received, 18 were recaptured by salmon gillnet, 12 by sports fisheries, 10 by trawl, nine by longline, four by sunken gillnet, two each by salmon troll and cod jigging operations, and one each from sablefish and crab trap fisheries. Method of capture for one recovery is unknown. Whole fish were returned in 12 instances.

The longest net distance travelled was 316 km and the maximum time at large for 1980 was 292 days (Table 24). Of the 12 whole fish returned, 10 were larger than the minimum commercial size limit. Of the 50 recaptures for which only tags were returned, 39 were larger than the commercial size limit at time of release.

Recaptures from tagging in 1979

Of the 4,542 fish tagged in the Strait of Georgia in 1979, 70 or 1.6% were recovered in 1980 (Tables 27-28, Fig. 3) and 32 or 0.7% were recovered in 1979 (Beamish et al. 1981). An additional five recoveries were reported in 1980 but not confirmed. Thirty-four fish were recaptured by longline, 16 by trawl, four by sports fisheries, two each by salmon gillnet and sunken gillnet and one by cod jigging. Eleven fish were recovered in processing plants and recovery location is not known. Of the 59 fish for which recovery locations were reported, 47 were recaptured in the Strait of Georgia, four in the Strait of Juan de Fuca, two in Bellingham Bay, and one each from Puget Sound, west coast of Vancouver Island and off Port Hardy. Three fish were recovered just north of the tagging area at Campbell River. Whole fish were returned in 47 instances, however one of these returns had no recapture information.

The longest net distance travelled was 297 km and the maximum time at large for these fish was 587 days (Tables 27-28). Forty-three of the whole fish returned were larger than the minimum commercial size limit. Of the 23 recaptures for which only tags were returned, 19 were larger than the commercial size limit at the time of release.

Recaptures from tagging in 1978

In 1978, 1,925 dogfish were tagged with both Petersen discs and Floy anchor tags. Nine of these fish or 0.5% were recovered in 1980 (Fig. 4; Table 29) compared to 15 or 0.8% in both 1978 and 1979. Of the nine recaptures in 1980 whole fish were returned in three of the cases and anchor tags were absent from two of these fish. Five fish were recaptured in the

Strait of Georgia and three just north of the Campbell River tagging area. One fish was recovered in the processing plant and recovery location is unknown.

The longest net distance travelled was 202 km and the maximum time at large for the fish was 796 days. One of the three fish returned was larger than the minimum commercial size limit and all of the fish for which only tags were returned were larger than the commercial size limit at the time of release.

All whole fish returned were examined for tag wounds. There was no obvious damage to the disc or the wire pins, however, where the disc appeared to have been loosely attached the edge had worn completely through the skin. The open wounds were not infected, however growth of algae occurred on most tags. Fish from the experiment on tag retention, and recaptures from cruises where the edges of the modified discs had been filed and the pins turned up and away from the body showed little or no wounding from abrasion.

SUMMARY INDICATIONS OF DISPERSION

Examination of the movement of tagged dogfish (Fig. 1, 3, 4; Brown et al. 1979; Beamish et al. 1981), indicates that the percentage moving away from the tagging area appears to increase each year. However, some dogfish, particularly smaller fish from the Campbell River tagging area continue to be recovered close to the original tagging areas. One tagged dogfish from the Queen Charlotte Sound tagging area was recovered 60 km from the tagging area (Fig. 2). Dogfish tagged in the Strait of Georgia have been recovered from the Strait of Juan de Fuca, Puget Sound, Bellingham Bay, southwest coast of Vancouver Island and Queen Charlotte Sound. The greatest distance migrated was 316 km in 144 days from the central Strait of Georgia to the southwest coast of Vancouver Island. One hundred percent of the recaptures from the 1978 program and 80% and 75% from the 1979 and 1980 programs have been recaptured in the Strait of Georgia. It is apparent from recapture information that movement of tagged dogfish within the Strait of Georgia is very complex and that a small (15%) percentage moved between the Strait of Georgia and the Strait of Juan de Fuca and Puget Sound. Movement north, out of the Strait of Georgia, is small (3-8%) and migration to offshore waters (1.6%) is minimal. It is important to wait a number of years to assess long-term migrations. Since dogfish are believed to live to ages in excess of 60 yr (Wood et al. 1979), the observations of movement during the first few years following tagging may not be representative of the results over the life of individual dogfish.

GROWTH OF TAGGED DOGFISH

Measurements were made on 76 recaptured tagged dogfish between 1978 and 1980 (Table 23-29). However 20 fish were not used in growth calculations because they were recaptured within 0.5 yr of release. There was little mean positive growth of tagged dogfish (Table 30). It appears there may be an

initial detrimental effect on growth following tagging, however it is still unclear whether this is the reason for the net negative change. Remeasurement experiments (Table 31) indicate that measurement errors exist and may contribute to the mean negative growth. However, as most recaptured fish were measured after freezing, and experiments on sablefish showed freezing contributed to the apparent decrease in length of recovered fish (Beamish et al. 1980), it is possible that the decreased growth is a combination of the two.

Since the dogfish has a cartilaginous skeleton that is probably subject to shrinkage after death and subsequent handling procedures (Ketchen 1975), growth as evidenced from tagging experiments should be considered a minimum estimate.

Fish tagged and transported to the Pacific Biological Station in 1979 were found to exhibit a relatively large mean positive growth at every measuring period (Table 32). They fed and grew actively and did not appear to have had any long-term interference with growth from the tagging operation.

OXYTETRACYCLINE STUDIES

After one month, dogfish which had received an intraperitoneal injection and one dogfish which had received an intramuscular injection of oxytetracycline were sacrificed and the spines were examined using ultraviolet light as described by Lanzing and Hynd 1966. A thin yellow line was present at the base of the spines indicating that a satisfactory mark for confirmation of age had been laid down. On the basis of these tests it was concluded that a dosage of 25 mg/kg injected intramuscularly would be sufficient to incorporate a "time mark" into the spine. The intramuscular injection was chosen because of the ease with which a fish could be tagged and injected.

By December 31, 1980, one of the 1,461 injected fish had been returned to the Pacific Biological Station. Examination under ultraviolet light revealed an oxytetracycline mark. Since the fish had grown very little during the release period the mark appeared at the bottom of the spine below the flesh. It is anticipated that as more injected fish are recaptured and annuli are identified as having formed after the ocytetracycline mark was laid down that validation of the ageing technique will be possible.

ACKNOWLEDGMENTS

This study is intended to provide scientific information to aid in the management of dogfish stocks as well as allow high school students to participate in the planning, execution and analysis of a practical biological research problem. The success of this study is a direct result of the

participation and enthusiasm of the students of Campbell River Secondary and Southgate Secondary schools. Teachers Bill Kennedy and Bud Wilson supervised the student teams. Capt. Hugh Watson of the INVADER 1, Capt. Bruce Hildred of the ANNA V FAGEN and Capt. Fred Leland of the ELLING K assisted in the fishing operations. The International Pacific Halibut Commission kindly allowed us to tag dogfish on the June-July 1980 cruise aboard the ELLING K. Ted Carter who was supported by funds from the Province of British Columbia, Ministry of Environment, assisted in the tagging operation.

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Table 1. Set location and catch data for the Gulf Islands and Central Strait area. February 1980.

Set no.	Date	Area	Depth (m)	Time set PST[a]	Soak time (min)	No. of hooks set[b]	No. of dogfish	No. of incidental catch
1	Feb. 12	N. of Gabriola	145-57	1007	143	1500	436	11
2	Feb. 13	W. of Porlier Pass	141-128	0840	95	500	161	11
3	Feb. 13	E. of Porlier Pass	66-82	1340	80	500	3	11
4	Feb. 14	Swanson Channel	60-101	0945	245	500	31	8
5	Feb. 14	Swanson Channel	117-91	1215	185	500	20	7
6	Feb. 15	Prevost Channel	60-68	0725	175	500	21	3
7	Feb. 15	Swanson Channel	121-101	0840	260	700	60	28
8	Feb. 15	Prevost Channel	60-71	1128	240	500	Incl. in Set 9	8
9	Feb. 15	Swanson Channel	91-194	1425	170	500	116	8
10	Feb. 16	N. of Active Pass	146-134	0720	175	500	Incl. in Set 11	2
11	Feb. 16	E. of Active Pass	62-108	0830	210	500	222	14
12	Feb. 16	N. of Active Pass	73	~1200	135	200	44	9
13	Feb. 16	N. of Active Pass	134-143	1510	50	300	113	8
14	Feb. 17	N. of Active Pass	146-110	0745	130	500	106	2
15	Feb. 17	N. of Active Pass	190-201	0837	220	250	82	-
16	Feb. 17	N. of Active Pass	143-165	1122	198	250	Incl. in Set 17	5
17	Feb. 17	N. of Active Pass	146-156	1320	215	250	223	4
18	Feb. 18	N. of Active Pass	146-165	0705	135	650	195	7
Total						9100	1833	146

[a]Pacific Standard Time.
[b]Skipper's estimated number of hooks.

Table 2. Set location and catch data for the Central Strait area. March 1980.

Set no.	Date	Area	Depth (m)	Time set PST[a]	Soak time (min)	No. of hooks set[b]	No. of dogfish		No. of incidental catch
1	Mar. 12	N. of Gabriola	110-183	1210	130	1200		352	3
2	Mar. 13	N. of Gabriola	132-112	0730	185	225		-	9
3	Mar. 13	N. of Gabriola	121-210	0900	170	600		-	-
4	Mar. 13	N. of Gabriola	210-201	1425	110	400	(sets 2,3,4)	519	1
5	Mar. 14	N. of Gabriola	183-201	0737	118	500		-	-
6	Mar. 14	N. of Gabriola	210-187	1320	175	550	(sets 5,6)	388	1
7	Mar. 15	N. of Gabriola	165-210	0716	114	500		-	1
8	Mar. 15	N. of Gabriola	210-137	1047	-	550	(sets 7,8)	402	3
9	Mar. 16	N. of Gabriola	165-201	0645	105	500		-	5
10	Mar. 16	N. of Gabriola	201-55	0946	124	400		-	17
11	Mar. 16	Northumberland Chan.	146-174	1310	90	600	(sets 9,10,11)	455	9
12	Mar. 17	Northumberland Chan.	121-155	0715	110	450		-	15
13	Mar. 17	Northumberland Chan.	128-137	1145	115	550		-	12
14	Mar. 17	Northumberland Chan.	121-165	1520	55	350	(sets 12,13,14)	414	5
15	Mar. 18	Northumberland Chan.	123-146	0700	80	500		51	31
16	Mar. 18	N. of Gabriola	165-201	1004	97	550		102	28
17	Mar. 18	N. of Gabriola	201-156	1305	90	550		-	12
18	Mar. 18	N. of Gabriola	155-210	1608	67	350	(sets 17,18)	247	10
19	Mar. 19	N. of Gabriola	209-220	0725	115	500		-	13
20	Mar. 19	N. of Gabriola	-	1043	114	500		-	14
21	Mar. 20	N. of Gabriola	201-210	1400	126	500	(sets 19,20,21)	411	5
22	Mar. 20	N. of Gabriola	220-201	0750	105	500		127	10
23	Mar. 20	N. of Gabriola	201-220	1052	140	600		159	9
Total						~11925		3627	213

[a]Pacific Standard time.
[b]Skipper's estimated number of hooks.

Table 3. Set location and catch data for Campbell River area. April-May 1980.

Set no.	Date	Area	Depth (m)	Time set PDT[a]	Soak time (min)	No. of hooks set	No. of dogfish	No. of incidental catch[b]
1	Apr. 22	S. of Cape Mudge	27-40	0835	95	300	23	20
2	Apr. 22	S. of Marina Island	20-33	1145	85	299	11	32
3	Apr. 22	E. of Marina Island	37-13	1405	80	300	40	22
4	Apr. 23	S. of Cape Mudge	64-82	0845	55	220	12	36
5	Apr. 23	S. of Cape Mudge	46-55	1040	-	300	2	14
6	Apr. 24	Marina Is. (E. of reef)	37-73	0900	50	304	49	12
7	Apr. 24	Marina Is./Smelt Bay	75-82	1115	75	295	85	4
8	Apr. 28	Marina Is./Smelt Bay	73-55	0915	60	300	66	11
9	Apr. 28	Marina Island	73-91	1125	65	297	93	2
10	Apr. 28	Smelt Bay	115-106	1400	55	300	65	4
11	Apr. 29	Marina Island E.	73-82	0917	63	296	100	2
12	Apr. 29	Marina Island	73-71	1237	56	298	59	5
13	May 1	Marina Island	70-73	0905	60	300	74	5
14	May 1	Marina Island	73	1135	65	300	45	6
15	May 1	Marina Island	82	1340	65	300	20	26
16	May 2	Smelt Bay	102-121	0905	60	300	86	-
17	May 2	Smelt Bay	110-108	1215	60	296	83	-
18	May 2	S. of Cape Mudge	46-11	1520	60	300	11	61
19	May 6	Smelt Bay	119	0905	75	303	49	5
20	May 6	Marina Island	73-82	1145	75	296	60	3
21	May 6	Marina Island	22-27	1440	75	282	65	1
22	May 7	S. of Cape Mudge	48-40	0816	63	300	52	26
23	May 7	S. of Cape Mudge	82-64	1026	106	300	37	44
24	May 7	S. of Cape Mudge	137-145	1332	96	297	107	13
25	May 8	S. of Cape Mudge	-	0835	93	300	15	32
26	May 8	S. of Cape Mudge	132-141	1118	67	294	81	6
27	May 9	S. of Cape Mudge	155-137	0825	65	299	104	17
28	May 9	S. of Cape Mudge	165-174	1105	70	298	144	15
29	May 9	S. of Cape Mudge	177-172	1355	80	300	200	-
30	May 12	S. of Cape Mudge	165-128	0845	70	300	118	6
31	May 12	S. of Cape Mudge	165	1135	50	297	126	10

Table 3 (cont'd)

Set no.	Date	Area	Depth (m)	Time set PDT[a]	Soak time (min)	No. of hooks set	No. of dogfish	No. of incidental catch[b]
32	May 12	S. of Cape Mudge	55	1430	55	294	8	16
33	May 13	S. of Cape Mudge	170-174	0855	60	300	128	2
34	May 13	S. of Cape Mudge	165-176	1130	65	300	101	27
35	May 13	S. of Cape Mudge	155-174	1350	55	273	124	2
36	May 15	S. of Cape Mudge	159-170	0845	65	300	108	8
37	May 15	S. of Cape Mudge	170-174	1115	55	300	97	5
38	May 15	S. of Cape Mudge	174	1320	90	300	75	13
Total						11238	2723	513

[a]Pacific Daylight time.
[b]Includes starfish.

Table 4. Set location and catch data for Queen Charlotte Sound-Hecate Strait-Dixon Entrance areas. June-July 1980.

Set no.	Date	Area[c]	Depth (m)	Time set PDT[a]	Soak time (min)	No. of hooks set[b]	No. of dogfish	No. of incidental catch
1	June 19	IPHC-9D	137	0500	300	560	61	103
2	June 19	IPHC-9E	157	0540	440	560	27	56
3	June 19	IPHC-9F	166	0621	579	420	36	36
4	June 19	IPHC-9G	177	0700	720	560	139	25
5	June 20	IPHC-11F	252	0500	315	560	86	43
6	June 20	IPHC-11G	174	0538	442	560	111	41
7	June 20	IPHC-11H	163	0620	580	560	75	37
8	June 20	IPHC-11I	128	0658	722	560	84	25
9	June 21	IPHC-13A	230	0500	300	560	17	44
10	June 21	IPHC-13B	188	0542	438	560	27	61
11	June 21	IPHC-13C	229	0625	580	560	5	100
12	June 21	IPHC-13D	194	0703	717	560	40	40
13	June 23	IPHC-19O	166	0505	30	560	7	48
14	June 23	IPHC-19N	135	0545	435	560	4	37
15	June 23	IPHC-19M	112	0624	576	140	4	30
16	June 23	IPHC-19L	124	0705	715	560	53	44
17	June 24	IPHC-19F	22	0510	300	560	210	50
18	June 24	IPHC-19E	26	0600	420	560	63	80
19	June 24	IPHC-19D	59	0640	560	560	14	71
20	June 24	IPHC-19C	86	0730	690	560	8	63
21	June 25	IPHC-15A	82	0500	300	560	85	25
22	June 25	IPHC-15B	123	0555	425	560	120	20
23	June 25	IPHC-15C	145	0633	567	560	86	12
24	June 25	IPHC-15D	99	0715	705	560	141	37
25	June 26	IPHC-13H	29	0455	310	560	139	27
26	June 26	IPHC-13I	29	0540	440	560	176	49
27	June 26	IPHC-13J	26	0618	582	560	56	251
28	June 26	IPHC-13K	17	0705	715	560	174	78
29	June 27	IPHC-9L	397	0505	300	210	0	19
30	June 27	IPHC-9M	221	0550	430	560	2	39
31	June 27	IPHC-9N	188	0630	570	560	4	30
32	June 27	IPHC-9O	194	0713	707	560	1	41
33	June 28	IPHC-7I	293	0500	300	560	16	45
34	June 28	IPHC-7J	287	0535	445	560	5	58
35	June 28	IPHC-7K	185	0625	575	560	13	60
36	June 28	IPHC-7L	209	0700	720	560	11	63
37	June 29	IPHC-5J	154	0500	310	560	66	59
38	June 29	IPHC-5K	176	0535	445	560	35	71
39	June 29	IPHC-5L	207	0615	565	560	8	96
40	June 29	IPHC-5M	439	0705	655	560	0	76
41	June 30	IPHC-7A	152	0455	305	560	5	38
42	June 30	IPHC-7B	143	0535	445	560	37	48
43	June 30	IPHC-7C	110	0617	583	560	77	46
44	June 30	IPHC-7D	68	0655	725	560	97	44
45	July 1	IPHC-5B	110	0500	300	560	44	51
46	July 1	IPHC-5C	121	0545	435	560	43	78

Table 4 (cont'd)

Set no.	Date	Area[c]	Depth (m)	Time set PDT[a]	Soak time (min)	No. of hooks set[b]	No. of dogfish	No. of incidental catch
47	July 1	IPHC-5D	192	0625	575	560	16	48
48	July 1	IPHC-5E	218	0705	715	560	14	52
49	July 2	IPHC-3H	82	0500	300	560	11	44
50	July 2	IPHC-3G	62	0545	435	560	2	34
51	July 2	IPHC-3F	66	0633	537	560	7	65
52	July 2	IPHC-3E	90	0720	610	560	51	34
Total						∿28,210	2,613	2,772

[a]Pacific Daylight time.
[b]Skipper's estimated number of hooks.
[c]Areas designated by International Pacific Halibut Commission.

Table 5. Summary of dogfish tagged from Gulf Islands and Central Strait areas. February 1980.

Set no.	Number tagged M	F	T	Modified Petersen disc tag no.	Location of release
1	188	39	227	DF60367-DF60593	N. of Gabriola
2	141	10	151	DF60594-DF60744	E. and W. of Porlier Pass
3	3	0	3	DF60745-DF60747	W. of Porlier Pass
4	7	23	30	DF60748-DF60778	Swanson Channel
5	6	13	19	DF60780-DF60798	Swanson Channel
6	8	13	21	DF60799-DF60819	Prevost Channel
7	20	37	57	DF60820-DF60877	Swanson Channel
8	-	-	-	DF60878-	Prevost Channel and Swanson Channel } sets combined
9	13	103	116	DF60996	
10	-	-	-	DF60998-	N. and E. of Active Pass } sets combined
11	192	16	208	DF61205	
12	39	3	42	DF61206-DF61247	N. of Active Pass
13	106	5	111	DF61248-DF61358	N. of Active Pass and Miners Bay
14	95	5	100	DF61359-DF61458	N. of Active Pass
15	63	16	79	DF61460-DF61539	N. of Active Pass
16	-	-	-	DF61540-	N. of Active Pass and Sturdies Bay } sets combined
17	190	16	206	DF61747	
18	173	8	181	DF61748-DF61928	N. of Active Pass to Thrasher Rock
Total	1,244	307	1,551		

Table 6. Summary of dogfish tagged from Central Strait area. March 1980.

Set no.	Number tagged M	F	T	Modified Petersen disc tag no.	Location of release
1	191	47	238	DF61929-DF62168	N. of Gabriola Is. & Departure Bay
2	57	26	83	DF62169-DF62251	N. of Gabriola Is.
3	146	64	211	DF62252-DF62465	N. of Gabriola Is.
4	134	40	174	DF62466-DF62641	N. of Gabriola Is. & Departure Bay
5	124	46	171	DF62642-DF62812	N. of Gabriola Is.
6	111	69	180	DF62813-DF62992	N. of Gabriola Is. & Silva Bay
7	108	64	172	DF62993-DF63164	N. of Gabriola Is.
8	126	69	195	DF63165-DF63459	N. of Gabriola Is. & Silva Bay
9	95	37	132	DF63460-DF63594	N. of Gabriola Is.
10	28	34	62	DF63595-DF63656	Northumberland Channel
11	201	6	207	DF63657-DF63860	Northumberland Ch. & Departure Bay
12	167	7	174	DF63864-DF64038	Northumberland Ch. & off Entrance Is.
13	77	30	107	DF64039-DF64146	Off Entrance Is. & Northumberland Ch.
14	78	2	80	DF64147-DF64199 DF63200-DF63226	Northumberland Ch. & Departure Bay
15	45	3	48	DF63227-DF63274	Northumberland Channel
16	87	12	99	DF63275-DF63299 DF64200-DF64273	N. of Gabriola Is.
17	109	45	154	DF64274-DF64427	N. of Gabriola Is.
18	46	26	72	DF64428-DF64499	N. of Gabriola Is. and Departure Bay
19	87	34	121	DF64500-DF64622	N. of Gabriola Is.
20	73	28	101	DF64623-DF64724	N. of Gabriola Is.
21	120	45	165	DF64725-DF64890	N. of Gabriola Is.
22	89	33	122	DF64891-DF65014	N. of Gabriola Is.
23	100	42	142	DF65015-DF65156	N. of Gabriola Is.
Total	2,399	809	3,210		

Table 7. Summary of dogfish tagged from Campbell River area. April-May 1980.

Set no.	Number of dogfish: Tagged M	Tagged F	Tagged T	Injected with O.T.C.	Modified Petersen disc tag no.	Location of release
1	5	18	23	23	DF65200-65211 DF65300-65310	S. of Cape Mudge
2	0	11	11	11	DF65212-65217 DF65311-65315	S. of Marina Island
3	13	27	40	40	DF65218-65239 DF65316-65333	E. of Marina Island
4	9	3	12	12	DF65240-65246 DF65334-65338	S. of Cape Mudge
5	1	0	1	1	DF65339	S. of Cape Mudge
6	17	32	49	-	DF65247-65270 DF65340-65364	Marina Island
7	17	68	85	-	DF65271-65299 DF65365-65412 DF65500-65507	Marina Is.-Smelt Bay
8	15	51	66	66	DF65413-65451 DF65508-65535	Marina Is.-Smelt Bay
9	20	73	93	93	DF65452-65499 DF65536-65576 DF65600-65604	Marina Is.
10	18	47	65	65	DF65577-65599 DF65605-65635 DF65700-65710	Smelt Bay
11	20	80	100	100	DF65636-65678 DF65711-65771	E. of Marina Is.
12	12	47	59	59	DF65675-65699 DF65772-65804 DF65900	Marina Island
13	32	42	74	-	DF65806-65837 DF65901-65941	Marina Island
14	17	28	45	-	DF65838-65857 DF65942-65966	Marina Island
15	6	14	20	-	DF65858-65867 DF65967-65977	Marina Island
16	17	69	86	-	DF65868-65899 DF65978-65999 DF137000-137010 DF137100-137108	Smelt Bay
17	17	66	83	-	DF137011-137047 DF137121-137169	Smelt Bay
18	7	4	11	-	DF137048-137051 DF137170-137176	S. of Cape Mudge
19	7	42	49	49	DF137052-137074 DF137177-137202	Smelt Bay
20	15	45	60	60	DF137075-137099 DF137203-137228 DF137300-137308	Marina Island

Table 7 (cont'd)

Set no.	Number of dogfish: Tagged M	F	T	Injected with O.T.C.	Modified Petersen disc tag no.	Location of release
21	14	51	65	65	DF137229-137259 DF137309-137341	Marina Island
22	50	2	52	-	DF137261-137282 DF137342-137371	S. of Cape Mudge
23	37	0	37	37	DF137283-137299 DF137372-137391	S. of Cape Mudge
24	99	8	107	17	DF137392-137446 DF137500-137551	S. of Cape Mudge
25	12	3	15	15	DF137447-137452 DF137552-137560	S. of Cape Mudge
26	80	1	81	20	DF137453-137494 DF137561-137598	S. of Cape Mudge
27	102	2	104	104	DF137495-137499 DF137600-137651 DF137700-137746	S. of Cape Mudge
28	139	5	144	144	DF137651-137699 DF137747-137824 DF137900-137917	S. of Cape Mudge
29	191	9	200	200	DF137825-137899 DF137918-138044	S. of Cape Mudge
30	93	25	118	-	DF138045-138159 DF138200-138203	S. of Cape Mudge
31	119	7	126	-	DF138160-138199 DF138204-138267 DF138300-138321	S. of Cape Mudge
32	4	4	8	-	DF138268-138275	S. of Cape Mudge
33	106	22	128	-	DF138276-138299 DF138322-138389 DF138400-138436	S. of Cape Mudge
34	91	10	101	-	DF138390-138399 DF138437-138485 DF138500-138542	S. of Cape Mudge
35	121	3	124	-	DF138486-138499 DF138544-138642 DF138700-138710	S. of Cape Mudge
36	85	23	108	108	DF138643-138696 DF138711-138764	S. of Cape Mudge
37	79	18	97	97	DF138697-138699 DF138765-138850 DF138900-138907	S. of Cape Mudge
38	65	9	74	74	DF138851-138889 DF138908-138942	S. of Cape Mudge
Total	1,752	969	2,721	1,460		

Table 8. Summary of dogfish tagged from Queen Charlotte Sound, Hecate Strait, and Dixon Entrance areas. June-July 1980.

Set no.	Number tagged M	F	T	Tag numbers used	Location of release
1&2	9	48	57	DF138892-138899[a]; 138943-138993[a] (except 138991)	IPHC-9D&E
3	1	26	27	DF138991,138994-138999[a]; DF46300-46319[b]	IPHC-9F
4	22	63	85	DF46320-46399[b]; DF139000-139004[a]	IPHC-9G
5	16	24	40	DF139005-139045[a]	IPHC-11F
6	7	43	51	DF139046-139097[a] (one fish unsexed)	IPHC-11G
7	13	39	52	DF139098-139099[a]; DF46400-46449[b]	IPHC-11H
9	0	9	9	DF46450-46458[b]	IPHC-13A
10	1	20	21	DF46459-46479[b]	IPHC-13B
11	0	4	4	DF46480-46483[b]	IPHC-13C
13	0	6	6	DF46484-46489[b]	IPHC-19O
14	0	1	1	DF46490[b]	IPHC-19N
15	1	3	4	DF46491-46494[b]	IPHC-19M
17&18	34	109	143	DF46495-46409[b]; DF139100-139199[a] DF46500-46537[b]	IPHC-19E&F
19	0	11	11	DF46538-46549[b] (DF46544[b] died-tag reused)	IPHC-19O
21	1	55	56	DF46550-46599[b]; DF139200-139206[a]	IPHC-15A
22	2	55	57	DF139207-139264[a]	IPHC-15B
23	6	39	45	DF139265-139299[a]; DF46600-46608[b], 46544[b]	IPHC-15C
25	38	47	85	DF46609-46693[b]	IPHC-13H
26&27	14	78	92	DF46694-46699[b]; DF139300-139387[a]	IPHC-13I&J
31	1	3	4	DF139389-139392[a]	IPHC-9N
33	5	7	12	DF139393-139399[a]; DF46700-46704[b]	IPHC-7I
34	1	0	1	DF46705[b]	IPHC-7J
35	2	6	8	DF46706-46713[b]	IPHC-7K
37	9	27	36	DF46714-46751[b] (46717 & 46747 used in later sets)	IPHC-5J
38	8	10	18	DF46752-46768[b]; 46717[b]	IPHC-5K
39	1	3	4	DF46769-DF46771[b]; DF46747[b]	IPHC-5L
41	2	2	4	DF46772-46775[b]	IPHC-7A
42	15	5	20	DF46776-46797[b]	IPHC-7B
43	18	26	44	DF46798-46799[b]; DF139400-139441[a]	IPHC-7C
45	20	4	24	DF139442-139466[a]	IPHC-5B
46	18	6	24	DF139467-139491[a]	IPHC-5C
47	5	2	7	DF139492-139498[a]	IPHC-5D
49	1	5	6	DF139499[a]; DF46800-46804[b]	IPHC-3H
50	0	1	1	DF46805[b]	IPHC-3G
51	1	4	5	DF46806-46810[b]	IPHC-3F
Total	272	791	1,064		

[a]Modified Petersen disc.
[b]Petersen disc.

Table 9. Incidental catch.

	Gulf Islands–Central Strait February, 1980	Central Strait March, 1980	Campbell River April–May 1980	Q.C.S.–H.S.–D.E. June–July 1980
Hooks fished:	9,100	11,925	11,238	28,210
Dogfish:	1,833	3,627	2,723	2,613
Canary rockfish	–	1	–	–
Copper rockfish	1	–	1	–
Green-striped rockfish	2	–	–	–
Quillback rockfish	9	–	17	–
Yelloweye rockfish	12	37	80	–
Yellowtail rockfish	3	–	–	–
Rockfish spp.	–	–	–	397
Blackcod	13	21	–	570
Greenling	–	–	1	–
Hake	1	2	–	–
Lingcod	–	2	28	–
Pacific cod	19	16	9	13
Pollock	10	3	–	–
Halibut	–	–	–	550
Turbot	1	–	–	76
Ratfish	72	130	213	–
Skate	3	1	22	499
Octopus	–	–	2	4
Starfish	–	–	140	542
Other	–	–	–	121
Total	146	213	513	2772

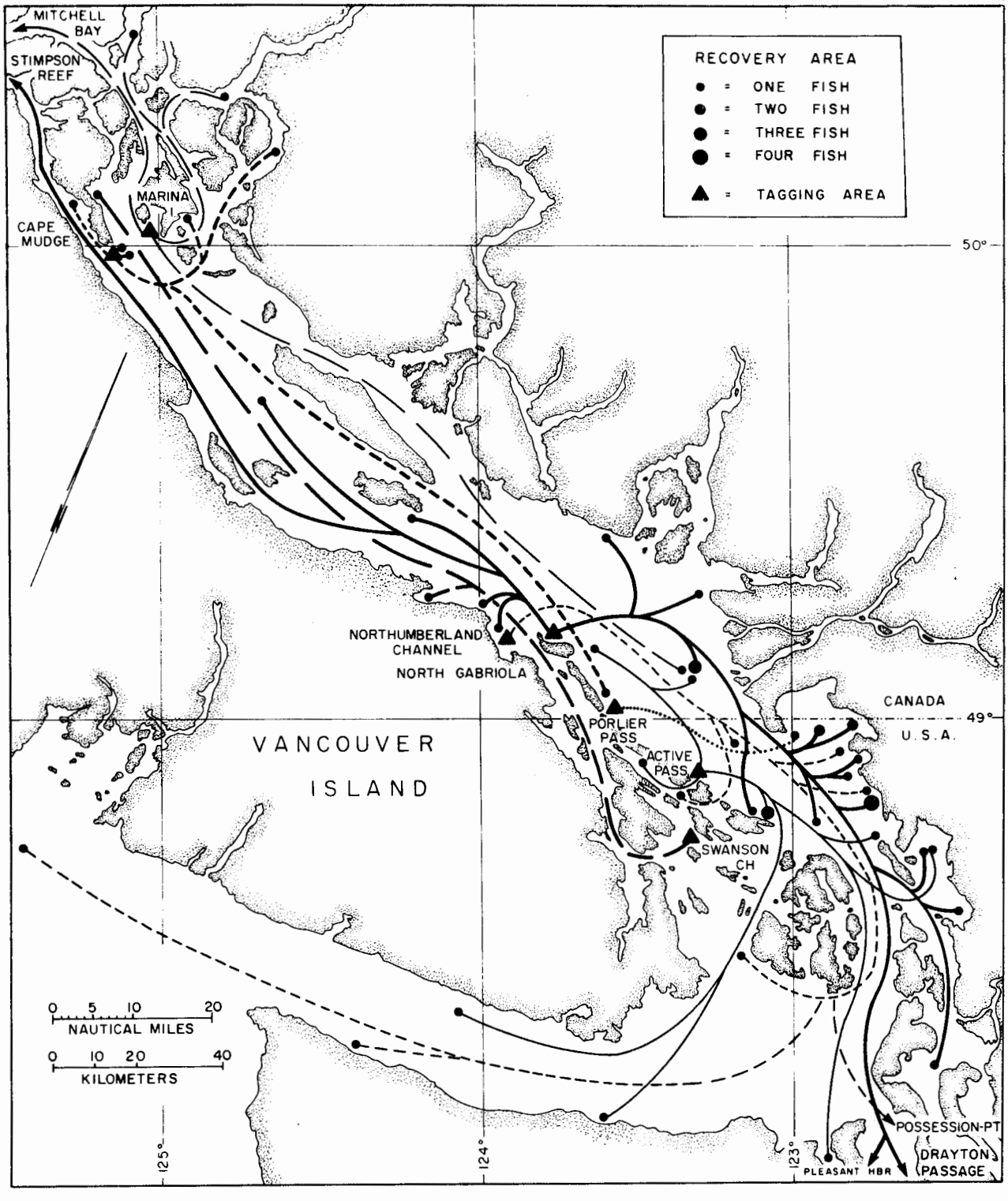

Fig. 1. Tag release and recovery locations, Strait of Georgia, 1980.

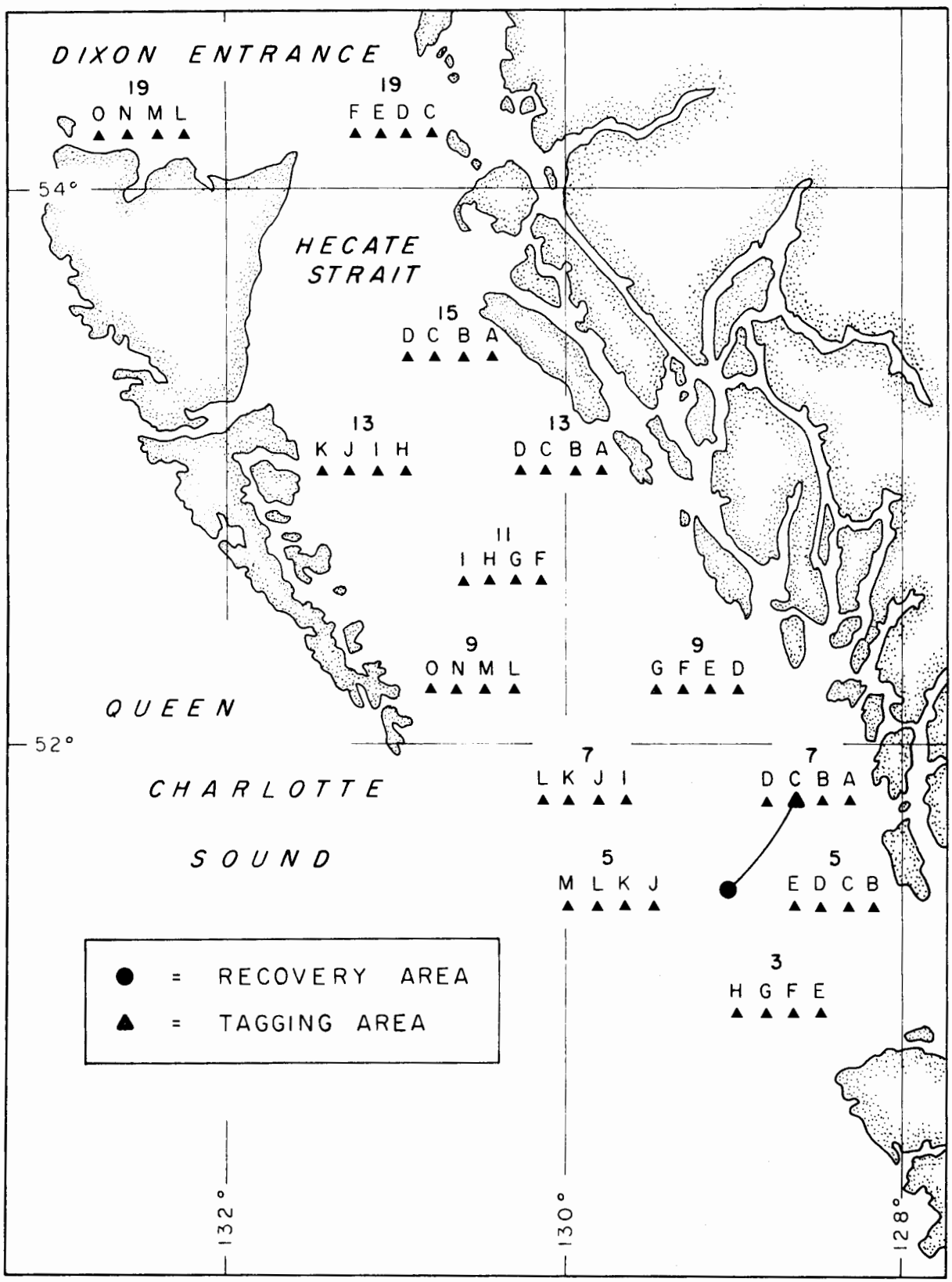

Fig. 2. Tag release and recovery locations, Queen Charlotte Sound, Hecate Strait, and Dixon Entrance, 1980.

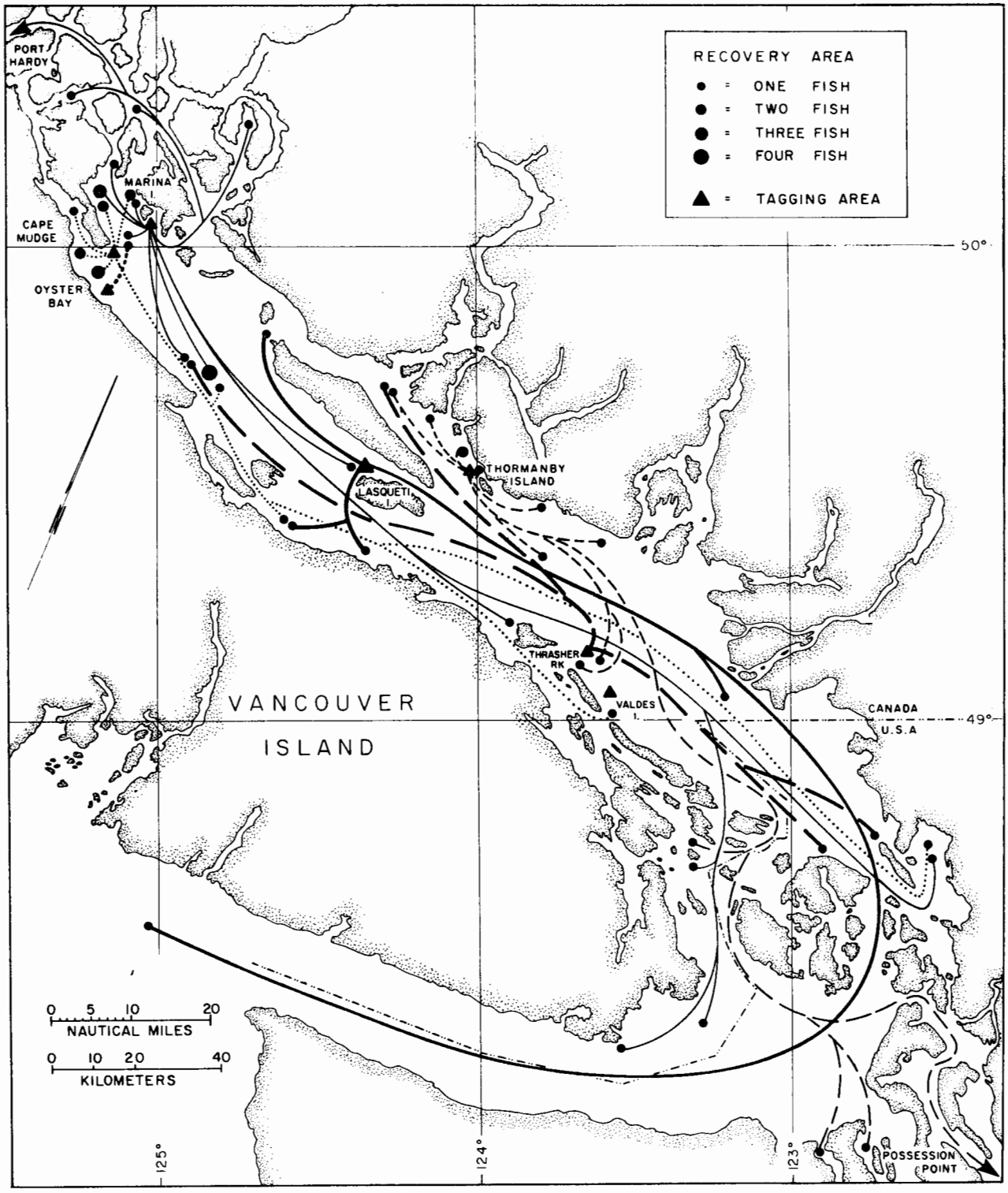

Fig. 3. Tag release locations 1979 and recovery locations 1980, Strait of Georgia.

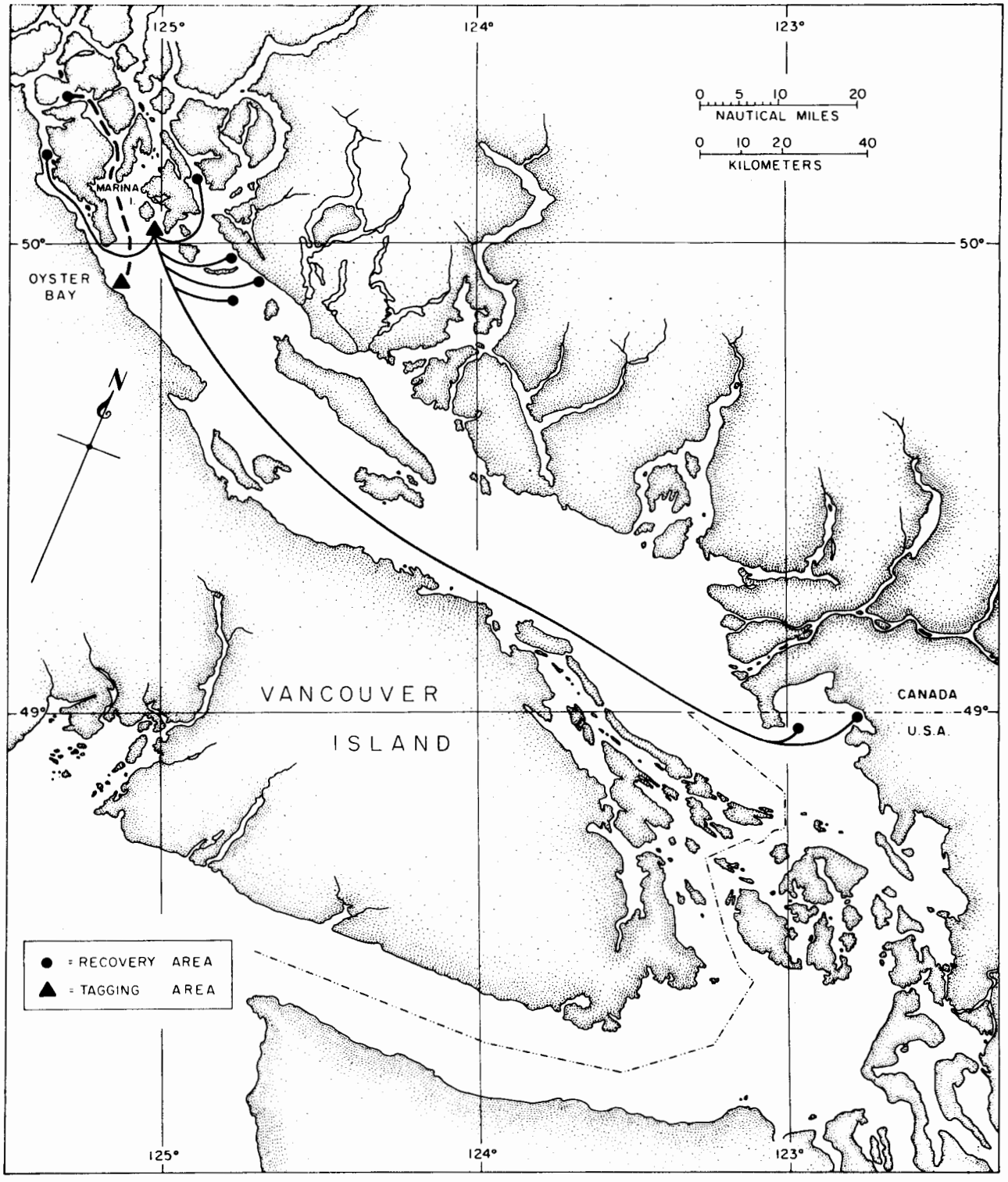

Fig. 4. Tag release locations 1978 and recovery locations 1980, Strait of Georgia.

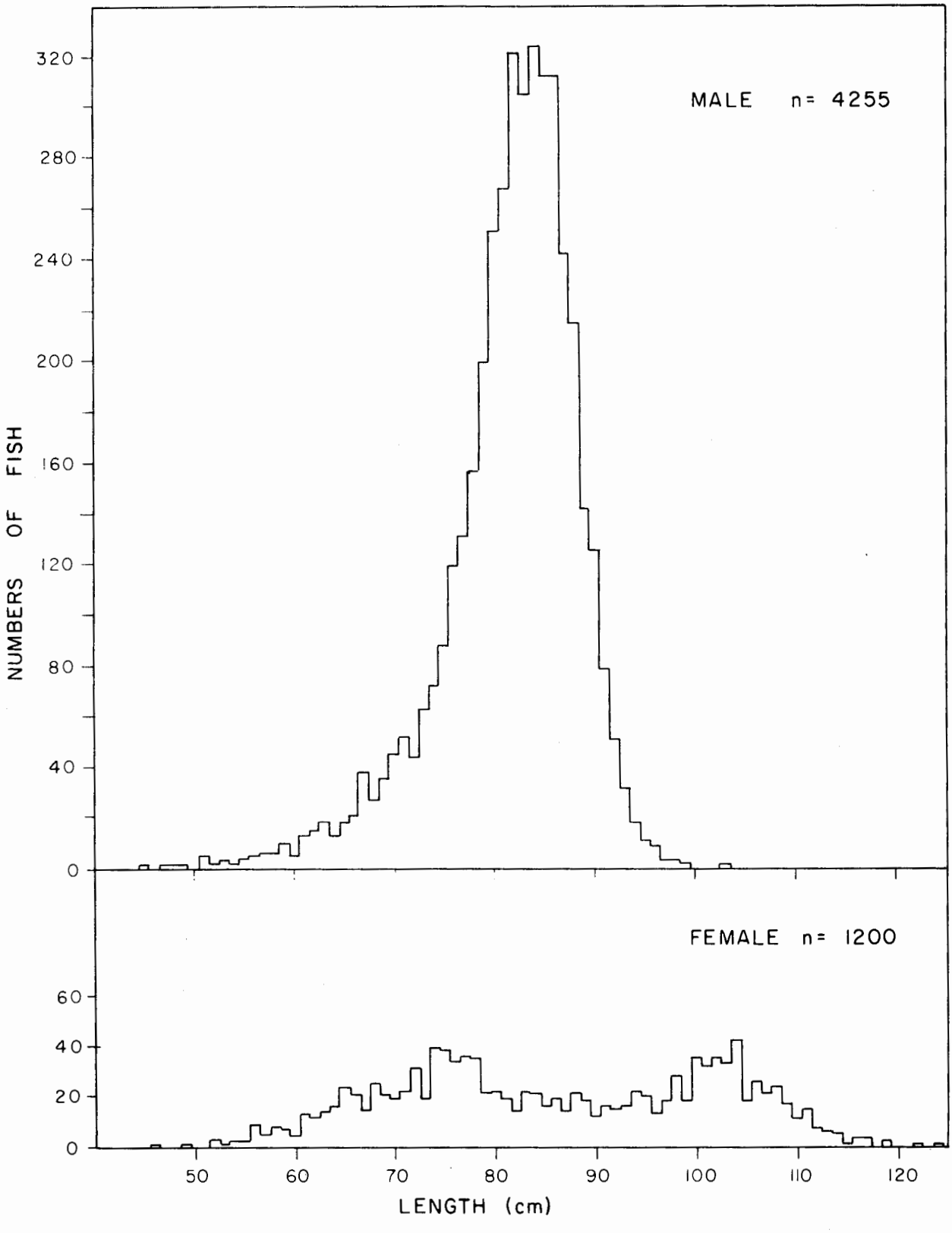

Fig. 5a. Length frequency of male and female dogfish captured from the Gulf Islands-Central Strait area, February and March, 1980.

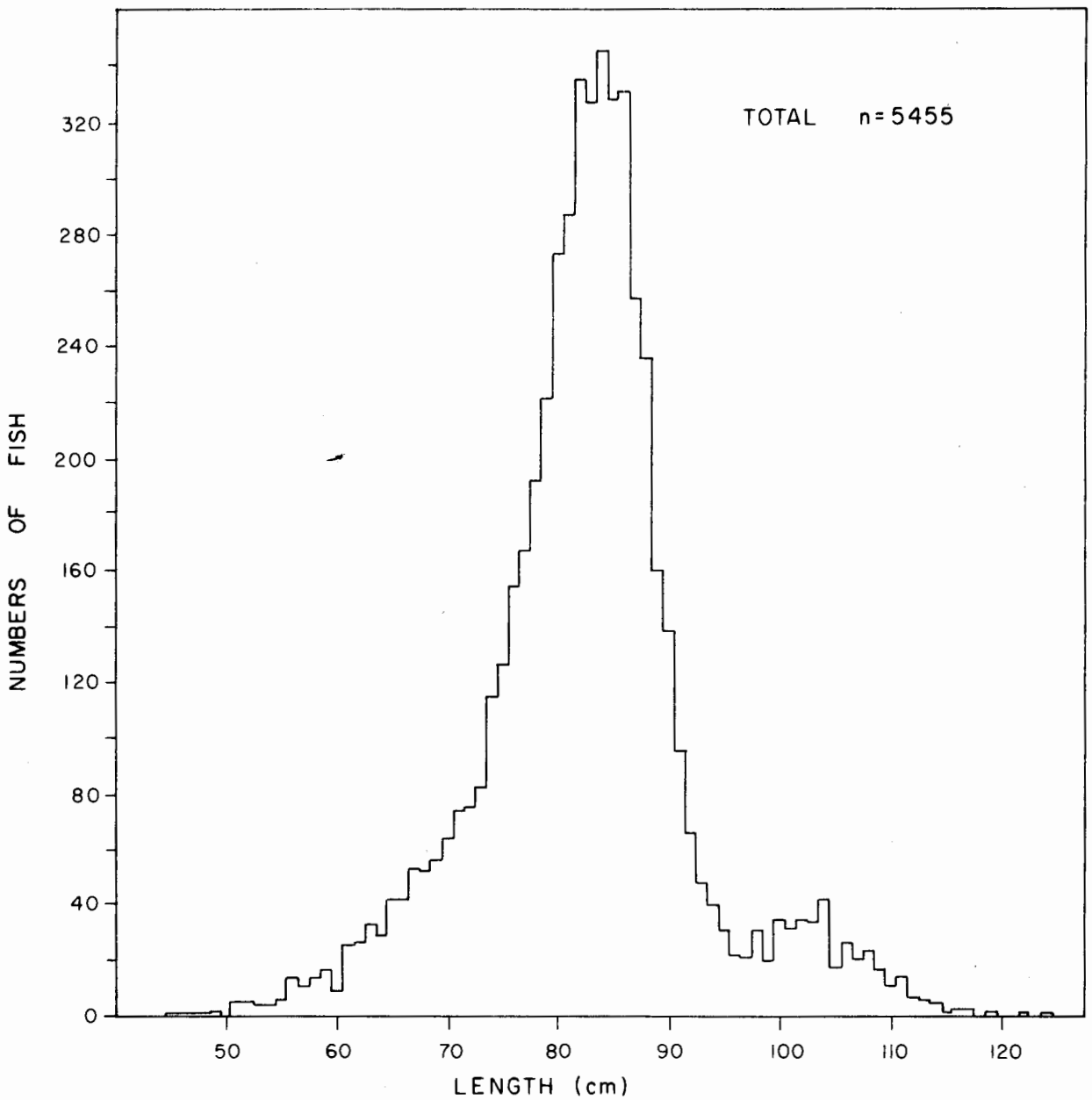

Fig. 5b. Length frequency of total catch of dogfish captured from the Gulf Islands-Central Strait area, February and March, 1980.

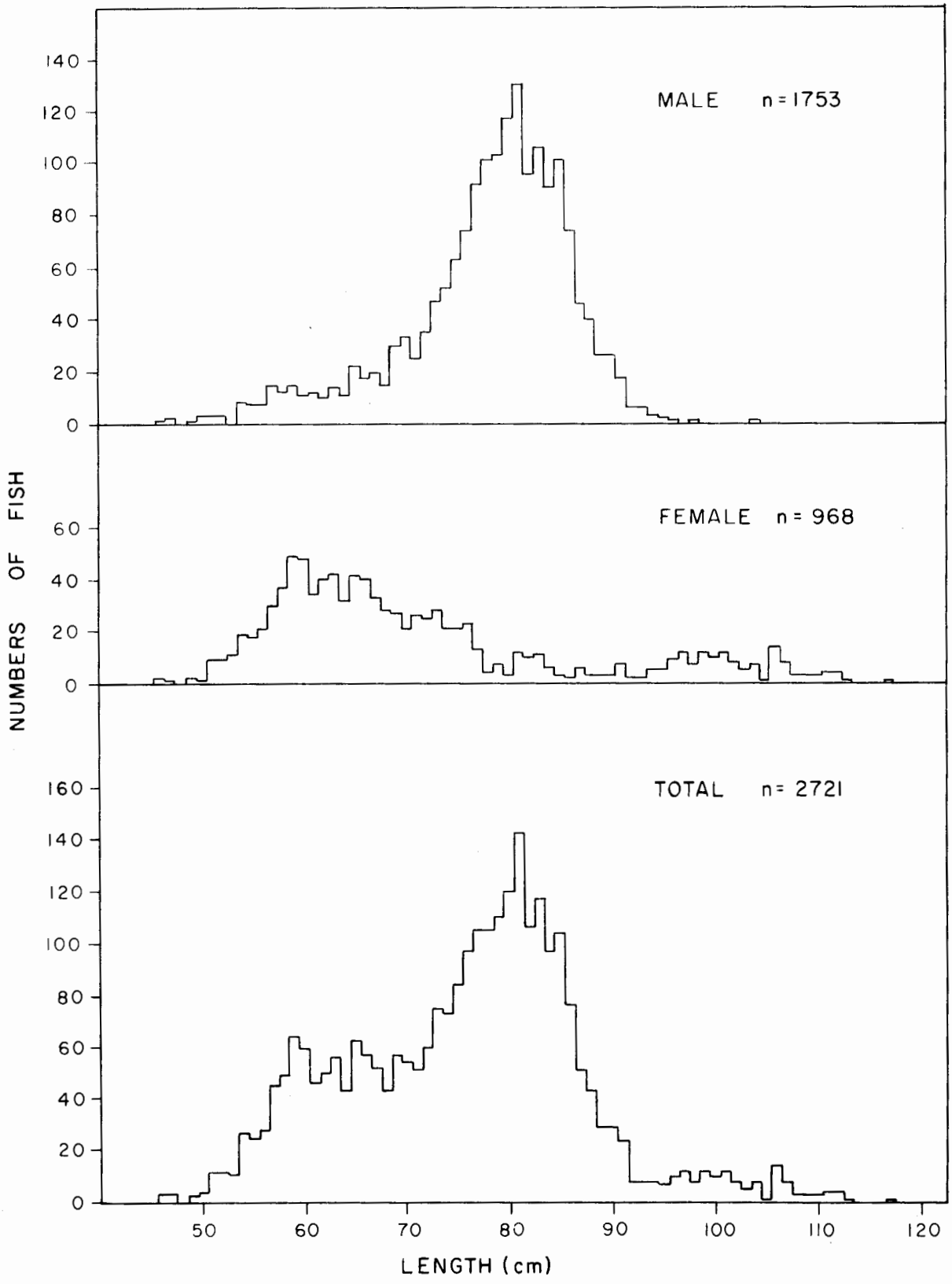

Fig. 6. Length frequency of dogfish captured from the Campbell River area, April-May, 1980.

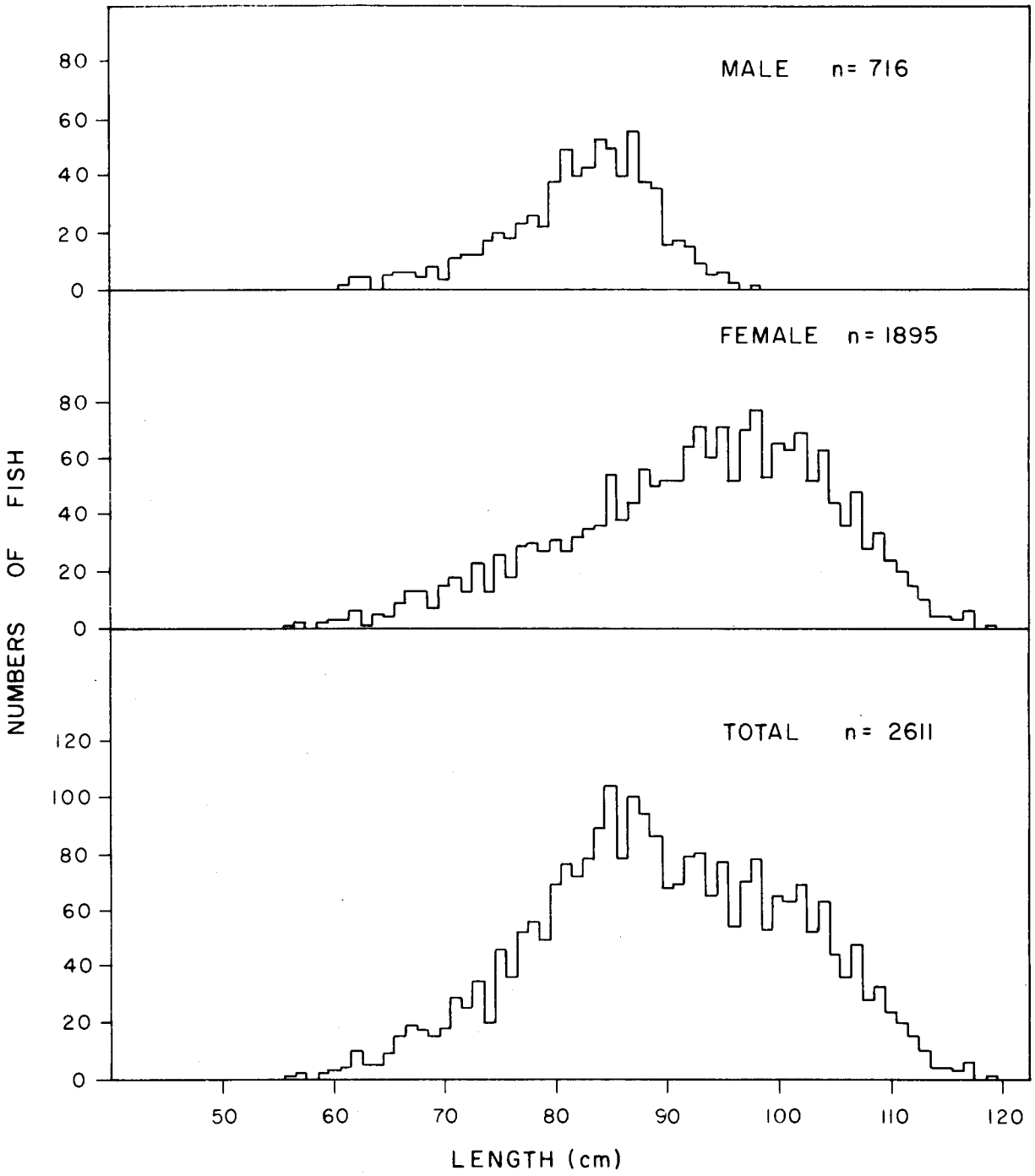

Fig. 7. Length frequency of dogfish captured from the Queen Charlotte Sound, Hecate Strait and Dixon Entrance, June-July 1980.

Table 10. Length frequency of tagged dogfish by set, Gulf Islands-Central Strait, February 1980.

Total length (cm)	Set no. 1			2			3			4		
	M	F	T	M	F	T	M	F	T	M	F	T
55												
56												
57												
58												
59												
60												
61												
62												
63	1		1								1	1
64										1		1
65		1	1									
66	1		1							1		1
67	1		1									
68	2		2									
69	2		2									
70	2		2	1		1						
71	7		7	1		1						
72	1		1									
73	2		2				1		1			
74	4		4	1		1						
75	2		2									
76	6		6	3		3					1	1
77	5		5	3		3						
78	6		6	6		6						
79	11		11	6		6				1		1
80	20		20	9		9				1		1
81	12		12	4		4						
82	12		12	15		15						
83	8		8	13	1	14				1		1
84	18	1	19	11		11				1		1
85	18		18	17		17						
86	14		14	13		13				1		1
87	10	1	11	11		11						
88	8	1	9	6		6						
89	2		2	8		8						
90	7		7	8		8	1		1			
91	3		3	2	1	3						
92	1	1	2	2		2						
93	1		1				1		1			
94				1	1	2						
95		1	1		2	2						
96		1	1									

Table 10 (cont'd)

Total length (cm)	Set no. 1			2			3			4		
	M	F	T	M	F	T	M	F	T	M	F	T
97		2	2		2	2						
98	1	2	3								1	1
99											1	1
100		3	3		1	1					4	4
101		5	5								2	2
102		3	3								1	1
103		4	4		1	1					1	1
104		7	7		1	1					3	3
105											1	1
106		1	1								1	1
107		2	2								1	1
108		2	2								3	3
109												
110		1	1									
111											1	1
112												
113												
114												
115												
116												
117												
118												
119											1	1
120												
121												
122												
123												
124												
Unknown												
Total	188	39	227	141	10	151	3	0	3	7	23	30

Table 10 (cont'd)

Total length (cm)	Set no. 5 M	5 F	5 T	6 M	6 F	6 T	7 M	7 F	7 T	8 & 9 M	8 & 9 F	8 & 9 T
55							1		1		1	1
56												
57												
58												
59												
60												
61								1	1			
62								1	1			
63								1	1		1	1
64												
65					1	1						
66	1		1					1	1			
67		1	1									
68		1	1									
69								1	1			
70	1		1							1		1
71												
72												
73												
74								1	1			
75								1	1	1	1	2
76										2		2
77												
78		1	1				1		1			
79							1		1			
80	1		1	1		1	1		1	1		1
81	1		1				1		1			
82	1		1	1		1						
83							5		5	1	1	2
84				1		1	3		3			
85												
86				2		2	2		2	3		3
87	1		1	2		2	1	1	2			
88							1		1	1	1	2
89				1		1	3		3	2		2
90								2	2		1	1
91										1	2	3
92								1	1		1	1
93											1	1
94		1	1								4	4
95								1	1		1	1
96		1	1					1	1			

Table 10 (cont'd)

Total length (cm)	Set no. 5 M	5 F	5 T	6 M	6 F	6 T	7 M	7 F	7 T	8 & 9 M	8 & 9 F	8 & 9 T
97								2	2		1	1
98					1	1		3	3		2	2
99		1	1								4	4
100		2	2		1	1		2	2		6	6
101											6	6
102		1	1		2	2		3	3		5	5
103					1	1					11	11
104		1	1		1	1		3	3		7	7
105					1	1		1	1		7	7
106								3	3		5	5
107		1	1					1	1		4	4
108					1	1		1	1		4	4
109					1	1					4	4
110		1	1		1	1		1	1		4	4
111					1	1					7	7
112		1	1					1	1		1	1
113								1	1		2	2
114								1	1		2	2
115											1	1
116											1	1
117								1	1		2	2
118												
119					1	1						
120												
121												
122											1	1
123												
124											1	1
Unknown												
Total	6	13	19	8	13	21	20	37	57	13	103	116

Table 10 (cont'd)

Total length (cm)	Set no. 10 & 11 M	F	T	12 M	F	T	13 M	F	T	14 M	F	T
55												
56												
57												
58												
59												
60												
61												
62												
63											1	1
64												
65												
66												
67	1		1									
68												
69										1		1
70										1		1
71							1		1			
72	1		1									
73	1		1				1		1	1		1
74	1		1				1		1	3		3
75							2		2	1		1
76	4	1	5				3		3	4		4
77	5		5				3		3	2		2
78	1		1				1		1	3		3
79	5		5	2		2	6		6	5		5
80	7		7	3		3	5		5	4		4
81	10		10	2		2	6		6	7		7
82	22		22	3		3	9		9	11		11
83	11		11	3		3	9		9	10		10
84	16		16	4		4	9		9	6		6
85	17	1	18	3		3	9		9	4		4
86	12		12	6		6	14	1	15	7		7
87	21		21	1		1	10		10	5		5
88	22		22	5	1	6	8		8	7		7
89	8		8	3		3	2		2	6		6
90	2	1	3	2		2	1	1	2	3		3
91	10		10							1		1
92	7	1	8				1		1	3	1	4
93	2	1	3	2		2	2		2			
94	1		1				1		1			
95	1		1									
96	2		2									

Table 10 (cont'd)

Total length (cm)	Set no. 10 & 11 M	10 & 11 F	10 & 11 T	12 M	12 F	12 T	13 M	13 F	13 T	14 M	14 F	14 T
97							1		1			
98	1		1									
99		1	1									
100		2	2								1	1
101		2	2									
102		2	2		1	1						
103					1	1						
104		1	1					1	1			
105		1	1									
106		1	1					1	1			
107											2	2
108												
109												
110												
111		1	1					1	1			
112												
113												
114												
115												
116												
117												
118												
119												
120												
121												
122												
123												
124												
Unknown	1		1				1		1			
Total	192	16	208	39	3	42	106	5	111	95	5	100

Table 10 (cont'd)

Total length (cm)	Set no. 15 M	15 F	15 T	16 & 17 M	16 & 17 F	16 & 17 T	18 M	18 F	18 T	Total M	Total F	Total T
55										1	1	2
56												
57												
58					1	1					1	1
59												
60												
61					1	1					2	2
62				1		1				1	1	2
63										1	4	5
64		1	1							1	1	2
65											2	2
66				1		1				4	1	5
67		1	1				1		1	3	2	5
68	1		1				2		2	5	1	6
69							1	1	2	4	2	6
70					1	1	2		2	8	1	9
71				1		1				10		10
72		1	1				1		1	3	1	4
73	2	1	3							8	1	9
74	1		1	4		4				15	1	16
75	1		1	2		2				9	2	11
76	2		2	3		3	2		2	29	2	31
77	1		1				5		5	24		24
78	4		4	6	2	8	3		3	31	3	34
79	1		1	5		5	9		9	52		52
80	3	1	4	14		14	13		13	83	1	84
81	4		4	17		17	8		8	72		72
82	2		2	18		18	15		15	109		109
83	7		7	14		14	19		19	101	2	103
84	5		5	22		22	23		23	119	1	120
85	5		5	16	1	17	15		15	104	2	106
86	9		9	17		17	11		11	111	1	112
87	4	1	5	13		13	14		14	93	3	96
88	1		1	8		8	11		11	78	3	81
89	4		4	7		7	3		3	49		49
90	4		4	11		11	3		3	42	5	47
91				4		4	3		3	24	3	27
92	1		1	4	1	5	2	1	3	21	7	28
93	1		1	1		1	4		4	14	2	16
94							1		1	4	6	10
95							1		1	2	5	7
96										2	3	5

Table 10 (cont'd)

Total length (cm)	Set no. 15 M	15 F	15 T	16 & 17 M	16 & 17 F	16 & 17 T	18 M	18 F	18 T	Total M	Total F	Total T
97					2	2				1	9	10
98					3	3	1		1	3	12	15
99											7	7
100					1	1					23	23
101		1	1								16	16
102								1	1		19	19
103		2	2		1	1		1	1		23	23
104		1	1					1	1		27	27
105								1	1		12	12
106		1	1								13	13
107								1	1		12	12
108		1	1		1	1					13	13
109		2	2					1	1		8	8
110											8	8
111											11	11
112		1	1								4	4
113		1	1								4	4
114					1	1					4	4
115											1	1
116											1	1
117											3	3
118												
119											2	2
120												
121												
122											1	1
123												
124											1	1
Unknown				1		1				3		3
Total	63	16	79	190	16	206	173	8	181	1,244	307	1,551

Table 11. Length/frequency of dogfish, Gulf Islands and Central Strait, February 1980.

Total length (cm)	Total tagged			Total untagged			Total caught		
	M	F	T	M	F	T	M	F	T
55	1	1	2				1	1	2
56									
57									
58		1	1					1	1
59									
60									
61		2	2	2		2	2	2	4
62	1	1	2				1	1	2
63	1	4	5				1	4	5
64	1	1	2				1	1	2
65		2	2					2	2
66	4	1	5				4	1	5
67	3	2		1		1	4	2	6
68	5	1	6	3		3	8	1	9
69	4	2	6	1		1	5	2	7
70	8	1	9	5		5	13	1	14
71	10		10	5		5	15		15
72	3	1	4	3		3	6	1	7
73	8	1	9	6		6	14	1	15
74	15	1	16	5	2	7	20	3	23
75	9	2	11	5	1	6	14	3	17
76	29	2	31	11		11	40	2	42
77	24		24	12		12	36		36
78	31	3	34	15		15	46	3	49
79	52		52	21		21	73		73
80	83	1	84	15		15	98	1	99
81	72		72	19		19	91		91
82	109		109	23		23	132		132
83	101	2	103	24		24	125	2	127
84	119	1	120	19	1	20	138	2	140
85	104	2	106	11		11	115	2	117
86	111	1	112	12		12	123	1	124
87	93	3	96	12	1	13	105	4	109
88	78	3	81	11		11	89	3	92
89	49		49	8		8	57		57
90	42	5	47	6		6	48	5	53
91	24	3	27	3	2	5	27	5	32
92	21	7	28	1		1	22	7	29
93	14	2	16	1	2	3	15	4	19
94	4	6	10		1	1	4	7	11
95	2	5	7				2	5	7
96	2	3	5				2	3	5
97	1	9	10	1		1	2	9	11
98	3	12	15		2	2	3	14	17
99		7	7					7	7

Table 11 (cont'd)

Total length (cm)	Total tagged			Total untagged			Total caught		
	M	F	T	M	F	T	M	F	T
100		23	23		3	3		26	26
101		16	16		2	2		18	18
102		19	19		1	1		20	20
103		23	23					23	23
104		27	27					27	27
105		12	12					12	12
106		13	13		1	1		14	14
107		12	12		1	1		13	13
108		13	13					13	13
109		8	8		1	1		9	9
110		8	8					8	8
111		11	11					11	11
112		4	4					4	4
113		4	4					4	4
114		4	4					4	4
115		1	1					1	1
116		1	1					1	1
117		3	3					3	3
118									
119		2	2					2	2
120									
121									
122		1	1					1	1
123									
124		1	1					1	1
Unknown	3		3				3		3
Total	1,244	307	1,551	261	21	282	1,505	328	1,833

Table 12. Length frequency of tagged dogfish by area, Gulf Islands and Central Strait, February 1980.

Total length (cm)	Area											
	N. of Gabriola			E. & W. of Porlier Pass			Swanson and Prevost Ch.			N. of Active Pass		
	M	F	T	M	F	T	M	F	T	M	F	T
55							1	1	2			
56												
57												
58											1	1
59												
60												
61								1	1		1	1
62								1	1	1		1
63	1		1					3	3		1	1
64							1		1		1	1
65		1	1					1	1			
66	1		1				2	1	3	1		1
67	1		1					1	1	2	1	3
68	2		2					1	1	3		3
69	2		2					1	1	2	1	3
70	2		2	1		1	2		2	3	1	4
71	7		7	1		1				2		2
72	1		1							2	1	3
73	2		2	1		1				5	1	6
74	4		4	1		1		1	1	10		10
75	2		2				1	2	3	6		6
76	6		6	3		3	2	1	3	18	1	19
77	5		5	3		3				16		16
78	6		6	6		6	1	1	2	18	2	20
79	11		11	6		6	2		2	33		33
80	20		20	9		9	5		5	49	1	50
81	12		12	4		4	2		2	54		54
82	12		12	15		15	2		2	80		80
83	8		8	13	1	14	7	1	8	73		73
84	18	1	18	11		11	5		5	85		85
85	18		18	17		17				69	2	71
86	14		14	13		13	8		8	76	1	77
87	10	1	11	11		11	4	1	5	68	1	69
88	8	1	9	6		6	2	1	3	62	1	63
89	2		2	8		8	6		6	33		33
90	7		7	9		9		3	3	26	2	28
91	3		3	2	1	3	1	2	3	18		18
92	1	1	2	2		2		2	2	18	4	22
93	1		1	1		1		1	1	12	1	13
94				1	1	2		5	5	3		3
95		1	1		2	2		2	2	2		2
96		1	1					2	2	2		2

Table 12 (cont'd)

Total length (cm)	Area											
	N. of Gabriola			E. & W. of Porlier Pass			Swanson and Prevost Ch.			N. of Active Pass		
	M	F	T	M	F	T	M	F	T	M	F	T
97		2	2		2	2		3	3	1	2	3
98	1	2	3					7	7	2	3	5
99								6	6		1	1
100		3	3		1	1		15	15		4	4
101		5	5					8	8		3	3
102		3	3					12	12		4	4
103		4	4		1	1		13	13		5	5
104		7	7		1	1		15	15		4	4
105								10	10		2	2
106		1	1					9	9		3	3
107		2	2					7	7		3	3
108		2	2					9	9		2	2
109								5	5		3	3
110		1	1					7	7			
111								9	9		2	2
112								3	3		1	1
113								3	3		1	1
114								3	3		1	1
115								1	1			
116								1	1			
117								3	3			
118												
119								2	2			
120												
121												
122								1	1			
123												
124								1	1			
Unknown										3		3
Total	188	39	227	144	10	154	54	189	243	858	69	927

Table 13. Length frequency of tagged dogfish by set. Central Strait, March 1980.

Total length (cm)	Set no. 1			2			3			4		
	M	F	T	M	F	T	M	F	T	M	F	T
45												
46								1	1			
47												
48										1		1
49												
50												
51										2		2
52												
53										1		1
54												
55											1	1
56							1		1	1	1	2
57	1		1									
58		1	1					1	1			
59	1		1				2		2	2	2	4
60	1		1									
61							3		3		2	2
62	1	1	2				4	1	5	2		2
63							4	1	5	1		1
64		1	1					1	1	2	2	4
65		2	2				4	1	5	2		2
66	1		1					2	2			
67	1	1	2				4	1	5		2	2
68	1	2	3				2	2	4	1	1	2
69	2		2				4	3	7	2	4	6
70	5	1	6				4	3	7	1	2	3
71	4	1	5				4	2	6	3	2	5
72	3	1	4				4	5	9	3		3
73	3	3	6				4	2	6	6		6
74	7	2	9	1		1	2	6	8	4		4
75	5		5	1		1	7	4	11	5	2	7
76	6	2	8	3		3	8	4	12	3	2	5
77	7	5	12	1		1	8	4	12	1	1	2
78	6	4	10	2	1	3	5	6	11	9	2	11
79	9	1	10	4		4	4	2	6	5	1	6
80	17	2	19	5	1	6	3	2	5	12	1	13
81	19	1	20	1	1	2	5	1	6	8	1	9
82	7		7	8		8	9		9	4	1	5
83	10		10	2		2	9	2	11	10	2	12
84	12	1	13	3	2	5	9	1	10	10		10
85	13	2	15	4	1	5	7	1	8	10		10
86	14	2	16	8		8	8		8	9	1	10
87	7	2	9	5		5	5		5	3		3
88	5	2	7	6	2	8	5	1	6	1	2	3
89	8	1	9	2	3	5	3		3	2	1	3

Table 13 (cont'd)

Total length (cm)	Set no. 1 M	1 F	1 T	2 M	2 F	2 T	3 M	3 F	3 T	4 M	4 F	4 T
90	5		5	1		1	3		3	5		5
91	6		6				1		1	2	1	3
92	2		2		1	1				1		1
93	2	1	3					2	2			
94					2	2					1	1
95					1	1		1	1		1	1
96					1	1	1	1	2			
97					1	1						
98		1	1		2	2						
99		1	1									
100												
101					1	1					1	1
102		1	1		2	2						
103												
104					1	1						
105												
106					1	1						
107												
108					1	1						
109												
110												
111		1	1		1	1						
112												
113												
114												
115												
116		1	1									
Unknown									1			
Total	191	47	238	57	26	83	146	64	211	134	40	174

Table 13 (cont'd)

Total length (cm)	Set no. 5			6			7			8		
	M	F	T	M	F	T	M	F	T	M	F	T
45							1		1			
46												
47	1		1									
48												
49	1		1									
50												
51				1		1						
52		1	1								1	1
53							1		1			
54										1	1	2
55				1		1						
56	2	1	3		4	4					1	1
57		1	1	2	1	3				1	1	2
58				2		2		2	2			
59					2	2				1		1
60				1	1	2						
61	1		1		3	3	2	1	3	2	1	3
62		2	2	1	2	3	1		1	1		1
63	3		3		4	4		2	2	2	1	3
64	2	3	5		3	3	1		1	2		2
65	1	1	2	1		1	3	4	7	2	2	4
66	2	1	3	1	3	4	2	3	5		2	2
67	2	1	3	1		1	1		1	6	2	8
68	1	2	3	3	3	6	1	1	2	1	3	4
69	3	4	7	2		2	1	3	4	1		1
70	1	1	2	2	2	4		3	3	1		1
71	3		3		2	2		1	1	2	2	4
72	5	1	6		2	2	2	2	4	3	1	4
73	1	1	2	5	3	8	4	2	6	4	1	5
74	4	1	5	7	3	10	4	3	7	2	4	6
75	4	1	5	2	2	4	6	3	9	3	4	7
76	8	1	9	1	2	3	5	3	8	5	3	8
77	8	4	12	8	3	11	1	1	2	9	2	11
78	5	2	7	5	3	8	8	1	9	5	4	9
79	6	1	7	5	1	6	9	1	10	9	2	11
80	8	2	10	2	1	3	9	2	11	7	2	9
81	7	1	8	9	2	11	7	2	9	5	3	8
82	3	2	5	7		7	7		7	7	1	8
83	6		6	3	1	4	5	3	8	12	3	15
84	3		3	3	1	4	4	1	5	7	1	8
85	6	1	7	9	1	10	8		8	6		6
86	6	1	7	6	1	7	7	2	9	2		2
87	3		3	10	1	11	3		3	1	2	3

Table 13 (cont'd)

Total length (cm)	Set no. 5 M	5 F	5 T	6 M	6 F	6 T	7 M	7 F	7 T	8 M	8 F	8 T
88	2	1	3	1		1	3	2	5	9	1	10
89	2	1	3	3	1	4				3	1	4
90	3	1	4	3	1	4	1		1	3		3
91	4		4		2	2	1	2	3	1		1
92	3		3	1	1	2		1	1			
93	2		2									
94	2		2	1		1		1	1			
95		1	1	2	1	3					1	1
96								1	1		2	2
97								1	1		1	1
98		1	1		1	1					2	2
99								2	2			
100											1	1
101					1	1		2	2		1	1
102		2	2									
103					1	1					1	1
104		1	1		1	1		1	1		1	1
105												
106											1	1
107		1	1					2	2		1	1
108					1	1					2	2
109					1	1					1	1
110								1	1			
111												
112											1	1
113								1	1			
114								1	1			
115												
116											1	1
Unknown			1									
Total	124	46	171	111	69	180	108	64	172	126	69	195

Table 13 (cont'd)

Total length (cm)	Set no. 9 M	9 F	9 T	10 M	10 F	10 T	11 M	11 F	11 T	12 M	12 F	12 T
45												
46												
47												
48												
49												
50												
51												
52	1		1									
53												
54	1		1									
55												
56											1	1
57	1		1									
58							1		1			
59											1	1
60	1		1					1	1			
61											1	1
62		1	1		1	1						
63												
64											1	1
65	1	2	3		1	1						
66	1	1	2				1		1		1	1
67	3	1	4		1	1						
68	1		1								1	1
69	2		2		1	1				1		1
70	1		1	1		1	1		1	1		1
71	1	2	3		2	2				1		1
72	5	3	8				1		1	1		1
73	2	1	3	1		1	1		1			
74		2	2	1	1	2				1		1
75	1	2	3	1		1	2		2	3		3
76	2	6	8	1		1	3		3	2		2
77	2	2	4	1	1	2	4		4	5		5
78	5	1	6		1	1	5		5	4		4
79	8		8	1	1	2	8		8	4		4
80	5		5	4		4	8		8	6		6
81	6		6	3	1	4	21		21	10		10
82	3		3	5		5	15		15	18		18
83	7		7				16		16	11		11
84	7	1	8	2		2	18		18	8		8
85	10		10	3		3	18		18	14		14
86	6	2	8	1		1	17		17	14		14
87	1		1	2		2	15		15	17		17

Table 13 (cont'd)

Total length (cm)	Set no. 9 M	9 F	9 T	10 M	10 F	10 T	11 M	11 F	11 T	12 M	12 F	12 T
88	1	1	2	1	1	2	11	1	12	16		16
89	2		2		1	1	10	1	11	11		11
90	4		4		1	1	12		12	7	1	8
91	3	1	4				4		4	3		3
92	1		1				1		1	3		3
93					1	1	2		2	3		3
94							2	1	3	2		2
95							3		3			
96					1	1	1		1	1		1
97					1	1						
98												
99		1	1		1	1						
100					2	2						
101		1	1		2	2		1	1			
102		2	2									
103		2	2									
104					3	3						
105		1	1		2	2						
106												
107					1	1						
108					3	3						
109		1	1		2	2						
110								1	1			
111												
112					1	1						
113												
114												
115												
116												
Unknown												
Total	95	37	132	28	34	62	201	6	207	167	7	174

Table 13 (cont'd)

Total length (cm)	Set no. 13 M	13 F	13 T	14 M	14 F	14 T	15 M	15 F	15 T	16 M	16 F	16 T
45												
46												
47												
48												
49												
50												
51	1		1									
52												
53	1	1	2									
54												
55												
56		1	1									
57												
58												
59												
60												
61										1		1
62	2		2									
63	1		1							2		2
64												
65								1	1			
66	1	2	3				2		2			
67				1		1				1		1
68							1	1	2	1	1	2
69				1		1	1		1			
70				1		1	2		2	2	1	3
71	3		3							1		1
72	1		1							1	1	2
73	3	2	5							1		1
74	1	3	4	1		1	1		1	2	1	3
75	2		2									
76	1	2	3	2		2	1		1			
77	3	3	6	1	1	2				2		2
78	2		2	1		1				7		7
79										6		6
80	5		5	3	1	4	2		2	6		6
81	10		10	2		2	2		2	4	1	5
82	8	1	9	6		6				4	1	5
83	3		3	6		6	5		5	5	1	6
84	6		6	4		4	3		3	7		7
85	4		4	13		13	4		4	6		6
86	6		6	9		9	1		1	10		10
87	4		4	6		6	4		4	6		6

Table 13 (cont'd)

Total length (cm)	Set no. 13 M	13 F	13 T	14 M	14 F	14 T	15 M	15 F	15 T	16 M	16 F	16 T
88	2		2	10		10	5		5	5		5
89	3		3	3		3	4		4	3		3
90	1		1	2		2	3		3	1		1
91				5		5	2		2	1		1
92	1		1							1		1
93		1	1				1		1			
94	2	2	4	1		1	1		1			
95		1	1					1	1		1	1
96		1	1									
97											1	1
98											1	1
99										1	1	2
100		1	1									
101		1	1									
102		3	3									
103		1	1								1	1
104		1	1									
105												
106		1	1									
107												
108		1	1									
109		1	1									
110												
111												
112												
113												
114												
115												
116												
Unknown												
Total	77	30	107	78	2	80	45	3	48	87	12	99

Table 13 (cont'd)

Total length (cm)	Set no. 17 M	17 F	17 T	18 M	18 F	18 T	19 M	19 F	19 T	20 M	20 F	20 T
45												
46												
47												
48												
49												
50												
51												
52												
53												
54											1	1
55												
56												
57					1	1				1		1
58		1	1							1		1
59	1		1									
60							1		1			
61								1	1			
62	1		1							1	1	2
63										1		1
64				1		1						
65					1	1					1	1
66					1	1					2	2
67										1		1
68	1	1	2		1	1	1		1			
69				1		1						
70	1		1					2	2	3		3
71	2	1	3	1	2	3	1		1	1	1	2
72		2	2	1		1	2	2	4		1	1
73	1	2	3	1		1						
74	1	1	2		2	2	1	1	2	1	2	3
75	1	2	3	2		2	2	3	5	5	1	6
76	1		1					1	1	1		1
77	1	3	4	1	1	2	6		6	1		1
78	3	2	5	1		1	3	1	4	4		4
79	3		3	4		4	5	1	6	2	2	4
80	5		5	3		3	5	2	7	2	1	3
81	7		7				4		4	5	1	6
82	11	1	12	5		5	7		7	7	2	9
83	5		5	3		3	8	1	9	6	1	7
84	10	4	14	5		5	8	1	9	8		8
85	6	1	7	2	2	4	8	2	10	5		5
86	14	1	15	3		3	5	1	6			
87	10		10	1		1	4	1	5	4		4

Table 13 (cont'd)

Total length (cm)	Set no. 17 M	17 F	17 T	18 M	18 F	18 T	19 M	19 F	19 T	20 M	20 F	20 T
88	5	2	7	2	1	3	4		4	6		6
89	5	2	7	1	1	2	4	1	5			
90	2		2	2		2	2		2	2		2
91	3	2	5	2	1	3	2		2	2		2
92	4		4	1	1	2	1		1	2		2
93	3	1	4	2	2	4				1	1	2
94	1	2	3					2	2			
95		1	1		1	1	1	1	2		2	2
96	1		1	1	1	2						
97		1	1		1	1	1	1	2			
98		1	1					1	1		1	1
99		1	1		1	1	1	1	2		1	1
100												
101		2	2									
102		1	1					1	1			
103					2	2						
104		4	4								1	1
105					1	1					2	2
106								3	3		2	2
107								1	1		1	1
108					1	1		2	2			
109		1	1									
110												
111		1	1									
112		1	1									
113					1	1						
114												
115												
116												
Unknown												
Total	109	45	154	46	26	72	87	34	121	73	28	101

Table 13 (cont'd)

Total length (cm)	Set no. 21 M	21 F	21 T	22 M	22 F	22 T	23 M	23 F	23 T	Total M	Total F	Total T
45										1		1
46											1	1
47										1		1
48										1		1
49								1	1	1	1	2
50												
51										4		4
52		1	1				1		1	2	3	5
53										3	1	4
54										2	2	4
55										1	1	2
56										4	9	13
57										6	4	10
58										4	5	9
59					1	1	1		1	8	6	14
60										4	2	6
61	1	1	2				1		1	11	10	21
62					1	1				14	10	24
63				1		1				15	8	23
64	1		1					1	1	9	12	21
65		1	1							14	17	31
66					1	1	2		2	13	19	32
67	2	1	3	3		3				26	10	36
68		1	1	1	1	2	1		1	17	21	38
69				2	1	3	1	1	2	24	17	41
70	1		1							28	15	43
71	1	2	3	1		1	1	2	3	30	22	52
72	2	1	3		2	2		2	2	34	26	60
73	3		3	1		1	2	1	3	43	18	61
74	2	1	3	5	1	6	4	2	6	52	36	88
75	4	3	7	3	4	7	3	1	4	62	32	94
76	7	1	8	4	1	5	3	1	4	67	29	96
77	3	2	5	4	2	6		1	1	77	36	113
78	5	1	6	4		4	1		1	90	29	119
79	3	2	5	5	2	7	4		4	104	17	121
80	7	1	8	3	1	4	5		5	32	19	151
81	6		6	8		8	4	1	5	153	16	169
82	10	2	12	9	1	10	8	2	10	68	14	182
83	7	2	9	3	2	5	11	2	13	153	20	173
84	10	1	11	6		6	6	2	8	159	16	175
85	8		8	7	1	8	3		3	174	12	186
86	7	3	10	3	1	4	10	1	11	166	16	182
87	7	2	9	7	1	8	5	1	6	130	10	140

Table 13 (cont'd)

Total length (cm)	Set no. 21 M	21 F	21 T	22 M	22 F	22 T	23 M	23 F	23 T	Total M	Total F	Total T
88	9	1	10	2		2	3		3	14	18	132
89	4	1	5	2		2	3	3	6	78	18	96
90	5	2	7				4		4	71	6	77
91	2	2	4	1		1	5		5	50	11	61
92	2	2	4	1		1	4	1	5	29	7	36
93		1	1				1	2	3	17	12	29
94		2	2				2	2	4	14	15	29
95				1	1	2	1		1	8	15	23
96	1		1	1	1	2		1	1	7	10	17
97					1	1				1	9	10
98								3	3		14	14
99								1	1	2	11	13
100		2	2		2	2		1	1		9	9
101								1	1		14	14
102								1	1		13	13
103				1	1	2		1	1	1	10	11
104								1	1		15	15
105											6	6
106		1	1		2	2		1	1		12	12
107								1	1		8	8
108											11	11
109					1	1					8	8
110		1	1								3	3
111		1	1								4	4
112											3	3
113											2	2
114											1	1
115												
116											2	2
Unknown												2
Total	120	45	165	89	33	122	100	42	142	2,399	809	3,210

Table 14. Length frequency of dogfish, Central Strait, March 1980.

Total length (cm)	Total tagged			Total untagged			Total caught		
	M	F	T	M	F	T	M	F	T
45	1		1				1		1
46		1	1					1	1
47	1		1				1		1
48	1		1				1		1
49	1	1	2				1	1	2
50									
51	4		4	1		1	5		5
52	2	3	5				2	3	5
53	3	1	4				3	1	4
54	2	2	4				2	2	4
55	1	1	2	2		2	3	1	4
56	4	9	13	1		1	5	9	14
57	6	4	10		1	1	6	5	11
58	4	5	9	2	2	4	6	7	13
59	8	6	14	2	1	3	10	7	17
60	4	2	6	1	2	3	5	4	9
61	11	10	21		1	1	11	11	22
62	14	10	24		1	1	14	11	25
63	15	8	23	3	2	5	18	10	28
64	9	12	21	3	3	6	12	15	27
65	14	17	31	4	5	9	18	22	40
66	13	19	32	4	1	5	17	20	37
67	26	10	36	8	3	11	34	13	47
68	17	21	38	2	3	5	19	24	43
69	24	17	41	6	2	8	30	19	49
70	28	15	43	4	3	7	32	18	50
71	30	22	52	7		7	37	22	59
72	34	26	60	4	4	8	38	30	68
73	43	18	61	6		6	49	18	67
74	52	36	88	4		4	56	36	92
75	62	32	94	12	3	15	74	35	109
76	67	29	96	13	3	16	80	32	112
87	77	36	113	18		18	95	36	131
98	90	29	119	21	3	24	111	32	143
69	104	17	121	23	4	4	127	21	148
80	132	19	151	21	2	23	153	21	174
81	153	16	169	24	3	27	177	19	196
82	168	14	182	21		21	189	14	203
83	153	20	173	27		27	180	20	200
84	159	16	175	27	3	30	186	19	205
85	174	12	186	23	2	25	197	14	211
86	166	16	182	23	2	25	189	18	207
87	130	10	140	8		8	138	10	148
88	114	18	132	12		12	126	18	144
89	78	18	96	7		7	85	18	103

Table 14 (cont'd)

Total length (cm)	Total tagged			Total untagged			Total caught		
	M	F	T	M	F	T	M	F	T
90	71	6	77	7	1	8	78	7	85
91	50	11	61	2		2	52	11	63
92	29	7	36		1	1	29	8	37
93	17	12	29				17	12	29
94	14	15	29				14	15	29
95	8	15	23	1		1	9	15	24
96	7	10	17				7	10	17
97	1	9	10				1	9	10
98		14	14					14	14
99	2	11	13				2	11	13
100		9	9					9	9
101		14	14					14	14
102		13	13		2	2		15	15
103	1	10	11				1	10	11
104		15	15					15	15
105		6	6					6	6
106		12	12					12	12
107		8	8					8	8
108		11	11					11	11
109		8	8					8	8
110		3	3					3	3
111		4	4					4	4
112		3	3					3	3
113		2	2					2	2
114		1	1					1	1
115									
116		2	2					2	2
Unknown			2						2
Total	2,399	809	3,210	354	63	417	2,753	872	3,627

Table 15. Length frequency of tagged dogfish by area, Central Strait, March 1980.

Total length (cm)	N. of Gabriola Is. (near Entrance Is.)			Northumberland Channel		
	M	F	T	M	F	T
45	1		1			
46		1	1			
47	1		1			
48	1		1			
49	1	1	2			
50						
51	3		3	1		1
52	3	2	5			
53	2		2	1	1	2
54	2	2	4			
55	1	1	2			
56	4	7	11		2	2
57	6	4	10			
58	3	5	8	1		1
59	8	5	13		1	1
60	4	1	5		1	1
61	11	9	20		1	1
62	14	8	22	2		2
63	14	8	22	1		1
64	9	11	20		1	1
65	14	16	30		1	1
66	9	16	25	4	3	7
67	25	10	35	1		1
68	16	19	35	1	2	3
69	21	17	38	3		3
70	23	15	38	5		5
71	26	22	48	4		4
72	31	26	57	3		3
73	39	16	55	4	2	6
74	48	33	81	4	3	7
75	55	32	87	7		7
76	58	27	85	9	2	11
77	64	32	96	13	4	17
78	78	29	107	12		12
79	92	17	109	12		12
80	108	18	126	24	1	25
81	108	16	124	45		45
82	121	13	134	47	1	48
83	112	20	132	41		41
84	120	16	136	39		39
85	121	12	133	53		53
86	119	16	135	47		47
87	84	10	94	46		46

Table 15 (cont'd)

Total length (cm)	N. of Gabriola Is. (near Entrance Is.)			Northumberland Channel		
	M	F	T	M	F	T
88	70	17	87	44	1	45
89	47	17	64	31	1	32
90	46	5	51	25	1	26
91	36	11	47	14		14
92	24	7	31	5		5
93	11	11	22	6	1	7
94	6	12	18	8	3	11
95	5	13	18	3	2	5
96	5	9	14	2	1	3
97	1	9	10			
98		14	14			
99	2	11	13			
100		8	8		1	1
101		12	12		2	2
102		10	10		3	3
103	1	9	10		1	1
104		14	14		1	1
105		6	6			
106		11	11		1	1
107		8	8			
108		10	10		1	1
109		7	7		1	1
110		2	2		1	1
111		4	4			
112		3	3			
113		2	2			
114		1	1			
115						
116		2	2			
Unknown			2			
Total	1,833	756	2,594	568	48	616

Table 16. Length frequency of tagged dogfish by set. Campbell River, April-May 1980.

Total length (cm)	Set no. 1			2			3			4		
	M	F	T	M	F	T	M	F	T	M	F	T
44												
45												
46												
47												
48												
49												
50												
51												
52												
53												
54								1	1			
55												
56								1	1			
57												
58												
59							1	2	3			
60								1	1			
61												
62								1	1			
63							1	1	2			
64												
65												
66								1	1			
67												
68								1	1			
69					1	1	1		1			
70												
71												
72								2	2			
73							1	1	2			
74							2		2			
75												
76												
77							1		1			
78							1		1			
79	1		1					1	1	1		1
80							1		1			
81							1	1	2	1		1
82							1		1			
83	1		1									
84	1		1							2		2
85							1		1	1		1
86										1		1

Table 16 (cont'd)

Total length (cm)	Set no. 1 M	1 F	1 T	2 M	2 F	2 T	3 M	3 F	3 T	4 M	4 F	4 T
87							1		1			
88												
89										1		1
90	1		1					1	1	1		1
91											1	1
92												
93										1		1
94		1	1									
95		2	2					1	1			
96		1	1		1	1						
97		1	1					2	2			
98	1	1	2					1	1			
99					2	2						
100		1	1		1	1						
101								1	1			
102					2	2		2	2			
103		2	2									
104		2	2					1	1		1	1
105												
106		2	2					2	2		1	1
107		1	1					1	1			
108		3	3									
109		1	1		1	1						
110								1	1			
111					2	2						
112					1	1						
113												
114												
115												
116												
117												
Unknown												
Total	5	18	23	0	11	11	13	27	40	9	3	12

Table 16 (cont'd)

Total length (cm)	Set no. 5 M	5 F	5 T	6 M	6 F	6 T	7 M	7 F	7 T	8 M	8 F	8 T
44												
45												
46												
47												
48												
49												
50												
51												
52												
53												
54					1	1	1	1	2	2	1	3
55												
56					1	1	1		1		1	1
57				2		2		1	1	1	5	6
58					2	2		5	5			
59					1	1		4	4	1	3	4
60								5	5		2	2
61					1	1		2	2		2	2
62					1	1	2	3	5	2	6	8
63					2	2		5	5	1	2	3
64				1	1	2		4	4	1	4	5
65				1		1		2	2		4	4
66							1	4	5		5	5
67					1	1	1	2	3	1	2	3
68							1	3	4		2	2
69					1	1				3	2	5
70				2	1	3	1	1	2	1	1	2
71				1	1	2		5	5		3	3
72					1	1		2	2		1	1
73				1	1	2		2	2			
74					2	2		3	3		1	1
75					1	1	3	4	7			
76				1	1	2		3	3			
77				2	2	4	1	1	2			
78							2		2		2	2
79				1		1						
80										1	1	2
81												
82				1		1		1	1			
83				2		2						
84				1	1	2	1	2	3			
85												
86							1		1			

Table 16 (cont'd)

Total length (cm)	Set no. 5 M	5 F	5 T	6 M	6 F	6 T	7 M	7 F	7 T	8 M	8 F	8 T
87							1		1			
88				1		1				1		2
89												
90												
91								2	2			
92												
93											1	1
94	1		1		1	1						
95												
96					1	1		1	1			
97					2	2						
98					1	1						
99												
100												
101												
102					1	1						
103					1	1						
104												
105												
106					1	1						
107												
108												
109												
110					1	1						
111												
112												
113												
114												
115												
116												
117												
Unknown												
Total	1	0	1	17	32	49	17	68	85	15	51	66

Table 16 (cont'd)

Total length (cm)	Set no. 9 M	9 F	9 T	10 M	10 F	10 T	11 M	11 F	11 T	12 M	12 F	12 T
44												
45												
46				1		1						
47	1	1	2									
48												
49	1		1									
50												
51							1		1			
52				1	1	2		1	1		2	2
53								2	2			
54	1		1		1	1		3	3	1	1	2
55		2	2	1	2	3		3	3		2	2
56	1	1	2		1	1	1	2	3		1	1
57	1	4	5					1	1	1	2	3
58	1	5	6		1	1	1	1	2		5	5
59		3	3		3	3	1	3	4	1	5	6
60		10	10		1	1		3	3	3	5	8
61	1	4	5	1	1	2		5	5	2	2	4
62	1	2	3		1	1		3	3		1	1
63	1	3	4	1		1		5	5	2	2	4
64	2	3	5		3	3		2	2			
65		10	10	1	2	3		3	3		2	2
66		3	3	1	1	2	1	5	6	1	3	4
67	1	1	2		3	3		7	7			
68		2	2		1	1		4	4		1	1
69				1	2	3		2	2		2	2
70	1	2	3	1	1	2		4	4			
71		2	2	1		1		2	2		2	2
72		3	3	1	1	2	2		2		5	5
73		1	1	1	3	4	1	9	10			
74		3	3		3	3		2	2		1	1
75		2	2	2	3	5	1	1	2			
76		1	1	1	1	2		3	3	1	1	2
77					2	2	1		1		1	1
78		1	1				3		3			
79	1		1	1	1	2	3	1	4			
80	1		1	1		1						
81	2	1	3				1		1			
82				1	1	2						
83					1	1		2	2			
84					2	2						
85					1	1						
86	1		1				1		1			

Table 16 (cont'd)

Total length (cm)	Set no. 9 M	9 F	9 T	10 M	10 F	10 T	11 M	11 F	11 T	12 M	12 F	12 T
87	1		1				2		2			
88												
89					1	1						
90												
91	1		1		2	2						
92											1	1
93												
94												
95												
96												
97		1	1									
98												
99		1	1									
100												
101		1	1					1	1			
102												
103												
104												
105												
106												
107												
108												
109												
110												
111												
112												
113												
114												
115												
116												
117												
Unknown												
Total	20	73	93	18	47	65	20	80	100	12	47	59

Table 16 (cont'd)

Total length (cm)	Set no. 13 M	13 F	13 T	14 M	14 F	14 T	15 M	15 F	15 T	16 M	16 F	16 T
44												
45												
46		1	1									
47												
48												
49		1	1									
50				1		1						
51											1	1
52		1	1									
53		1	1									
54		1	1								1	1
55	1		1									
56											1	1
57											2	2
58		1	1	1		1		1	1		4	4
59	1	3	4		1	1				2	3	5
60	1	1	2	1	1	2	1		1	1	3	4
61	1	4	5							2	3	5
62		2	2		1	1				2	6	8
63	1	1	2		2	2		1	1	1	6	7
64	1	1	2				1	1	2	1	1	2
65	1	1	2							1	6	7
66	1	1	2		1	1					6	6
67	2	2	4		1	1		1	1	1	5	6
68	1	1	2							1	2	3
69	1	1	2					2	2		2	2
70		1	1		1	1					2	2
71								1	1		2	2
72	2	1	3								1	1
73		1	1	1	1	2				1	2	3
74	2	1	3	1		1					3	3
75					1	1				1		1
76											2	2
77										1	1	2
78	2		2									
79	1		1	2		2						
80	2		2	1		1	1		1	1		1
81	3		3	3		3				1	1	2
82	1	1	2	1	2	3						
83		2	2		1	1					1	1
84	3	1	4	2		2						
85				1		1	1		1			
86				2		2						

Table 16 (cont'd)

Total length (cm)	Set no. 13 M	13 F	13 T	14 M	14 F	14 T	15 M	15 F	15 T	16 M	16 F	16 T
87	2		2								1	1
88	1	1	2				1		1			
89												
90	1	1	2		1	1						
91		2	2				1		1		1	1
92												
93					1	1						
94		1	1		1	1						
95					1	1						
96					1	1						
97								1	1			
98		1	1		1	1		1	1			
99								1	1			
100		1	1		3	3						
101					2	2		1	1			
102												
103					1	1						
104		1	1					1	1			
105												
106		2	2									
107												
108												
109								1	1			
110					1	1						
111												
112					1	1						
113								1	1			
114												
115												
116												
117												
Unknown					1	1						
Total	32	42	74	17	28	45	6	14	20	17	69	86

Table 16 (cont'd)

Total length (cm)	Set no. 17 M	17 F	17 T	18 M	18 F	18 T	19 M	19 F	19 T	20 M	20 F	20 T
44											1	1
45												
46												
47	1		1									
48												
49											1	1
50										1		1
51	1		1					1	1	1	5	6
52		1	1							1	3	4
53		2	2								4	4
54	1	3	4					1	1	1	2	3
55	1	2	3					2	2	2	1	3
56		1	1					2	2	1		1
57	1	6	7				2	2	4	1	2	3
58	1	4	5				1		1			
59	3	4	7					1	1	1	3	4
60		4	4					2	2		3	3
61	1	3	4					2	2		3	3
62		3	3				1	4	5		1	1
63	1	5	6					2	2		1	1
64		3	3					1	1	1	1	2
65								1	1	2	1	3
66	2	4	6					1	1	1	1	2
67		1	1							1	4	5
68		2	2					2	2			
69		4	4					1	1			
70		2	2					2	2			
71		2	2								1	1
72	1	3	4									
73	1	2	3					1	1			
74							1		1			
75								3	3			
76		1	1				1	4	5			
77		2	2					1	1			
78								1	1			
79				2		2		1	1			
80												
81	1	1	2				1	1	2		1	1
82				1		1						
83				1		1		1	1			
84												
85												
86												

Table 16 (cont'd)

Total length (cm)	Set no. 17 M	17 F	17 T	18 M	18 F	18 T	19 M	19 F	19 T	20 M	20 F	20 T
87										1		1
88												
89				2		2						
90	1		1									
91				1		1						
92												
93												
94												
95												
96								1	1		1	1
97		1	1		1	1					1	1
98												
99					1	1					1	1
100								1	1			
101											1	1
102					1	1					1	1
103					1	1						
104												
105												
106												
107												
108												
109												
110												
111											1	1
112												
113												
114												
115												
116												
117												
Unknown												
Total	17	66	83	7	4	11	7	42	49	15	45	60

Table 16 (cont'd)

Total length (cm)	Set no. 21 M	21 F	21 T	22 M	22 F	22 T	23 M	23 F	23 T	24 M	24 F	24 T
44												
45												
46		1	1									
47												
48												
49												
50		1	1									
51		2	2									
52												
53		2	2									
54	1	2	3									
55	1	1	2									
56		3	3									
57	2	3	5									
58	1	5	6									
59		4	4									
60		3	3									
61		1	1									
62		1	1									
63		1	1									
64		4	4									
65												
66												
67	1	1	2									
68											1	1
69		1	1				1		1			
70										2		2
71												
72										1		1
73				1		1				1		1
74	1		1				2		2	4		4
75					1	1				3		3
76				1		1				4	1	5
77				1		1				7		7
78				2		2	2		2	6		6
79	1		1	5		5	1		1	6		6
80				2		2	2		2	14		14
81	2		2	2		2	1		1	6	1	7
82		1	1	2		2	3		3	11	1	12
83				3		3	6		6	4		4
84	1		1	2		2	5		5	6		6
85	2		2	7		7	3		3	5		5
86				8		8	2		2	8		8

Table 16 (cont'd)

Total length (cm)	Set no. 21 M	21 F	21 T	22 M	22 F	22 T	23 M	23 F	23 T	24 M	24 F	24 T
87		2	2	1		1	2		2	5		5
88		1	1	4		4	2		2	4		4
89				3		3	1		1	1		1
90				2		2	1		1			
91	1		1	1		1	3		3	1		1
92		1	1	2		2						
93												
94												
95		1	1	1		1						
96												
97		1	1									
98												
99		2	2									
100		1	1								1	1
101		2	2								1	1
102												
103												
104												
105												
106		1	1								1	1
107		2	2								1	1
108												
109												
110												
111					1	1						
112												
113												
114												
115												
116												
117												
Unknown												
Total	14	51	65	50	2	52	37	0	37	99	8	107

Table 16 (cont'd)

Total length (cm)	Set no. 25 M	25 F	25 T	26 M	26 F	26 T	27 M	27 F	27 T	28 M	28 F	28 T
44												
45												
46												
47												
48												
49												
50												
51												
52												
53												
54												
55												
56												
57												
58				1		1						
59												
60				1	1	2						
61												
62												
63												
64												
65												
66												
67												
68												
69				2		2						
70										3		3
71												
72				1		1				4	1	5
73				1		1				3	1	4
74	1		1	5		5	1		1	6		6
75				2		2				9	1	10
76							5		5	11	1	12
77				6		6	5		5	5		5
78				4		4	1		1	10		10
79				4		4	4		4	16	1	17
80	1		1	4		4	9		9	12		12
81				10		10	18		18	18		18
82				7		7	4		4	6		6
83				3		3	14		14	10		10
84				5		5	9		9	4		4
85	2		2	7		7	8		8	6		6
86	3		3	2		2	10		10	7		7

Table 16 (cont'd)

Total length (cm)	Set no. 25 M	25 F	25 T	26 M	26 F	26 T	27 M	27 F	27 T	28 M	28 F	28 T
87	1		1	5		5	2		2	3		3
88	1		1	3		3	4		4	1		1
89	1		1	3		3	2		2			
90	2		2	2		2	2		2	4		4
91							3		3	1		1
92				1		1	1		1			
93												
94												
95												
96		1	1	1		1						
97		1	1									
98												
99												
100												
101												
102												
103												
104												
105												
106		1	1					1	1			
107												
108												
109												
110												
111												
112								1	1			
113												
114												
115												
116												
117												
Unknown												
Total	12	3	15	80	1	81	102	2	104	139	5	144

Table 16 (cont'd)

Total length (cm)	Set no. 29 M	29 F	29 T	30 M	30 F	30 T	31 M	31 F	31 T	32 M	32 F	32 T
44												
45												
46												
47												
48												
49												
50												
51												
52												
53												
54												
55					1	1						
56					2	2		1	1			
57												
58				3	1	4						
59				1	4	5						
60				1		1						
61				3		3						
62					1	1						
63				2	1	3						
64				2	2	4						
65	1		1	7	1	8	1		1			
66	2	1	3	3	1	4						
67							2		2			
68		1	1	1	1	2	1	1	2			
69	6	2	8	1	2	3	1		1			
70	8		8	1		1	2	2	4			
71	6	1	7	3	1	4	3		3			
72	4		4	3	2	5	6	1	7			
73	6		6	7	1	8	5		5			
74	6		6	4	1	5	5		5	1		1
75	9		9	5	1	6	5		5			
76	18		18	1		1	10		10			
77	15		15	8		8	13		13			
78	22		22	7		7	12		12			
79	17	1	18	1	1	2	9		9			
80	15	1	16	5		5	5		5			
81	11	1	12	2		2	6		6			
82	16		16	3		3	5		5			
83	12		12	4	1	5	8		8			
84	7		7	3		3	5		5	1		1
85	6		6	6		6	2		2	1		1
86	2		2	3		3	3		3			

Table 16 (cont'd)

Total length (cm)	Set no. 29 M	29 F	29 T	30 M	30 F	30 T	31 M	31 F	31 T	32 M	32 F	32 T
87				1		1	4	1	5			
88	2		2	1		1	1		1			
89				1		1	1		1		1	1
90							1		1			
91										1		1
92							2		2			
93							1		1			
94												
95												
96												
97												
98												
99								1	1			
100		1	1									
101											1	1
102												
103												
104												
105												
106											1	1
107												
108												
109												
110												
111												
112												
113												
114												
115												
116												
117											1	1
Unknown												
Total	191	9	200	93	25	118	119	7	126	4	4	8

Table 16 (cont'd)

Total length (cm)	Set no. 33 M	33 F	33 T	34 M	34 F	34 T	35 M	35 F	35 T	36 M	36 F	36 T
44												
45												
46												
47												
48												
49												
50										1		1
51												
52	1		1									
53												
54												
55								1	1	1	1	2
56	1	2	3							2	1	3
57	2	1	3				1		1	1		1
58	2		2								2	2
59	1	1	2							2		2
60										2	2	4
61										1	1	2
62	1	1	2		1	1				1	1	2
63	2	2	4							1		1
64										2		2
65	4	3	7							3	3	6
66	3		3	1	1	2					1	1
67	4	1	5	2	1	3				3		3
68	4	1	5							5	2	7
69	5		5				1		1	5	2	7
70	6	1	7	1	1	2	1		1	2		2
71	3	1	4	1		1	2		2	4	1	5
72	4		4	1		1				2	1	3
73	5	1	6		1	1	5		5	3		3
74	2		2	4		4	1		1	2		2
75	7	1	8	5		5	5		5	3		3
76	3		3	7	2	9	1		1	3	2	5
77	7	1	8	7		7	6		6			
78	5		5	4		4	6		6	2		2
79	3		3	5		5	4		4	5		5
80	3		3	5	1	6	11		11	4		4
81	6		6	7		7	9		9	5	1	6
82	2	1	3	9	1	10	12		12		1	1
83	5	1	6	9	1	10	11		11	3		3
84	2		2	6		6	10		10	3		3
85	9		9	8		8	11	1	12	3		3
86	1		1	3		3	7		7	2		2

Table 16 (cont'd)

Total length (cm)	Set no. 33 M	33 F	33 T	34 M	34 F	34 T	35 M	35 F	35 T	36 M	36 F	36 T
87	2		2	2		2	3		3	3		3
88				1		1	7		7	1		1
89		1	1	3		3	4		4	1		1
90	1		1							2		2
91							1		1			
92												
93										1		1
94		1	1				1		1	1		1
95							1		1			
96												
97												
98												
99								1	1			
100												
101												
102												
103												
104												
105												
106											1	1
107		1	1									
108												
109												
110												
111												
112												
113												
114												
115												
116												
117												
Unknown												
Total	106	22	128	91	10	101	121	3	124	85	23	108

Table 16 (cont'd)

Total length (cm)	Set no. 37 M	37 F	37 T	38 M	38 F	38 T	Total M	Total F	Total T
44								1	1
45									
46							1	2	3
47							2	1	3
48									
49							1	2	3
50							3	1	4
51							3	9	12
52							3	9	12
53								11	11
54							8	19	27
55							7	18	25
56							7	21	28
57		1	1				15	30	45
58							12	37	49
59		1	1				15	49	64
60							11	48	59
61							12	34	46
62							10	40	50
63							14	42	56
64							11	32	43
65		2	2				22	41	63
66							17	40	57
67							19	33	52
68				1		1	15	28	43
69	2		2				30	27	57
70				1		1	33	21	54
71	1	1	2				25	26	51
72				3		3	35	25	60
73	3		3				47	28	75
74	1	1	2				52	21	73
75		1	1	2	1	3	62	21	83
76	2		2	4		4	74	23	97
77	4	1	5	2	1	3	92	13	105
78	6		6	4		4	101	4	105
79	4		4	5		5	103	7	110
80	10		10	6		6	117	3	120
81	8	2	10	5	1	6	130	12	142
82	7		7	3		3	96	10	106
83	4		4	6		6	106	11	117
84	5		5	7		7	91	6	97
85	8	1	9	3		3	101	3	104
86	1	1	2	6	1	7	74	2	76

Table 16 (cont'd)

Total length (cm)	Set no. 37 M	37 F	37 T	38 M	38 F	38 T	Total M	Total F	Total T
87	2	1	3	2		2	46	5	51
88	3		3	1	1	2	40	3	43
89	2		2				26	3	29
90	2		2	3		3	26	3	29
91	1		1				17	7	24
92							6	2	8
93	3		3				6	2	8
94							3	5	8
95							2	5	7
96		1	1				1	9	10
97								12	12
98		1	1				1	7	8
99					1	1		11	11
100								10	10
101								11	11
102		1	1					8	8
103								5	5
104				1	1	2	1	7	8
105		1	1					1	1
106								14	14
107					2	2		8	8
108								3	3
109								3	3
110								3	3
111								4	4
112		1	1					4	4
113								1	1
114									
115									
116									
117								1	1
Unknown								1	1
Total	79	18	97	65	9	74	1,752	969	2,721

Table 17. Length/frequency of dogfish, Campbell River, April-May, 1980.

Total length (cm)	Total tagged			Total untagged			Total caught		
	M	F	T	M	F	T	M	F	T
44		1	1					1	1
45									
46	1	2	3				1	2	3
47	2	1	3				2	1	3
48									
49	1	2	3				1	2	3
50	3	1	4				3	1	4
51	3	9	12				3	9	12
52	3	9	12				3	9	12
53		11	11					11	11
54	8	19	27				8	19	27
55	7	18	25				7	18	25
56	7	21	28				7	21	28
57	15	30	45				15	30	45
58	12	37	49				12	37	49
59	15	49	64				15	49	64
60	11	48	59				11	48	59
61	12	34	46				12	34	46
62	10	40	50				10	40	50
63	14	42	56				14	42	56
64	11	32	43				11	32	43
65	22	41	63				22	41	63
66	17	40	57				17	40	57
67	19	33	52				19	33	52
68	15	28	43				15	28	43
69	30	27	57				30	27	57
70	33	21	54				33	21	54
71	25	26	51				25	26	51
72	35	25	60				35	25	60
73	47	28	75				47	28	75
74	52	21	73				52	21	73
75	62	21	83	1		1	63	21	84
76	74	23	97				74	23	97
77	92	13	105				92	13	105
78	101	4	105				101	4	105
79	103	7	110				103	7	110
80	117	3	120				117	3	120
81	130	12	142				130	12	142
82	96	10	106				96	10	106
83	106	11	117				106	11	117
84	91	6	97				91	6	97
85	101	3	104				101	3	104
86	74	2	76	1		1	75	2	77
87	46	5	51				46	5	51

Table 17 (cont'd)

Total length (cm)	Total tagged			Total untagged			Total caught		
	M	F	T	M	F	T	M	F	T
88	40	3	43				40	3	43
89	26	3	29				26	3	29
90	26	3	29				26	3	29
91	17	7	24				17	7	24
92	6	2	8				6	2	8
93	6	2	8				6	2	8
94	3	5	8				3	5	8
95	2	5	7				2	5	7
96	1	9	10				1	9	10
97		12	12					12	12
98	1	7	8				1	7	8
99		11	11					11	11
100		10	10					10	10
101		11	11					11	11
102		8	8					8	8
103		5	5					5	5
104	1	7	8				1	7	8
105		1	1					1	1
106		14	14					14	14
107		8	8					8	8
108		3	3					3	3
109		3	3					3	3
110		3	3					3	3
111		4	4					4	4
112		4	4					4	4
113		1	1					1	1
114									
115									
116									
117		1	1					1	1
Unknown		1	1					1	1
Total	1,752	969	2,721	2		2	1,754	969	2,723

Table 18. Length frequency of tagged dogfish by area. Campbell River, April-May 1980.

Total length (cm)	Area					
	Marina Island			S. of Cape Mudge		
	M	F	T	M	F	T
44		1	1			
45						
46	1	2	3			
47	2	1	3			
48						
49	1	2	3			
50	2	1	3	1		1
51	3	9	12			
52	2	9	11	1		1
53		11	11			
54	8	19	27			
55	6	15	21	1	3	4
56	4	15	19	3	6	9
57	11	28	39	4	2	6
58	6	34	40	6	3	9
59	11	43	54	4	6	10
60	7	44	51	4	3	7
61	8	33	41	4	1	5
62	8	36	44	2	4	6
63	9	39	48	5	3	8
64	8	29	37	4	2	6
65	6	32	38	16	9	25
66	8	36	44	9	4	13
67	8	31	39	11	2	13
68	3	21	24	12	7	19
69	6	21	27	24	6	30
70	6	18	24	27	4	31
71	2	21	22	23	5	28
72	6	20	26	29	5	34
73	7	24	31	40	4	44
74	7	19	26	45	2	47
75	7	15	22	55	6	61
76	4	17	21	70	6	76
77	6	10	16	86	3	89
78	8	4	12	93		93
79	10	4	14	93	3	96
80	9	1	10	108	2	110
81	15	6	21	115	6	121
82	5	6	11	91	4	95
83	2	8	10	104	3	107
84	8	6	14	83		83
85	5	1	6	96	2	98
86	5		5	69	2	71

Table 18 (cont'd)

Total length (cm)	Area					
	Marina Island			S. of Cape Mudge		
	M	F	T	M	F	T
87	8	3	11	38	2	40
88	4	2	6	36	1	37
89		1	1	26	2	28
90	2	3	5	24		24
91	3	7	10	14		14
92		2	2	6		6
93		2	2	6		6
94		3	3	3	2	5
95		3	3	2	2	4
96		6	6	1	3	4
97		9	9		3	3
98		5	5	1	2	3
99		7	7		4	4
100		7	7		3	3
101		9	9		2	2
102		6	6		2	2
103		2	2		3	3
104		3	3	1	4	5
105					1	1
106		6	6		8	8
107		3	3		5	5
108					3	3
109		2	2		1	1
110		3	3			
111		3	3		1	1
112		2	2		2	2
113		1	1			
114						
115						
116						
117					1	1
Unknown		1	1			
Total	257	793	1,050	1,496	175	1,671

Table 19. Length frequency of tagged dogfish by set. Queen Charlotte Sound, Hecate Strait and Dixon Entrance, June-July, 1980.

Total length (cm)	Set no. 1 & 2			3			4			5		
	M	F	T	M	F	T	M	F	T	M	F	T
60												
61												
62		2	2									
63	1		1									
64												
65										1		1
66		2	2									
67												
68	1	2	3								1	1
69		1	1									
70										2	1	3
71		1	1				1	1	2	1		1
72		2	2				1		1			
73								2	2		3	3
74	1		1					1	1	2		2
75	3		3					1	1	2		2
76							2		2	1		1
77		3	3				1		1		1	1
78	1	1	2				2	2	4	2	1	3
79							1	2	3	1		1
80		1	1				1	1	2	1		1
81							1	1	2		2	2
82							3	1	4	1		1
83				1		1	2		2	1		1
84		1	1		1	1						
85		2	2		2	2	1	6	7			
86					1	1	2	3	5			
87							1		1			
88								4	4		1	1
89		1	1		1	1	2	2	4		1	1
90	2	1	3					1	1		3	3
91		1	1		1	1		2	2	1	1	2
92		2	2		2	2		2	2		1	1
93		3	3					1	1		1	1
94					1	1	1	2	3		1	1
95								5	5			
96		2	2		1	1		1	1		1	1
97		1	1		1	1		2	2			
98					2	2		2	2			
99		2	2		4	4		2	2			
100		4	4		2	2		1	1			
101		3	3		3	3		3	3			
102											1	1

Table 19 (cont'd)

Total length (cm)	Set no. 1 & 2			3			4			5		
	M	F	T	M	F	T	M	F	T	M	F	T
103		1	1					5	5			
104		2	2									
105		1	1		1	1						
106		2	2					1	1			
107		1	1								1	1
108					1	1					1	1
109					1	1		2	2			
110		1	1					2	2			
111		1	1								2	2
112		1	1									
113					1	1		1	1			
114								1	1			
115												
Unknown												
Total	9	48	57	1	26	27	22	63	85	16	24	40

Table 19 (cont'd)

Total length (cm)	Set no. 6 M	6 F	6 T	7 M	7 F	7 T	9 M	9 F	9 T	10 M	10 F	10 T
60												
61												
62												
63												
64												
65												
66		1	1									
67												
68												
69					1	1						
70												
71												
72					1	1						
73				1		1						
74												
75				1	1	2						
76				1		1						
77												
78		2	2		2	2						
79	1		1									
80				1	1	2						
81	1		1	2		2						
82					1	1						
83	1	2	3	2		2					2	2
84		1	1	2	1	3						
85		2	2	1	1	2						
86		1	1	1		1		1	1			
87												
88		2	2		2	2					1	1
89	2	1	3		1	1						
90	1	1	2								1	1
91		1	1					1	1			
92	1	2	3	1	1	2		1	1			
93		1	1		2	2		2	2	1	2	3
94								1	1			
95		2	2		2	2		1	1		1	1
96					4	4						
97		1	1		3	3					2	2
98					2	2						
99		4	4		3	3					1	1
100		2	2		2	2					3	3
101		3	3									
102					2	2						

Table 19 (cont'd)

Total length (cm)	Set no. 6 M	6 F	6 T	7 M	7 F	7 T	9 M	9 F	9 T	10 M	10 F	10 T
103		2	2									
104		4	4		3	3					1	1
105		1	1								1	1
106		1	1									
107		2	2								1	1
108					2	2						
109					1	1					1	1
110		3	3					1	1		2	2
111		1	1									
112								1	1			
113											1	1
114												
115												
Unknown			1									
Total	7	43	51	13	39	52	0	9	9	1	20	21

Table 19 (cont'd)

Total length (cm)	Set no. 11 M	11 F	11 T	13 M	13 F	13 T	14 M	14 F	14 T	15 M	15 F	15 T
60												
61												
62												
63												
64												
65												
66												
67												
68												
69												
70												
71												
72												
73												
74												
75												
76												
77												
78												
79												
80												
81												
82												
83												
84										1		1
85					2	2						
86												
87												
88												
89											1	1
90								1	1			
91												
92					1	1						
93											1	1
94					1	1						
95											1	1
96												
97					1	1						
98												
99												
100		1	1									
101												
102												

Table 19 (cont'd)

Total length (cm)	Set no. 11 M	11 F	11 T	13 M	13 F	13 T	14 M	14 F	14 T	15 M	15 F	15 T
103		1	1									
104												
105												
106												
107		1	1		1	1						
108												
109												
110												
111		1	1									
112												
113												
114												
115												
Unknown												
Total	0	4	4	0	6	6	0	1	1	1	3	4

Table 19 (cont'd)

Total length (cm)	Set no. 17 & 18 M	F	T	19 M	F	T	21 M	F	T	22 M	F	T
60												
61												
62	1		1									
63												
64												
65					1	1						
66	1	1	2									
67												
68	1	1	2									
69												
70		1	1		1	1						
71	1	3	4									
72												
73												
74		1	1									
75	2	2	4									
76		1	1								1	1
77	1	3	4								1	1
78	1	2	3								1	1
79	1	5	6		1	1		1	1			
80	1	6	7					1	1	1	1	2
81	6	2	8				1		1	1	3	4
82	1	3	4					1	1		2	2
83	1	5	6					2	2		4	4
84	6		6					2	2		1	1
85	2	3	5					1	1		3	3
86	3	3	6					1	1		1	1
87	2	2	4					3	3		4	4
88		1	1					4	4		5	5
89	1	5	6					2	2		3	3
90		4	4					7	7		3	3
91					1	1		4	4		1	1
92	1	5	6					2	2			
93		6	6					1	1		3	3
94		3	3					3	3		5	5
95		2	2					4	4		3	3
96	1	1	2					2	2		1	1
97		5	5					5	5		1	1
98		2	2					1	1		4	4
99		1	1									
100		6	6		1	1		1	1			
101		2	2					1	1		1	1
102		2	2		1	1		1	1		2	2

Table 19 (cont'd)

Total length (cm)	Set no. 17 & 18 M	F	T	19 M	F	T	21 M	F	T	22 M	F	T
103		3	3									
104		4	4		1	1		2	2		1	1
105		2	2		1	1						
106		3	3					1	1			
107		2	2									
108		1	1									
109								1	1			
110		1	1					1	1			
111					2	2						
112		1	1		1	1						
113		2	2									
114												
115		1	1									
Unknown												
Total	34	109	143	0	11	11	1	55	56	2	55	57

Table 19 (cont'd)

Total length (cm)	Set no. 23 M	23 F	23 T	25 M	25 F	25 T	26 & 27 M	26 & 27 F	26 & 27 T	31 M	31 F	31 T
60		1	1									
61												
62												
63												
64												
65												
66				1		1						
67	1		1									
68		1	1									
69	1		1									
70												
71		2	2	1	2	3						
72					1	1						
73					1	1						
74		1	1	3	1	4						
75												
76					2	2						
77	1		1	1	2	3	2		2			
78	1		1	4	3	7						
79		1	1	3	2	5	2		2			
80	1		1	4	3	7		1	1			
81				3		3	2	1	3			
82		1	1	2	3	5						
83				2	5	7	1	1	2			
84				2	1	3		2	2		1	1
85		3	3	2	1	3		2	2			
86				1		1						
87		3	3	3		3	3	1	4	1		1
88		2	2	1		1	2	1	3		1	1
89				2	3	5	1	1	2			
90		2	2		1	1						
91	1		1		2	2						
92		1	1	3	2	5						
93		1	1		1	1		1	1			
94		1	1					4	4			
95		1	1		1	1	1	3	4			
96					1	1		2	2			
97		1	1		1	1		2	2		1	1
98		2	2		3	3		7	7			
99					1	1		1	1			
100		2	2					6	6			
101		1	1					6	6			
102		3	3					9	9			

Table 19 (cont'd)

Total length (cm)	Set no. 23 M	23 F	23 T	25 M	25 F	25 T	26 & 27 M	26 & 27 F	26 & 27 T	31 M	31 F	31 T
103					1	1		3	3			
104		2	2		1	1		5	5			
105												
106								1	1			
107		1	1		1	1		4	4			
108		2	2		1	1		1	1			
109		1	1					6	6			
110								2	2			
111								1	1			
112								2	2			
113		1	1					1	1			
114								1	1			
115		2	2									
Unknown												
Total	6	39	45	38	47	85	14	78	92	1	3	4

Table 19 (cont'd)

Total length (cm)	Set no. 33 M	33 F	33 T	34 M	34 F	34 T	35 M	35 F	35 T	37 M	37 F	37 T
60												
61												
62											1	1
63												
64												
65												
66												
67											1	1
68												
69												
70											1	1
71											1	1
72										1	2	3
73												
74												
75		1	1									
76		1	1				1		1			
77										1		1
78										1	2	3
79											1	1
80	1		1							1		1
81										1		1
82							1		1			
83										1		1
84	1		1								1	1
85	1		1									
86	1		1							2		2
87	1		1	1		1						
88												
89		1	1							1		1
90												
91								1	1			
92												
93												
94								1	1			
95								1	1			
96											1	1
97								1	1		2	2
98											2	2
99											3	3
100								1	1			
101		1	1								1	1
102											2	2

Table 19 (cont'd)

Total length (cm)	Set no. 33 M	33 F	33 T	34 M	34 F	34 T	35 M	35 F	35 T	37 M	37 F	37 T
103											2	2
104								1	1			
105											2	2
106												
107											1	1
108											1	1
109		2	2									
110												
111												
112												
113		1	1									
114												
115												
Unknown												
Total	5	7	12	1	0	1	2	6	8	9	27	36

Table 19 (cont'd)

Total length (cm)	Set no. 38 M	38 F	38 T	39 M	39 F	39 T	41 M	41 F	41 T	42 M	42 F	42 T
60												
61												
62												
63												
64												
65												
66		1	1									
67					1	1						
68												
69												
70												
71												
72												
73					1	1						
74										1		1
75					1	1						
76	1		1									
77												
78		2	2									
79	1		1								1	1
80	1		1								1	1
81		1	1									
82										1		1
83		1	1				1		1			
84	2	1	3				1		1	1		1
85	1		1							2		2
86										1		1
87	1		1					1	1	1		1
88	1		1							2		2
89										1		1
90				1		1						
91										1		1
92										2	1	3
93		1	1									
94												
95										1		1
96		1	1									
97												
98										1		1
99												
100											1	1
101												
102												

Table 19 (cont'd)

Total length (cm)	Set no. 38 M	38 F	38 T	39 M	39 F	39 T	41 M	41 F	41 T	42 M	42 F	42 T
103												
104								1	1			
105												
106												
107												
108												
109											1	1
110		1	1									
111		1	1									
112												
113												
114												
115												
Unknown												
Total	8	10	18	1	3	4	2	2	4	15	5	20

Table 19 (cont'd)

Total length (cm)	Set no. 43 M	43 F	43 T	45 M	45 F	45 T	46 M	46 F	46 T	47 M	47 F	47 T
60												
61		1	1									
62												
63												
64												
65												
66												
67												
68					1	1						
69				1		1				1		1
70												
71												
72												
73								1	1		1	1
74												
75				1		1		1	1			
76												
77	1		1				1		1			
78							1		1			
79												
80				2		2	2		2			
81	1		1				2		2			
82		1	1	4		4		1	1	1		1
83							2		2			
84				3		3	1		1			
85	6		6	1		1	2	1	3			
86	1		1	2	1	3	1		1			
87	2		2				3	1	4	1		1
88	2	1	3	1		1				1		1
89		1	1	2		2	2		2			
90												
91	1		1	1		1				1		1
92	1	3	4	1	1	2	1		1			
93	2		2									
94		2	2	1		1		1	1			
95	1	1	2									
96		1	1									
97		4	4									
98		2	2									
99												
100		1	1									
101		2	2									
102		1	1									

Table 19 (cont'd)

Total length (cm)	Set no. 43 M	43 F	43 T	45 M	45 F	45 T	46 M	46 F	46 T	47 M	47 F	47 T
103												
104												
105		3	3									
106		2	2									
107												
108											1	1
109												
110												
111												
112					1	1						
113												
114												
115												
Total	18	26	44	20	4	24	18	6	24	5	2	7

Table 19 (cont'd)

Total length (cm)	Set no. 49 M	49 F	49 T	50 M	50 F	50 T	51 M	51 F	51 T	Total M	Total F	Total T
60											1	1
61											1	1
62										1	3	4
63										1		1
64												
65										1	1	2
66										2	5	7
67										1	2	3
68										2	6	8
69										3	2	5
70										2	4	6
71										4	10	14
72										2	6	8
73										1	9	10
74										7	4	11
75										9	7	16
76										6	5	11
77										9	10	19
78								1	1	13	19	32
79										10	14	24
80										17	16	33
81										21	10	31
82										14	14	28
83										15	22	37
84							1		1	21	13	34
85										19	29	48
86	1		1							16	12	28
87										20	15	35
88										10	25	35
89										14	24	38
90										4	25	29
91										6	16	22
92										11	27	38
93										3	27	30
94										2	26	28
95										3	28	31
96										1	19	20
97		1	1								35	35
98		1	1							1	30	31
99											22	22
100		1	1					1	1		36	36
101		1	1								28	28
102											24	24

Table 19 (cont'd)

Total length (cm)	Set no. 49 M	49 F	49 T	50 M	50 F	50 T	51 M	51 F	51 T	Total M	Total F	Total T
103											18	18
104											28	28
105					1	1					13	13
106								2	2		13	13
107											16	16
108											11	11
109											16	16
110											14	14
111		1	1								10	10
112											7	7
113											8	8
114											2	2
115											3	3
Unknown												1
Total	1	5	6	0	1	1	1	4	5	272	791	1,064

Table 20. Length frequency of dogfish, Queen Charlotte Sound, Hecate Strait, and Dixon Entrance, June-July 1980.

Total length (cm)	Total tagged			Total untagged			Total caught		
	M	F	T	M	F	T	M	F	T
56					1	1		1	1
57					2	2		2	2
58									
59					2	2		2	2
60		1	1		2	2		3	3
61		1	1	1	2	3	1	3	4
62	1	3	4	3	3	6	4	6	10
63	1		1	3	1	4	4	1	5
64					5	5		5	5
65	1	1	2	4	3	7	5	4	9
66	2	5	7	4	4	8	6	9	15
67	1	2	3	5	11	16	6	13	19
68	2	6	8	2	7	9	4	13	17
69	3	2	5	5	5	10	8	7	15
70	2	4	6	1	11	12	3	15	18
71	4	10	14	7	8	15	11	18	29
72	2	6	8	10	7	17	12	13	25
73	1	9	10	11	14	25	12	23	35
74	7	4	11	10	9	19	17	13	30
75	9	7	16	11	19	30	20	26	46
76	6	5	11	12	13	25	18	18	36
77	9	10	19	14	19	33	23	29	52
78	13	19	32	13	11	24	26	30	56
79	10	14	24	12	13	25	22	27	49
80	17	16	33	21	15	36	38	31	69
81	21	10	31	28	17	45	49	27	76
82	14	14	28	26	18	44	40	32	72
83	15	22	37	28	13	41	43	35	78
84	21	13	34	32	23	55	53	36	89
85	19	29	48	31	25	56	50	54	104
86	16	12	28	24	26	50	40	38	78
87	20	15	35	36	29	65	56	44	100
88	10	25	35	28	31	59	38	56	94
89	14	24	38	22	26	48	50	50	86
90	4	25	29	12	27	39	16	52	68
91	6	16	22	11	36	47	17	52	69
92	11	27	38	4	37	41	15	64	79
93	3	27	30	6	44	50	9	71	80
94	2	26	28	3	34	37	5	60	65
95	3	28	31	3	43	46	6	71	77
96	1	19	20	1	33	34	2	52	54
97		35	35		35	35		70	70
98	1	30	31		47	47	1	77	78
99		22	22		31	31		53	53
100		36	36		29	29		65	65

Table 20 (cont'd)

Total length (cm)	Total tagged			Total untagged			Total caught		
	M	F	T	M	F	T	M	F	T
101		28	28		35	35		63	63
102		24	24		45	45		69	69
103		18	18		34	34		52	52
104		28	28		35	35		63	63
105		13	13		31	31		44	44
106		13	13		23	23		36	36
107		16	16		32	32		48	48
108		11	11		17	17		28	28
109		16	16		17	17		33	33
110		14	14		10	10		24	24
111		10	10		10	10		20	20
112		7	7		8	8		15	15
113		8	8		2	2		10	10
114		2	2		2	2		4	4
115		3	3		1	1		4	4
116					3	3		3	3
117					6	6		6	6
118									
119					1	1		1	1
120									
121									
122					1	1		1	1
Unknown			1			1			2
Total	272	791	1,064	444	1,104	1,549	716	1,895	2,613

Table 21. Length frequency of tagged dogfish by area. Queen Charlotte Sound, Hecate Strait, and Dixon Entrance, June-July, 1980.

Total length (cm)	Area								
	Hecate Strait			Dixon Entrance			Queen Charlotte Sound		
	M	F	T	M	F	T	M	F	T
60		1	1						
61								1	1
62		2	2	1		1		1	1
63	1		1						
64									
65	1		1		1	1			
66	1	3	4	1	1	2		1	1
67	1		1					2	2
68	1	4	5	1	1	2		1	1
69	1	2	3				2		2
70	2	2	4		2	2		1	1
71	3	5	8	1	3	4		1	1
72	1	4	5				1	2	3
73	1	6	7					3	3
74	6	3	9		1	1	1		1
75	6	2	8	2	2	4	1	3	4
76	4	3	7		1	1	2	1	3
77	5	7	12	1	3	4	3		3
78	10	12	22	1	2	3	2	5	7
79	9	6	15	1	6	7	1	2	3
80	9	9	18	1	6	7	7	1	8
81	11	7	18	6	2	8	4	1	5
82	6	9	15	1	3	4	7	2	9
83	10	16	26	1	5	6	4	1	5
84	4	11	15	7		7	10	2	12
85	4	23	27	2	5	7	13	1	14
86	4	8	12	3	3	6	9	1	10
87	8	11	19	2	2	4	10	2	12
88	3	23	26		1	1	7	1	8
89	7	16	23	1	6	7	6	2	8
90	3	20	23		5	5	1		1
91	2	14	16		1	1	4	1	5
92	5	16	21	1	6	7	5	5	10
93	1	19	20		7	7	2	1	3
94	1	18	19		4	4	1	4	5
95	1	23	24		3	3	2	2	4
96		15	15	1	1	2		3	3
97		21	21		6	6		8	8
98		23	23		2	2	1	5	6
99		18	18		1	1		3	3
100		24	24		7	7		5	5
101		21	21		2	2		5	5

Table 21 (cont'd)

Total length (cm)	Area								
	Hecate Strait			Dixon Entrance			Queen Charlotte Sound		
	M	F	T	M	F	T	M	F	T
102		18	18		3	3		3	3
103		13	13		3	3		2	2
104		21	21		5	5		2	2
105		4	4		3	3		6	6
106		6	6		3	3		4	4
107		12	12		3	3		1	1
108		8	8		1	1		2	2
109		13	13					3	3
110		12	12		1	1		1	1
111		6	6		2	2		2	2
112		4	4		2	2		1	1
113		5	5		2	2		1	1
114		2	2						
115		2	2		1	1			
Unknown									
Total	132	553	685	35	130	165	106	108	214

Table 22. Catch per unit effort of dogfish by areas fished, 1980.

Area	Date	No. of dogfish	CPUE dogfish/1000 hooks	CPUE dogfish >70 cm/ 1000 hooks
Swanson Channel and Prevost Channel	Feb. 14-15	248	77.5	71.9
North and east of Active Pass	Feb. 16-18	985	289.7	283.8
East and west of Porlier Pass	Feb. 13	164	164	163
North of Gabriola Island	Feb. 12	436	290.6	276.6
	Mar. 12-20	∿2,937	309.9	266.7
Northumberland Channel	Mar. 16-18	∿ 690	281.6	223.6
Marina Island	Apr. 22-May 6	1,050	188.1	69.2
South of Cape Mudge	Apr. 22-May 15	1,673	295.8	259.9
Queen Charlotte Sound	June 28-July 2	558	49.8	3.7
Hecate Strait	June 19-27	1,692	130.7	128.6
Dixon Entrance	June 24	363	89.4	86.0

Table 23. Recoveries from Gulf Islands–Central Strait tagging, February 1980.

Tag number	Release 1980			Recovery 1980		Whole fish returned	Location on map	Minimum distance covered (km)	Days at large	Method of recapture
	Date	Length (cm)	Sex	Date	Length (cm)					
DF61696	Feb. 17	87.4	M	Apr. 30	-	no	N. Lummi Is.	45	73	Trawl
DF61786	Feb. 18	85.9	M	May 2	-	no	Trincomali Ch.	27	74	Longline
DF61130	Feb. 16	76.5	M	May 5	-	no	Off Sand Heads	19	79	Salmon gillnet
DF61517	Feb. 17	86.4	M	May 19	-	no	East Pt.	28	92	Sport
DF61434	Feb. 17	87.1	M	May 27	86.0*	yes	Thrasher Rock	32	100	Longline
DF60791	Feb. 14	99.4	F	May 28	-	no	Heriot Bay	204	104	Sport
DF60989	Feb. 15	110.9	F	July 2	112.2*	yes	Nanoose Bay	96	138	Crab trap
DF61799	Feb. 18	68.1	M	July 5	-	no	Discovery Bay	102	138	Sport
DF61407	Feb. 17	84.2	M	July 24	-	no	Freshwater Bay	120	158	Salmon gillnet
DF61013	Feb. 16	87.1	M	July 21–30	85.4	yes	Tumbo Ch.	26	160	Longline
DF61442	Feb. 17	85.1	M	July 28	-	no	Off Jordan R.	126	162	Salmon gillnet
DF61530	Feb. 17	77.5	M	Aug. 7	-	no	Bellingham Bay	63	172	Sport
DF61898	Feb. 18	82.5	M	Sep. 28	80.4	yes	Pt. Roberts	49	223	Salmon gillnet
DF61010	Feb. 16	82.2	M	Nov. 6	-	no	Tumbo Island	26	264	Longline

*Fish measured prior to freezing.

Table 24. Recoveries from Central Strait tagging, March 1980.

Tag number	Release 1980 Date	Release 1980 Length (cm)	Sex	Recovery 1980 Date	Recovery 1980 Length (cm)	Whole fish returned	Location on map	Minimum distance covered (km)	Days at large	Method of recapture
DF62336	Mar. 13	71.2	M	May 5	-	no	Off Sand Heads	31	53	Salmon gillnet
DF64722	Mar. 19	57.2	M	May 7	-	no	Cherry Pt.	81	49	Sunken gillnet
DF63060	Mar. 15	84.9	M	May 9	-	no	Off Blaine	72	55	Trawl
DF63042	Mar. 15	91.2	F	~May 15	-	no	-	-	61	Plant recovery
DF62363	Mar. 13	74.9	M	May 26	-	no	Canoe Pass; Fraser R.	59	74	Salmon gillnet
DF62022	Mar. 12	92.2	M	May 27	92.0*	yes	Active Pass	61	76	Trawl
DF64113	Mar. 17	82.5	M	May 28	-	no	Birch Pt.	84	72	Sunken gillnet
DF63163	Mar. 15	74.3	F	June 4	-	no	Pt. Whitehorn	77	81	Trawl
DF64484	Mar. 18	75.0	M	June 6	-	no	Can-Am Boundary	69	80	Trawl
DF63501	Mar. 16	72.4	M	June 16	-	no	5 mi E. Pt. Roberts	64	92	Trawl
DF64923	Mar. 20	65.7	F	June 16	-	no	5 mi. E. Pt. Roberts	60	88	Trawl
DF62212	Mar. 13	102.1	F	~June 17	-	no	-	-	96	Plant recovery
DF62442	Mar. 13	75.5	M	June 20	-	no	Mouth Fraser R.	30	99	Salmon gillnet
DF62557	Mar. 13	77.5	M	July 5		no	Hoko Bay	194	114	Salmon gillnet
DF63316	Mar. 15	62.9	F	July 17	62.1	yes	Drayton Pass	261	124	Sport
DF65103	Mar. 20	81.0	F	July 21-30	80.7	yes	Tumbo Ch.	61	127	Longline
DF62261	Mar. 13	63.6	F	July 25	-	no	Birch Bay	74	134	Sport
DF61993	Mar. 12	74.1	F	July 28	-	no	Possession Pt.	200	138	-
DF62427	Mar. 13	72.8	M	July 13	-	no	Blaine	72	140	Longline
DF61975	Mar. 12	88.0	M	Aug. 3-4	86.2	yes	SW Vancouver Is	~316	144	Trawl
DF62706	Mar. 14	71.8	M	Aug. 4	-	no	Pt. Grey	35	143	Salmon gillnet
DF64707	Mar. 19	69.5	M	Aug. 12	-	no	Samish Bay	123	146	Salmon gillnet
DF64774	Mar. 19	67.0	M	Aug. 21	-	no	Sangster Is.	41	155	Sport
DF63217	Mar. 17	84.1	M	Sept. 1-7	-	no	Haro Strait	116	~ 168	Salmon gillnet
DF64388	Mar. 18	87.7	M	Sept. 7	87.8	yes	NW of tagging area	19	173	Sport
DF62294	Mar. 13	70.1	M	Sept. 16	-	no	Stimpson Rf.	235	187	Salmon troll

Table 24 (cont'd)

Tag number	Release 1980 Date	Release 1980 Length (cm)	Sex	Recovery 1980 Date	Recovery 1980 Length (cm)	Whole fish returned	Location on map	Minimum distance covered (km)	Days at large	Method of recapture
DF64429	Mar. 18	80.1	M	Sept. 30	-	no	Snake Is.-Kanaka Bay	13	196	Longline
DF62853	Mar. 14	84.2	M	Oct. 15	-	no	Exeter Shoal	89	215	Longline
DF62968	Mar. 14	61.5	M	Oct. 19	-	no	Polnell Pt.	142	219	Salmon gillnet
DF64030	Mar. 17	77.4	M	Oct. 28	-	no	Cherry Pt.	87	225	Sunken gillnet
DF64253	Mar. 18	86.2	M	Nov. 1	-	no	Sucia Is.	79	228	Trawl
DF62911	Mar. 14	76.6	M	Nov. 3	-	no	Cherry Pt.	79	234	Salmon gillnet
DF62101	Mar. 12	83.4	M	Nov. 5	-	no	Cherry Pt.	101	238	Salmon gillnet
DF64088	Mar. 17	74.8	M	Nov. 5	-	no	Cherry Pt.	83	233	Salmon gillnet
DF63338	Mar. 15	105.5	F	Nov. 19	-	no	Pleasant Hbr.	208	249	Sunken gillnet
DF64971	Mar. 20	80.5	M	Nov. 26	-	no	Roberts Creek	26	251	Sport
DF62184	Mar. 13	88.4	F	Dec. 30	-	no	Bellingham Bay	102	292	Longline

*Fish measured prior to freezing.

Table 25. Recoveries from Campbell River tagging, April–May 1980.

Tag number	OTC	Release 1980 Date	Release 1980 Length (cm)	Sex	Recovery 1980 Date	Recovery 1980 Length (cm)	Whole fish returned	Location on map	Minimum distance covered (km)	Days at large	Method of recapture
DF137238	yes	May 6	51.3	F	June 11	-	no	Mitchell Bay	159	36	Salmon gillnet
DF65843	no	May 1	69.9	F	June 30	67.4	yes	Off Cortes Bay	14	60	Sport
DF137360	no	May 7	88.5	M	June 30	-	no	April Pt.	14	54	Jigging for cod
DF138279	no	May 13	70.0	M	July 14	-	no	Cape Mudge	0	62	Salmon troll
DF137894	yes	May 9	76.4	M	Aug. 6	-	no	Homfray Ch.	50	89	Sport
DF137131	no	May 2	63.5	F	Aug. 25	-	no	Sand Heads	160	115	Salmon gillnet
DF65860	no	May 1	97.4	F	Aug. 31	-	no	Toba Inlet	51	122	Sport
DF138171	no	May 12	80.8	M	Sept. 18	-	no	Cape Mudge	0	129	Jigging for cod
DF65913	no	May 1	73.6	F	Sept. 28	71.6	yes	Mouth Bute Inlet	41	150	Blackcod trap
DF137681	yes	May 9	82.6	M	Oct. 13	-	no	Porlier Pass	154	157	Salmon gillnet

Table 26. Recoveries from Queen Charlotte Sound, Hecate Strait, Dixon Entrance tagging, June-July, 1980.

Tag number	Release 1980			Recovery 1980		Whole fish returned	Location on map	Minimum distance covered (km)	Days at large	Method of recapture
	Date	Length (cm)	Sex	Date	Length (cm)					
DF139439	June 30 IPHC 7C	88.2	M	Sept. 18	80.9	yes	SE edge Goose Is. Ground	60	80	Trawl

Table 27. Recoveries from Campbell River tagging, 1979.

Tag number	Release 1979 Date	Release 1979 Length (cm)	Sex	Recovery 1980 Date	Recovery 1980 Length (cm)	Whole fish returned	Location on map	Minimum distance covered (km)	Days at large	Method of recapture
DF43297	Apr. 26	88	M	Jan. 9	86*	yes	Snake Is.	126	258	Longline
DF44793	May 15	87	F	∿Jan. 15	-	no	-	-	245	Plant recovery
DF42987	Apr. 24	94	F	Feb. 6	-	no	Prevost Ch.	204	288	Longline
DF45503	May 16	88	M	Feb. 25	89	yes	Chrome Is.	68	285	Trawl
DF44423	May 11	87	M	Mar. -	-	no	Cortes Is.	∿10	295	Longline
DF44471	May 14	82	M	Mar. -	-	no	Cortes Is.	∿10	292	Longline
DF45451	May 16	104	F	Mar. -	-	no	Cortes Is.	0	290	Longline
DF45460	May 16	89	F	Mar. 22	-	no	N of Lasqueti Is	74	311	Longline
DF43594	Apr. 30	90	M	Mar. 24	88*	yes	Hoskyn Ch.	18	329	Longline
DF43310	Apr. 26	101	F	Mar. 25	101*	yes	Okisollo Ch.	41	334	Longline
DF44646	May 11	107	F	Mar. 28/29	105.2	yes	Rebecca Spit	14	322	Longline
DF44753	May 15	97	F	Mar. 28/29	94.0	yes	Rebecca Spit	14	318	Longline
DF45626	May 16	84	F	Mar. 28/29	82.7	yes	Rebecca Spit	13	317	Longline
DF46246	May 18	78	M	Apr./May	77.7	yes	-	-	∿319	Plant recovery
DF44451	May 11	101	F	Apr. 11	99.4	yes	Cape Mudge	0	336	Longline
DF43462	Apr. 30	80	M	Apr. 16	82.1*	yes	Heriot Bay	14	352	Longline
DF44956	May 15	105	F	∿Apr. 15	102.5*	yes	-	-	∿336	Plant recovery
DF45392	May 16	87	M	∿Apr. 25	-	no	-	-	∿345	Plant recovery
DF44441	May 11	101	F	May -	-	no	-	-	∿355	Plant recovery
DF42918	Apr. 24	92	M	Apr. 27	91.5*	yes	W. Cape Lazo	37	369	Trawl
DF46125	May 18	83	M	Apr. 27	81.6*	yes	W. Cape Lazo	34	345	Trawl
DF42632	Apr. 23	85	F	Apr. 27/28	85.6*	yes	Heriot Bay	14	370	Longline
DF44076	May 2	95	F	May -	92.5*	yes	-	-	∿365	Longline
DF43513	Apr. 30	84	M	May 1-4	83.0*	yes	Cape Lazo	37	367	Trawl
DF44061	May 2	78	F	May 1-4	78.1*	yes	Cape Lazo	37	365	Trawl
DF44653	May 11	86	M	May 15	86.3	yes	Cape Mudge	0	370	Longline (tagging crew)
DF45522	May 16	82	M	June 12	81.2	yes	Area 13	-	393	Longline
DF44595	May 8	103	F	June 12	101.0	yes	Area 13	-	401	Longline

Table 27 (cont'd)

Tag number	Release 1979 Date	Length (cm)	Sex	Recovery 1980 Date	Length (cm)	Whole fish returned	Location on map	Minimum distance covered (km)	Days at large	Method of recapture
DF43369	Apr. 26	85	M	July -	83.6	yes	Discovery Passage	16	~ 432	Jigging for cod
DF43867	May 1	55	F	July 1	-	no	Port Hardy	208	427	Salmon gillnet
DF45778	May 17	68	M	July 16	-	no	Cape Mudge	0	426	Sport
DF43217	Apr. 26	63	F	Aug. 11	59.8	yes	Pendrell Sd.	46	473	Sport
DF46011	May 18	73	M	Aug. 25	70.5	yes	April Pt.	13	465	Sport
DF44063	May 2	59	M	Sept. 3	57.6	yes	Bellingham Bay	240	490	Salmon gillnet
DF45408	May 16	82	M	Sept. 17	-	no	Willow Pt.	6	490	Sport
DF43755	May 1	109	F	Oct. 7	-	no	Raza Is.	32	525	Longline
DF44176	May 8	50	M	Nov. -	-	no	-	-	~ 543	Unknown
DF45717	May 17	84	M	Nov. 2	-	no	Porlier Pass	141	535	Longline
DF44913	May 15	88	F	Nov. 23	89.0*	yes	Race Rks	268	558	Midwater trawl
DF45443	May 16	104	F	Nov. 24	106.0*	yes	Cape Lazo	37	558	Trawl
DF44029	May 2	87	M	Nov. 25	-	no	Discovery Bay	284	573	Sunken gillnet
DF45591	May 16	87	F	Dec. 1	86.3	yes	Area 19	203	565	Longline
DF43756	May 1	82	M	Dec. 8	82.2	yes	Comox	37	587	Trawl
DF44831	May 15	113	F	-	111.9	yes	-	-	-	Plant recovery

*Fish measured prior to freezing.

Table 28. Recoveries from Central Strait-Valdes Island tagging, 1979.

Tag number	Release 1979 Date	Release 1979 Length (cm)	Sex	Recovery 1980 Date	Recovery 1980 Length (cm)	Whole fish returned	Location on map	Minimum distance covered (km)	Days at large	Method of recapture
DF59463	Nov. 28	105	F	Jan. 12	-	no	Port Townsend	204	45	Trawl
DF60338	Nov. 30	81	F	Jan. 16	80.2	yes	Rebecca Rk.	39	47	Longline
DF59529	Nov. 28	107	F	Jan. 18	-	no	Possession Pt.	224	51	Longline
DF59520	Nov. 28	97	F	Jan. 19	95.4	yes	Trial Is.	21	52	Longline
DF59444	Nov. 28	91	F	Jan. 30	-	no	Bjerre Shoal	0	63	Longline
DF59437	Nov. 28	69	F	Feb. 1	66.4	yes	Secret Cove	0	65	Longline
DF59512	Nov. 28	98	F	Feb. 6	98*	yes	Roberts Creek	36	70	Shrimp trawl
DF59494	Nov. 28	93	F	Feb. 20-22	93*	yes	NW Thormanby	0	85	Longline
DF59588	Nov. 28	98	F	Feb. 22	100*	yes	Breakwater Is.	54	86	Longline
DF59214	Nov. 27	110	F	Feb. 24	108*	yes	NW Sinclair Bank	79	89	Longline
DF59704	Nov. 28	107	F	Feb. 24	108*	yes	NW Sinclair Bank	26	88	Longline
DF59672	Nov. 28	84	M	Feb. 23-25	84*	yes	NW Pender Harbour	13	88	Longline
DF60291	Nov. 30	88	M	Feb. 27	89*	yes	Chrome Is. to Nile Cr.	22	89	Trawl
DF59255	Nov. 27	109	F	~Apr.	108.1	yes	-	-	~126	Plant recovery
DF59594	Nov. 28	101	F	Apr. 12-13	-	no	Halibut Bank	33	136	Longline
DF60102	Nov. 29	103	F	Apr. 18-20	101.0*	yes	-	-	141	Plant recovery
DF59094	Nov. 27	104	F	Apr. 25	-	no	-	-	150	Plant recovery
DF59366	Nov. 27	106	F	Apr. 30	-	no	N. Lummi Is.	77	155	Trawl
DF59939	Nov. 29	99	F	May 19	98*	yes	Off French Creek	18	172	Longline
DF59241	Nov. 27	106	F	May 20	-	no	Orcas Is-Sucia Is.	74	175	Sunken gillnet
DF59478	Nov. 28	62	F	June -	-	no	-	-	186	Plant recovery
DF59872	Nov. 29	73	M	July 17	-	no	S. side Fraser R.	97	231	Trawl
DF59818	Nov. 29	84	M	Sept. 18	80.9	yes	Swiftsure Bank	297	294	Trawl
DF59631	Nov. 28	105	F	Nov. 15	104*	yes	S. of Thrasher Rk	57	353	Longline
DF59099	Nov. 27	98	F	Nov. 16	97	yes	Swanson Ch.	57	355	Trawl
DF59265	Nov. 27	98	F	Dec. 8	97.0	yes	Comox-Cape Lazo	108	377	Trawl

*Fish measured prior to freezing.

Table 29. Recoveries from Campbell River tagging, 1978.

Tag number		Release 1978			Recovery 1980								
						Tag present					Minimum		
Petersen disc	Anchor	Date	Length (cm)	Sex	Date	Discs	Anchor	Length (cm)	Whole fish returned	Location on map	distance covered (km)	Days at large	Method of recapture
DF41620	X02428	May 28	55	M	Feb. 20	yes	no	57.0*	yes	Okisollo Ch.	43	632	Trawl
DF42893	X03380	June 1	64	M	Feb. 21	yes	no	65*	yes	Deepwater Bay	39	630	Trawl
DF42518	X03417	June 3	102	F	Mar. 9	yes	unknown	-	no	Atrevida Reef	34	644	Seine
DF41172	X02072	May 17	78	F	Mar. 20	unknown	yes	-	no	Pt Roberts Reef	196	673	-
DF42112	X03399	June 2	97	F	Mar. 21	yes	unknown	-	no	Off Lund	21	657	Longline
DF42511	X03965	June 3	85	M	Apr. 1	yes	unknown	-	no	Blaine	202	667	Longline
DF42398	X03193	June 1	77	M	Apr. 8	yes	unknown	-	no	-	-	672	Plant recovery
DF41174	X2074	May 17	97	F	May 30	yes	unknown	-	yes	Lewis Ch.	28	731	Jigging for cod
DF42451	X03242	June 1	101	F	Aug. 5	yes	unknown	-	no	Grants Reef	28	∿796	Sport

*Fish measured prior to freezing.

Table 30. Average growth of recovered dogfish, 1978-1980.

Years after tagging	Males			Females		
	n	x growth (cm)	s	n	x growth (cm)	s
0.5	7	-0.71	±1.11	12	-0.17	±1.27
1.0	12	-0.74	±1.40	13	-1.55	±1.11
1.5	6	+0.48	±1.17	6	+0.18	±1.83

Table 31. Remeasurement of tagged dogfish Central Strait, March 1980.

Tag no.	1st measurement Length (cm)	Sex	Hook wound condition	2nd measurement Length (cm)	Sex	Hook wound condition
Set 16						
DF63289	86.7	1	M	76.9	1	S
DF63292	78.9	1	S	78.9	1	S
DF63293	81.4	1	E	81.4	1	E
DF63294	88.1	1	S	88.4	1	S
DF64204	86.6	1	M	86.8	1	M
DF64209	82.1	1	S	81.8	1	M
DF64217	81.5	2	M	81.5	2	M
DF64220	85.8	1	M	85.8	1	E
DF64227	69.7	1	S	69.7	1	M
DF64231	77.5	1	M	77.3	1	M
DF64236	80.8	1	E	81.5	1	E
DF64240	98.2	2	E	98.1	2	E
DF64246	80.0	1	E	80.1	1	E
DF64249	72.4	2	M	72.3	2	M
DF64250	90.1	1	S	90.1	1	M
DF64253	86.2	1	S	86.3	1	S
DF64267	94.9	2	S	94.6	2	M
Set 17						
DF64286	77.9	2	M	77.9	2	M
DF64322	87.2	1	M	87.2	1	E
DF64334	92.8	1	M	92.7	1	M
DF64336	93.3	1	S	93.3	1	S
DF64351	93.4	1	E	93.3	1	E
DF64379	71.0	1	S	70.9	1	S
DF64387	88.6	1	M	88.6	1	E
DF64390	104.1	2	E	104.0	2	E
DF64395	58.7	1	M	58.7	1	M
Set 18						
DF64432	84.4	1	S	84.4	1	S
DF64463	85.2	2	S	94.4(84.3)	1	M
DF64520	108.3	2	E	108.4	2	E
DF64541	79.7	2	S	79.7	2	M
DF64556	84.0	1	E	84.3	1	E
DF64567	85.1	1	E	85.0	1	E
DF64582	75.4	2	E	75.5	2	M
DF64586	96.9	2	M	96.9	2	E
DF64592	88.9	2	M	88.7	2	E
DF64597	94.1	2	E	94.5	2	E
Set 20						
DF64625	75.1	1	M	75.3	1	S
DF64642	57.9	1	S	57.8	2	S
DF64663	82.3	1	S	82.0	1	M

Table 31 (cont'd)

Tag no.	1st measurement Length (cm)	Sex	Hook wound condition	2nd measurement Length (cm)	Sex	Hook wound condition
Set 20 (cont'd)						
DF64673	81.7	1	M	81.5	1	M
DF64687	88.0	1	M	87.9	1	M
Set 21						
DF64731	80.8	1	S	80.5	1	M
DF64819	92.4	1	E	92.4	1	M
DF64841	80.5	1	S	80.7	1	S
DF64847	70.4	1	M	70.4	1	E
DF64859	71.0	2	E	71.0	2	E
DF64872	75.0	1	S	75.0	1	S
DF64882	68.4	2	E	68.3	2	E
DF64884	83.0	2	S	83.2	2	M
DF64885	73.5	1	M	73.5	1	M
DF64886	66.9	1	M	66.7	1	M
DF64887	77.3	1	S	77.3	1	S
DF64888	81.6	2	S	81.5	2	S
DF64890	66.5	2	E	89.3	1	M
DF64950	78.5	1	S	78.5	1	S
DF64959	82.0	2	M	82.0	2	S
DF64983	74.9	1	S	74.6	1	S
DF64990	94.6	2	S	94.5	2	S
DF64991	81.8	1	M	81.9	1	E
Set 23						
DF65145	68.5	2	S	68.3	2	S
DF65154	81.8	1	S	Dead--not released		
DF65155	68.9	1	S	68.1	1	S
DF65156	73.2	1	S	73.1	1	S

Table 32. Summary of mean growth of two groups of dogfish held in captivity.

	Actual measurements											
	May 9, 1979 (date in tank)			December 13, 1979			July 16, 1980			January 13, 1981		
Sex	n	$\bar{x}$L (cm)	$\bar{x}$W (g)	n	$\bar{x}$L (cm)	$\bar{x}$W (g)	n	$\bar{x}$L (cm)	$\bar{x}$W (g)	n	$\bar{x}$L (cm)	$\bar{x}$W (g)
M	7	77.1	-	4	73.2	1573.3	4	74.7	1830.0	4	76.4	1963.3
F	7	93.4	-	4	97.9	4734.5	3	96.6	4719.3	3	96.8	4895.3

	Growth increments								
	0.5 yr			1.0 yr			1.5 yr		
Sex	n	$\bar{x}$ growth in L (cm)	$\bar{x}$ growth in W (g)	n	$\bar{x}$ growth in L (cm)	$\bar{x}$ growth in W (g)	n	$\bar{x}$ growth in L (cm)	$\bar{x}$ growth in W (g)
M	4	+0.93	-	4	+2.45	+568.25	4	+4.15	+390.00
F	4	+1.68	-	3	+2.27	+259.00	3	+2.50	+435.00

	Actual measurements											
	May 16, 1979 (date in tank)			December 13, 1979			July 16, 1980			January 13, 1981		
Sex	n	$\bar{x}$L (cm)	$\bar{x}$W (g)	n	$\bar{x}$L (cm)	$\bar{x}$W (g)	n	$\bar{x}$L (cm)	$\bar{x}$W (g)	n	$\bar{x}$L (cm)	$\bar{x}$W (g)
M	6	79.3	-	4	76.6	1807.3	3	76.6	1806.0	1	87.1	2041.0
F	18	80.2	-	15	81.5	2502.3	10	82.1	2598.9	7	84.9	2814.9

	Growth increments								
	0.5			1.0 yr			1.5 yr		
Sex	n	$\bar{x}$ growth in L (cm)	$\bar{x}$ growth in W (g)	n	$\bar{x}$ growth in L (cm)	$\bar{x}$ growth in W (g)	n	$\bar{x}$ growth in L (cm)	$\bar{x}$ growth in W (g)
M	4	+1.05	-	3	+1.27	+ 76.67	1	-0.90	-284.00
F	15	+1.33	-	10	+2.41	+271.30	7	+3.63	+ 97.43